Coal Energy Group 3
CEG
Kinney Mine

Coal Energy Group 3
6602 Ilex Circle
Naples, Florida 34109

November 20, 2018

Daron R. Haddock
Coal Program Manager
Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

Re: **Kinney Mine Permit Application, Coal Energy Group 3, LLC, Kinney Mine, Carbon County, Utah,**

Dear Mr. Haddock:

Coal Energy Group 3, LLC (CEG3) is submitting a permit application for the Kinney Mine in Carbon County. The entire MRP application has been uploaded to the DOGM's server for review for admirative completeness.

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

Very truly yours,

Larry W. Johnson
Manager

APPLICATION FOR COAL PERMIT PROCESSING

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

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

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

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

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

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

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

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

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

Notary Public: _____, state of Utah.

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

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

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

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

Permittee: Coal Energy Group 3, LLC
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Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.	**Received by Oil, Gas & Mining**

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Chapter 1

R645-301-100 General Contents

Kinney No 2 Mine

Table of Contents

R645-301-100 General Contents 1
Disturbance of Existing Soils, Vegetation, and Wildlife 4
Impacts on Existing Land Uses 5
Air Quality Impacts 6
Surface and Ground Water Impacts 7
Subsidence Effects 8
Socio-Economic and Transportation Impacts 8
R645-301-112 Identification of Interests 9
112.100 Statement of Corporation 9
112.200 Name and Address of Operator ..... 10~~9~~
112.320 Name of Operated Coal Mines ..... 11~~10~~
112.330 Title of Officers ..... 11~~10~~
112.340 Company Name ..... 12~~11~~
112.350 Other Coal Mines ..... 12~~1~~1
112.400 Operating Permit ..... 13~~12~~
Federal Permits and Approvals 12
State Permits and Approvals 12
County and Local Permits and Approvals 13
Utah Department of Transportation (UDOT) Highway Access 13
112.410 Federal and State Permits ..... 14~~1~~3
112.420 Control Relationship to Applicant ..... 15~~1~~3
112.500 – 600 Owners of Surface and minerals ..... 15~~13~~
112.700 MSHA Numbers ..... 16~~15~~
112.800 Interest in Land ..... 17~~15~~
R645-301-113 Violation Information ..... 17~~16~~
113.110 Revocation of Federal or State Permits ..... 18~~16~~
113.120 Forfeiture of Bond ..... 18~~16~~
113.300 List of Violation Notices for Past 3 Years ..... 18~~16~~
R645-301-114 Right of Entry Information ..... 18~~16~~
114.100 Documentation of Ownership ..... 18~~16~~
Fee Surface 17
Leased Surface 17
Leased Coal 18
Permit Boundary Description 18
R645-301-115 Status of Unsuitability Claims ..... 21~~19~~
115.100 Information of Unsuitable Areas ..... 21~~19~~
115.300 Owners of Nearby Buildings and Operating Within 100 Feet of a Public Road ..... 21~~19~~
R645-301-116 Permit Term Information ..... 21~~20~~
116.100 Starting and Termination Dates for Mining Operations ..... 21~~20~~
116.200 Request for Permit Term in Excess of Five Years ..... 22~~20~~
R645-301-117 Insurance and Proof of Publication ..... 22~~20~~
117.100 Proof of Liability Insurance ..... 22~~20~~
117.200 Proof of Publication ..... 22~~20~~
117.300 Facilities Shared With Other Operations ..... 22~~20~~
R645-301-120 Permit Application Format and Content ..... 22~~21~~
R645-301-130 Reporting of Technical Data ..... 23~~21~~
R645-301-140 Maps and Plans ..... 25~~23~~
R645-301-150 Completeness ..... 25~~23~~

R645-301-100 General Contents

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

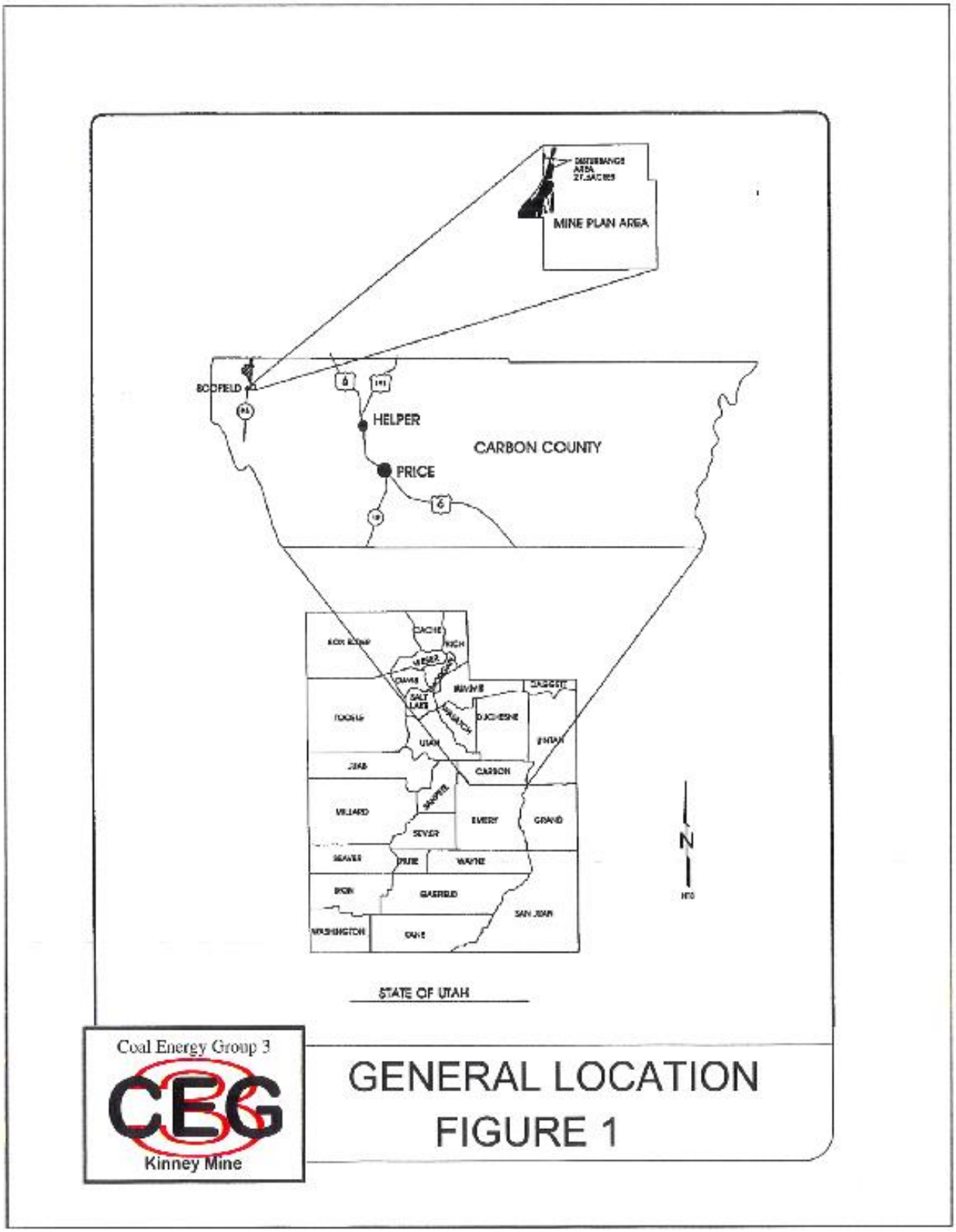
The proposed Kinney No. 2 Mine is located one half mile north of Scofield, Utah and east of Utah State Highway 96. Surface facilities will be located at the coal outcrop, and adjacent to the highway. The Kinney Mine permit area covers an area of approximately 452 acres as shown on Figure 1, General Location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

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

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

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

The underground mining operations are planned to recover coal reserves contained in the Hiawatha Coal Seam. Mining methods will include room development using continuous mining techniques, with no pillar recovery planed at this time. Mining will be restricted to blocks of coal lying between faults. Numerous faults will need to be crossed during development of the mine and recovery of the reserves. The mine is being designed for a nominal annual production rate


MINE PLAN AREA
BOOKFIELD
HELPER
CARBON COUNTY
PRICE
STATE OF UTAH
Coal Energy Group 3
CEG
Kinney Mine
GENERAL LOCATION
FIGURE 1

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

~~hour shifts, with a base production of 500 tons per hour. The projected life of the Kinney No. 2 Mine within the Portal Block Permit Boundary is approximately three years, with the potential to extend the mine life significantly with a combination of permitting other coal controlled by CR and acquisition of additional coal reserves which exist to the south and east of the currently planned operation.~~

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

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

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

Facility construction will generally proceed in parallel with site development activities. The proposed facilities will include the following:

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

- Transfer Tower 1 (at mine portal area)
- Non-Spec Coal pile stacking tube
- Spec-Coal pile stacking tube
- Coal piles reclaim tunnel
- Screening and Crushing Building

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

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

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

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

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

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

The following sections briefly describe potential impacts for each of the general impact categories. More detailed information on existing environmental resources, proposed mining and

reclamation plans, potential mining related impacts, and planned control and mitigation measures is presented in the various sections of the permit application.

Disturbance of Existing Soils, Vegetation, and Wildlife

The only direct surface disturbance which will result from the Kinney No. 2 Mine will be that associated with development and construction of the required mine surface facilities. As a result of previous historic mining, reclamation, and other development activities, approximately 73% of the mine surface facilities disturbance area has already been extensively disturbed. Existing site soils, vegetation, and wildlife resource values reflect and are limited by the previous disturbance. Due to the relatively small affected area and the limitations resulting from the previous disturbance, re-disturbance of the mine facilities area will not result in significant adverse impacts on soils, vegetation, or wildlife resources.

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

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

Impacts on Existing Land Uses

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

Lands within the mine facilities surface disturbance area are currently lands used for grazing,

wildlife habitat, and for water shed. With construction of the surface facilities the new land use will be surface support for the Kinney No. 2 Mine with construction of the facilites listed in other sections.

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

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

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

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

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

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

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

Air Quality Impacts

Development of the Kinney No. 2 Mine will result in a minimal localized increase in air emissions, however BACT controls will help mitigate those impacts, and emissions will be held within Utah Division of Air Quality limits. The mine area is currently designated by the Utah Division of Air Quality (UDAQ) as an "attainment" area indicating no significant existing pollution problems. In

cooperation with the UDAQ and in order to comply with all applicable regulatory requirements, ~~CR~~CEG3 has incorporated air emission control considerations in the mine design and planning phases and will implement specific operational control measures under a Notice of Intent with UDAQ. Given existing air quality conditions, consideration of natural air movements in the area, and CEG3~~CR~~'s planned control measures under the provisions of the required UDAQ permit, no significant adverse mine related air quality impacts are anticipated. Due to the nature of the proposed operations, vehicular emissions will be negligible. During site development, active operations, and site reclamation ~~CR~~CEG3 will control fugitive dust emissions by implementing the following control measures:

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

Surface and Ground Water Impacts

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

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

activities.

Mine water supply requirements for sanitary use will be provided by Scofield Town through a long term agreement with ~~CR~~CEG3. Scofield Town has excess capacity in their culinary water system, having a 160 thousand gallon water tank perched on the mountain side west of town. The water tank elevation is sufficient to provide at least 40 psi to the bath-house and warehouse. Mine water supply for surface dust control, fire fighting reserve, and operational mine water will also be provided by Scofield Town through a long term agreement with ~~CR~~CEG3. Scofield Town has significant water rights on Mud Creek with a point of diversion suitable for pumping non-potable water to ~~CR~~CEG3.

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

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

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

Subsidence Effects

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

Socio-Economic and Transportation Impacts

Construction and operation of the proposed Kinney No. 2 Mine may result in various potential direct and indirect socio-economic and transportation impacts to the general Carbon County area, and especially to the Town of Scofield including:

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

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

R645-301-112 Identification of Interests

112.100 Statement of Corporation

~~Western Reserve Coal Company, Incorporated is the managing member of WRCCLLC which is the managing member of Carbon Resources LLC~~. ~~Carbon Resources LLC~~Coal Energy Group 3, LLC prepared this Mining and Reclamation Permit application for the Kinney No. 2 Mine, a proposed new underground mine complex. This permit application has been developed to effect full compliance with applicable permitting requirements under the State of Utah Coal Mining Rules and is being submitted for review and approval of the mining and reclamation plans contained herein by the Utah Division of Oil, Gas and Mining (UDOGM), and other jurisdictional agencies. ~~CR~~CEG3 operates under corporate registration with the Utah Division of Commerce. That information is enclosed in the confidential Binder. ~~Entity Number 7201220-0161, active as of 12/01/2008, renewed on 01/24/2011. A copy of the Utah Department of Commerce, Business Search results is included in Exhibit 4, Other Permits verifying that CR is currently registered.~~

112.200 Name and Address of Operator

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

~~Carbon Resources, LLC~~Coal Energy Group 3, LLC
~~P.O. Box 954~~6602 Ilex Circle
~~Sandia Park, New Mexico 87047~~Naples, Florida 34109
Phone: ~~(505) 980-1841~~(239) 825-2332
~~Tax ID No. 20-3819816~~EIN: Found in the Confidential Binder

Resident Agent for Applicant:

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

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

~~Carbon Resources, LLC~~Coal Energy Group 3, LLC
~~P.O. Box 954~~6602 Ilex Circle
~~Sandia Park, New Mexico 87047~~Naples, Florida 34109

Attention: ~~Clay Wisdom~~Robert Nead

~~CR, as the mine operator, will be responsible for payment of the Abandoned Mine Land Reclamation Fee. CR's Resident Agent is:~~

~~Ronald C. Barker~~
~~2870 S. State Street~~
~~Salt Lake City, UT 84225-3624~~
~~(801) 486-9636~~

112.310 Applicant

Members holding 10% or more of ownership of applicant

James Wayland
2841 Capistrano Way
Naples, Florida 34105

Robert Nead
6603 Ilex Circle
Naples, Florida 34109

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

112.320 ~~Name of Operated Coal Mines~~Relationship to the Applicant

Ownership:

James Wayland: 50%
Robert Nead: 50%

Control:

James Wayland: Member
Robert Nead: Member~~The proposed **Kinney No. 2 Mine** will be operated by Carbon Resources, LLC (CR). CR's offices are currently located at P.O. Box 954, Sandia Park, New Mexico 87047. Upon start of operations, temporary office space will be located in Scofield, with permanent offices to be located at the mine site.~~

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

~~The area of surface disturbance is confined within the 38.13 acres (combined Fee and Leased) owned or controlled by Carbon Resources. Only 27.6 acres of the 38.13 acres will be disturbed for surface facilities. The coal to be mined lies beneath the George Telonis, ETAL. fee surface land and is owned by Carbon County which in turn has leased it to Western Reserve Coal Company Inc, Managing Member of Carbon Resources.~~

112.330 Title and Date of Position. ~~Officers~~

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

Member
James Wayland
October 18, 2018

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

~~Chief Executive Officer~~
~~William J.H.W. Reeves~~Robert Nead
~~Box 954 Sandia Park~~6602 Ilex Circle
~~New Mexico 87047~~Naples, Florida 34109
~~Social Security Number 539-28-9322~~(239) 825-2332
~~(505) 980-1841~~50% ownership
~~Assumed position October 28, 2005~~

~~Chief Financial Officer~~
~~Clay Wisdom~~Jim Wayland
~~P.O. Box 950 Sandia Park~~2841 Capistrano Way

~~New Mexico 87047~~Naples, Florida 34105
~~Social Security Number 450-70-5671~~50% ownership
~~(505) 980-1842~~
~~Assumed position October 28, 2005~~

~~Resident Agent~~
~~Ronald C. Barker2870 S. State StreetSalt Lake City, UT 84115(801) 486-9636Social Security Number 528-28-9932~~
~~Assumed position October 28, 2005~~
~~Mr. William J.H.W. Reeves controls 85% of the Corporation, with three other individuals owning less than 10% each.~~

~~An organization Chart can be seen in Figure 38.~~Organization of CEG 3 is reflected below.

~~Western Reserve Coal Company, Inc.~~Coal Energy Group 3, LLC
Managing Members

~~President - William J.H.W. Reeves~~Robert Nead
Member: 50%
6602 Ilex Circle
Naples, Florida 34109
239-825-2332

Jim Wayland
Member: 50%
2841 Capistrano Way
Naples, Florida 34105

112.340 ~~Company Name~~Ownership and Control of other Coal mining and reclamation operations.

Both James Wayland and Robert Nead hold interests in Alton Coal Development, LLC, Coal Hollow Coal Mine, Permit No. C/025/0005, a surface coal mine located just south of Alton Town. The mine location is in Kane County in south west Utah.

Both James Wayland and Robert Nead hold interests in the Wildcat Coal Loadout, Permit No. C 0070033, a coal loadout facility located west of Spring Glen, Utah, Carbon County, Utah

Information regarding these operations are within the Confidential Binder.,

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

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

NA

~~***The individuals and entities listed in R645-301-112 - 230, Applicant Information have no current or past ownership or control of any coal mining and reclamation operations in the United States.***~~

~~There are no coal mining operations associated with either of these individuals or entities that are included in the Applicant Violator System.~~

112.400 Operating Permit

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

Federal Permits and Approvals

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

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

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

State Permits and Approvals

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

Utah Division of Water Quality (UDWQ) – Approval of Surface Water Discharge Permits and enforcement of applicable provisions under the Utah Pollution discharge Elimination Program (UPDES) in compliance with the Federal Water Pollution Control Act of 1977. CEG 3 will obtain the permit prior to the start of any mining and in conjunction with approval of the mine and reclamation permit.~~UPDES General Permit Coverage No. UTG040028 was approved on June 15, 2010, with an effective date of July 1, 2010, and with an expiration date of April 30, 2013. A copy of the permit it included in Exhibit 4, Other Permits.~~

Utah Division of Air Quality (UDAQ) – Approval of Air Emission Permits and enforcement of applicable provisions under the Utah Air Pollution Control Program in compliance with the Federal Clean Air Act of 1970. CEG 3 will obtain the permit prior to the start of any mining and in conjunction with approval of the mine and reclamation permit.~~Approval Order Number DAQE-AN0141180001-08 was issued December 11, 2008 for the Kinney No. 2 Mine. A copy of the permit approval can be found in Exhibit 4, Other Permits.~~

Utah State Engineer – Approval of Pond Construction and Water Well Construction Permits and surface and ground water appropriations. An application for a pond permit was submitted to the Utah State Department of Natural Resources, Division of Water Rights, State Engineers Office. ~~A letter dated August 31, 2010 was received including the following statement, "According to the~~

~~application and attached drawings, the reservoir will be dug into the natural ground with no water storage above the natural grade. As such, the facility will not be considered to be a dam and Dam Safety approval is not necessary." A copy of this letter is included in Exhibit 4, Other Permits. Water well permit approvals are also included in Exhibit 4, Other Permits.~~

Water Rights – ~~CR~~CEG3, under the operating rights of Carbon Resources, holds water rights Number 91-5152 for 2 a~~cr~~CEG3e-feet of water that will be applied to the sediment pond storage if necessary. ~~CR~~CEG3 has obtained an agreement from Scofield Town to supply culinary, fire suppression, and dust control water, and thus Scofield Town's water rights will cover the mines water needs.

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

County and Local Permits and Approvals

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

~~CR~~CEG3 has applied for a Conditional Use Permit from Carbon County.~~; a copy of the approved permit is included in Exhibit 4, Other Permits.~~

The Mine will operate under the name "~~Carbon Resources LLC~~Coal Energy Group 3, LLC - Kinney No. 2 Mine". The MSHA identification number for the mine will be obtained prior to commencement of mining operations. ~~A copy of the approved MSHA permit will be submitted to UDOGM, and included in Exhibit 4, Other Permits.~~

~~CR~~CEG3 will obtain building permits from both Carbon County and Scofield Town prior to starting construction o~~f~~n any facilities.

Utah Department of Transportation (UDOT) Highway Access

Application for a highway access permit has been submitted to UDOT~~. Preliminary approval of access was received from UDOT in 2007. A detailed design has been submitted to UDOT. Upon approval, a copy of the permit will be provided to UDOGM, and included in Exhibit 4, Other Permits.~~

112.410 Federal and State Permits

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

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

- Carbon County Conditional Use Permit
- Building Permit (Scofield Town)

112.420 Control Relationship to Applicant

The Kinney No. 2 Mine permit surface area encompasses a block of approximately 448.14 acres. Of this surface acreage, 15.33 acres are owned in fee by Carbon Resources, the remaining 432.84 acres are owned by Evangelos George Telonis, ETAL., of this, 22.8 acres are held by Carbon Resources as a Lease from George Telonis, ETAL and is subleased to CEG3.

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

112.500 – 600 Owners of Surface and Minerals

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

Carbon Resources, LLC
P.O. Box 954
Sandia Park, New Mexico 87047

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

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

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

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

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

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

Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84114-1200
The legal and equitable owners of record of the coal to be mined within the permit area are shown on the Regional Coal Ownership Map, Map 12, and are listed below:

Carbon County
120 East Main Street
Price, Utah 84501

(Lease from Carbon County dated March 7, 1997, as amended December 31, 2002)
Carbon Resources, LLC
P.O. Box 11789
Albuquerque, New Mexico 87192

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

Peabody Natural Resources
701 Market Street
St. Louis MO 63101

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

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

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

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

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

112.700 MSHA Numbers

The Mine will operate under the name "~~Carbon Resources LLC~~Coal Energy Group 3, LLC - Kinney No. 2 Mine". ~~Carbon Resources~~CEG3 will obtain from MSHA and provide to UDOGM a MSHA MINE ID number for mining operations. ~~Carbon Resources~~ CEG3 plans to time the issuance of the MSHA mine number with UDOGM's schedule to issue the mine permit conditional on bond posting. Coal Energy Group 3, LLC ~~Carbon Resources~~ does not anticipate the need for more than one MSHA Mine ID number at this time, and will obtain additional MSHA numbers for structures etc. as MSHA deems necessary. No coal processing waste pile is planned so no MSHA number is needed.

112.800 Interest in Land

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

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

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

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

Table 24 Pertinent Acreages, Land Ownership & Control

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

R645-301-113 Violation Information

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

113.110 Revocation of Federal or State Permits

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

113.120 Forfeiture of Bond

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

113.300 List of Violation Notices for Past 3 Years

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

Other operations connected with the applicant are:

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

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

R645-301-114 Right of Entry Information

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

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

114.100 Documentation of Ownership

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

Fee Surface

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

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

Beginning at a point which lies North, a distance of 1320.00 feet from the southeast corner of Section 32, Township 12 South, Range 7 East, Salt Lake Base & Meridian, thence S 89°59'00" W a distance of 920.00 feet, more or less to the intersection of the East right-of-way line of the State Road 96; thence in a Northerly direction along said east right-of-way line a distance of 270.00 feet; thence in a Northeasterly direction along said highway line a distance of 317.10 feet; thence N 45°32' E along said highway line a distance of 465.40 feet; thence in a Northeasterly direction along said highway line a distance of 733.00 feet, more or less to the intersection of said highway right-of-way line, and the East boundary of Section 32; thence South a distance of 1475.00 feet, more or less to the point of beginning. Containing 16.33 acres, more or less.

Excepting a parcel more particularly described as follows:

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

Total acreage of the fee surface parcel is 15.33 acres.

Leased Surface

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

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

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

Leased Coal

Coal ownership for the permit area is held by Carbon County and is leased to Carbon Resource, LLC ~~Western Reserve Coal, Inc. effective March 6, 1997, (lease document recorded in the Carbon County Recorder's Office in Book 385, Page 396), as amended December 31, 2002, (recorded in the Carbon County Recorder's Office in Book 523, Page 522).~~ The coal is subleased from Carbon Resources, LLC ~~Western Reserve Coal~~ to Coal Energy Group 3, LLC ~~WRCC, LLC, (which sublease is recorded in the Carbon County Recorder's Office in Book 607, Page 768) the owner of Carbon Resources, LLC, and subleased from WRCC, LLC to Carbon Resources, LLC (which sublease is recorded in the Carbon County Recorder's Office in Book 607, Page 771).~~ The lands listed below include all of the Carbon County Coal Lease to be included in this permit application as can be seen on Map 12, Regional Coal Ownership Map within the permit boundary. ~~CR~~CEG3 holds additional coal in the Carbon County Coal Lease adjacent to the permit boundary to the south and east, which is excluded from this permit application, although it is shown on the referenced map for informational purposes only.

Township 12 South, Range 7 East, SLB&M

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

Section 35: All
Section 36: All

Township 13 South, Range 7 East, SLB&M

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

Permit Boundary Description

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

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

Excepting a parcel more particularly described as follows:

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

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

Total acreage of the parcel is 448.14 acres.

R645-301-115 Status of Unsuitability Claims

115.100 Information of Unsuitable Areas

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

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

Mining operations will be conducted within 100 feet of Utah State Highway 96, which is a public road. In compliance with the applicable regulatory provisions of Rules R645-103-234.100 through 400, ~~CR~~CEG3 has contacted and obtained approval from the Utah Department of Transportation (UDOT) for access to Highway 96. The final design of the mine entrance from Highway 96 will be approved by UDOT. ~~and a copy of the approval will be inserted in Exhibit 4, Other Permits.~~ In compliance with R645-103-234.200 opportunity for a public hearing ~~was~~will be provided in two public notices for the Kinney No. 2 Mine operation within 100 feet of a public road. The notices ~~were~~ will be published for two weeks in the local news paper of general circulation and opportunity will be~~was~~ provided for the public to request a hearing and any affected owners to present information relating to protection of their interests. ~~No requests for hearing were sent to the UDOGM. Copies of the public notices can be found in Exhibit 5, Public Notice and Proof of Publication, Hearing Notices and Documentation.~~

One occupied structure exists within 300 feet horizontally of the mine permit area; this structure is a convenience store operated by L2H Enterprises, Carbon County Parcel No. 1B-433-2. Mr. Jim Levanger, VP of L2H by letter dated Feburary 9, 2009 has waived any and all objections to ~~Carbon Resources~~ conducting coal mining operations with 300 feet of his property. A copy of Mr. Levanger's letter can be found in Exhibit 4, Other Permits.

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

R645-301-116 Permit Term Information

116.100 Starting and Termination Dates for Mining Operations

The permit term requested for the Kinney No. 2 Mine is 5 years. This permit application provides general information relative to the location, sequence, timing, and affected areas for all

anticipated mining and reclamation operations over the life of the mine. The proposed timetable for each phase of mining and reclamation is discussed in R645-301-500, Engineering Design and Operation and Reclamation Plans.

116.200 Request for Permit Term in Excess of Five Years

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

R645-301-117 Insurance and Proof of Publication

117.100 Proof of Liability Insurance

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

117.200 Proof of Publication

Upon receipt of notification that UDOGM determined the permit application to be administratively complete, ~~CR~~CEG3 will place~~d~~ the public notice advertisement in a newspaper of local circulation~~the Sun Advocate~~ for publication once per week for a period of four weeks. ~~on June 24, July 1, 8 and 15, 2008. A second public notice was placed in the same newspaper as per UDOGM direction on June 10, 17, 24 and July 1, 2010.~~ Copies of the proofs of publication for the public notices ~~can be~~will be ~~-~~found in Exhibit 5, Public Notice and Proof of Publication, Hearing Notices and Documentation. Any public notices and proof of publication documentation for future permit revisions will also be inserted in Exhibit 5.

117.300 Facilities Shared With Other Operations

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

R645-301-120 Permit Application Format and Content

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

Permit information has been formatted to address applicable regulatory information requirement

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

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

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

R645-301-130 Reporting of Technical Data

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

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

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

~~Carbon Resources LLC~~Coal Energy Group 3, LLC

James Wayland
Robert Nead
~~J.H.W. Reeves CEO~~
~~M. Clay Wisdom CFO~~

Geo-Hunt Consulting LLC

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

Rock Logic LLC

Brad Lindsey, B.S.	Geologist

Hansen, Allen & Luce, Inc, Engineers

David Hansen, PhD, P.E.	Hydrology, Engineering
Tyler Shelley, P.E.	Hydrology
David Bruse	Land Technologist
Ben Grimes, P.L.S.	Surveying, Permitting Specialist

Mt Nebo Scientific

Patrick D. Collins, PhD	Botanist

Bruce Chesler BA Soil Science	Soils Scientist

Rollins, Brown & Gunnell Engineers

Brad Price, P.E.	Geotechnical Engineering

Randall Peterson, P.E.	Mining Engineering

Risun Technologies

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

Gault Group, Inc.

Major N. Kindsfater, B.S.	Environmental Engineer, Air Quality

Ben Grimes, B.S., P.L.S.	Permitting Specialist, Professional Land Surveyor

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

R645-301-140 Maps and Plans

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

R645-301-150 Completeness

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

Chapter 2

R645-301-200 Soils

Kinney No 2 Mine

Table of Contents

R645-301-200 Soils 1
R645-301-221 Prime Farmland Investigation 1
R645-301-222 Soil Survey 1
222.100 Soil Maps 2
222.200 Soil Identification 2
222.300 Soil Description 2
222.400 Soil Productivity 2
Annual Biomass Production of the Plant Communities 2
R645-301-223 Soil Characterization 2
R645-301-224 Substitute Topsoil 2
R645-301-230 Operation Plan 2
R645-301-231 General Requirements 2
231.100 Topsoil Removing and Storage 3
231.200 Suitability of Topsoil Substitute 4
231.300 Soil Testing Plan ..... 4~~5~~
231.400 Construction, Modification and Maintenance 5
R645-301-232 Topsoil and Subsoil Removal 6
232.100 Topsoil Removal Prior to Disturbance 6
TABLE 23 8
232.200 Insufficient Topsoil 10
232.300 Topsoil Material Less Than 6" Thick 11
232.400 Area Where Topsoil Will Not Be Recovered 11
232.500 Subsoil Segregation 11
232.600 Timing 12
R645-301-233 Topsoil Substitutes and Supplements 13
R645-301-234 Topsoil Storage 13
234.100 Stockpile of Topsoil 13
234.210 Topsoil Placement 13
234.220 & 234.230 Topsoil Protection 13
234.240 Reclamation Plan 14
R654-301-241 General Requirements 14
R645-301-242 Soil Redistribution 15

R645-301-243 Soil Nutrients and Amendments ..... 16~~17~~
R645-301-244 Soil Stabilization 18
244.100 Exposed Surface 18
244.200 Soil Stabilization 18
244.300 Rills and Gullies 18

R645-301-200 Soils

R645-301-221 Prime Farmland Investigation

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

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

R645-301-222 Soil Survey

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

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

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

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

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

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

30 individual units of planned disturbed topsoil.

222.100 Soil Maps

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

222.200 Soil Identification

Refer to page 3 in Exhibit 6, Soils Survey.

222.300 Soil Description

Refer to page 9 of Exhibit 6, Soils Survey.

222.400 Soil Productivity

Refer to Exhibit 6, Soils Survey.

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

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

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

R645-301-223 Soil Characterization

Refer to page 9 of Exhibit 6, Soils Survey.

R645-301-224 Substitute Topsoil

Refer to page 12 of Exhibit 6, Soils Survey.

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

R645-301-230 Operation Plan

R645-301-231 General Requirements

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

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

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

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

231.100 Topsoil Removing and Storage

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

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

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

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

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

231.200 Suitability of Topsoil Substitute

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

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

231.300 Soil Testing Plan

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

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

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

231.400 Construction, Modification and Maintenance

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

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

R645-301-232 Topsoil and Subsoil Removal

232.100 Topsoil Removal Prior to Disturbance

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

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

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

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

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

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

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

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

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

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

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

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

TABLE 23

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

(All Values in Cubic Yards)

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

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

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

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

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

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

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

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

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

232.200 Insufficient Topsoil

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

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

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

232.300 Topsoil Material Less Than 6" Thick

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

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

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

232.400 Area Where Topsoil Will Not Be Recovered

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

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

232.500 Subsoil Segregation

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

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

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

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

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

232.600 Timing

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

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

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

R645-301-233 Topsoil Substitutes and Supplements

Refer to the discussion of topsoil substitutes above.

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

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

R645-301-234 Topsoil Storage

234.100 Stockpile of Topsoil

Addressed in Section 232 above.

234.210 Topsoil Placement

Addressed in Section 232 above.

234.220 & 234.230 Topsoil Protection

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

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

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

234.240 Reclamation Plan

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

R654-301-241 General Requirements

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

coal mine permitting in the State of Utah.

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

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

R645-301-242 Soil Redistribution

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

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

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

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

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

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

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

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

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

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

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

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

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

R645-301-243 Soil Nutrients and Amendments

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

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

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

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

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

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

R645-301-244 Soil Stabilization

244.100 Exposed Surface

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

244.200 Soil Stabilization

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

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

244.300 Rills and Gullies

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

Chapter 3

R645-301-300 Biology

Kinney No 2 Mine

Table of Contents **(Kirk, please check the TOC again when you finalize the document)**

301.312 POTENTIAL MINING RELATED IMPACTS TO BIOLOGICAL RESOURCES 1

R645-301-321 Vegetation Information 1

Habitat Values, and Vegetation Communities 1

Potential Effects on Terrestrial Vegetation, (Includes Sensitive Species and Associated Habitat Values) 1

321.100 Plant Communities 2

Refer to Exhibit 7, Vegetation Information 2

321.200 Productivity of Land 2

COMMUNITY TYPE 2

ANNUAL PRODUCTION (LBS/ACRE) 2

R645-301-322 FISH & WILDLIFE INFORMATION 2

R645-301-322.100 Sources of Information 3

R645-301-322.200 Site Description of the Proposed Permit & Adjacent Areas 5

R645-301-322.210 Threatened, Endangered and Sensitive Species 6

Conservation Agreement Species ..... 11~~10~~

Species of Concern ..... 12~~11~~

R645-301-220 High-Value Habitats ..... 12~~11~~

Black Bear ..... 13~~12~~

Blue Grouse ..... 13~~12~~

Moose ..... 13~~12~~

Mule deer ..... 13~~12~~

Rocky Mtn Elk 13

Sage-grouse ..... 14~~13~~

Snowshoe hare ..... 15~~13~~

R645-301-230 Other Wildlife Species & Habitat Information of the Permit & Adjacent Areas ... 15~~14~~

Amphibians 40

Fishes ..... 41~~40~~

Reptiles ..... 41~~40~~41~~

Birds ..... 41~~40~~41~~

Raptor Nest Deterrent 41

Mammals ..... 45~~44~~45~~

Special Status Wildlife Species of the Wasatch Plateau ..... 46~~45~~

R645-301.322.300 Fish & Wildlife Service Review 5453
Utah Division of Wildlife Resources Review 5554
Utah Natural Heritage Review 5655
Wildlife Summary 5655
R645-301.323 MAPS & AERIAL PHOTOGRAPHS 5756
R645-301.330 OPERATION PLAN 5756
Biological Resources Protection Plan 5756
Potential Impacts to the Biological Resources 5958
Impacts to Sensitive Species 5958
Impacts to High Interest Species 5958
Discussion of the Impacts and Enhancement Measures to Upland Vegetation and Wildlife 6058
Potential Impact on Aquatic, Riparian Resources & Sensitive Species 6160
Measures to Stabilize and Minimize Erosion from Mine Disturbance Areas 6361
Subsidence Potential and Related Impacts on Renewable Resource Lands 6362
Provisions to Minimize Raptor Electrocution Hazards 6462
Fish and Wildlife Monitoring 6463
Terrestrial Wildlife 6463
Aquatic Resources 6463
Measures to Minimize Barriers to Large Mammal Movements 6463
Figure 22 Typical Raptor Proof Power Pole Configuration 6764
Protective Measures for the Facilities Area and Any Open Ponds Containing Potentially Hazardous or Toxic Materials 6765
Provisions for Protection of Threatened, Endangered or Sensitive Species 6765
Compliance with the Bald Eagle Protection Act 6866
Reporting and Consultation Procedures 6866
R645-301.322.333 Protection & Enhancement Plan 6866
Specific Resources Requiring Special Protection Measures 6967
Black Bear 6967
Blue Grouse 7068
Moose 7068
Mule Deer 7068
Rocky Mountain Elk 7169
Sage-Grouse 7269

Snowshoe Hare 7270
R645-301.331 INTERIM RECLAMATION PLAN 7371
R645-301.340 RECLAMATION PLAN 7371
Reclamation Plans and Practices 7573
Completion as a Monitoring Well or Plugging and Sealing Boreholes 7573
Drainage and Backfilling of any Mud Pits 7674
Collection and Removal of any Trash or Debris 7674
Grading of pad areas to establish the final configuration 7674
Drainage Reestablishment 7674
Road Removal 7674
Soil Replacement 7675
General Habitat Restoration Requirements 7775
R645-301-341 Revegetation 7876
Timing of Revegetation Activities 7876
Revegetation Practices 7876
Seedbed Preparation 7876
Seeding 7977
Woody Species 8078
Mulching and Surface Stabilization 8078
Management and Revegetation Success Monitoring 8078
Revegetation Species and Amounts 8179
341.230 Mulching Techniques 8583
341.240 Irrigation 8684
341.250 Determination of Revegetation Success Criteria and Evaluation Methods 8684
R645.301-342 Fish and Wildlife Reclamation Plan 8886
R645.301-350 Performance Standards 8886
R645.301-351 General Requirements 8886
R645.301-352 Contemporaneous Reclamation 8987
R645.301-353 Revegetation General Requirements 8987
353.250 Noxious Weeds 9088
R645.301-354 Revegetation: Timing 9088
R645.301-355 Revegetation: Mulching and Soil Stabilizing 9189
R645.301-356 Revegetation: Standards For Success 9289
R645.301-357 Revegetation: Extended Responsibility Period 9391

301.312 POTENTIAL MINING RELATED IMPACTS TO BIOLOGICAL RESOURCES

Most of the land proposed for new disturbance to construct and operate the Kinney No. 2 Mine has already been disturbed by historical mining and other activities. To the extent reasonably feasible, ~~Carbon Resources~~Coal Energy Group 3 (CR~~C~~EG3) plans to prevent or minimize potential mining related impacts on biological resources by minimizing new surface disturbance to native, undisturbed plant communities and wildlife habitat. Implementation of the following specific control and mitigation measures for those limited areas which represent re-disturbance or new disturbance will effectively minimize potential impacts for these areas. For more information refer to the OPERATION PLAN below (R645-301.330).

R645-301-321 Vegetation Information

Habitat Values~~,~~ and Vegetation Communities

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

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

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

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

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

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

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

321.100 Plant Communities

Refer to Exhibit 7, Vegetation Information

321.200 Productivity of Land

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

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

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

R645-301-322 FISH & WILDLIFE INFORMATION

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

R645-301-322.100 Sources of Information

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

- County Lists of Utah's Federally Listed Threatened (T), Endangered (E), and Candidate (C) Plant Species – ~~June 24, 2010~~ November 5, 2018.

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

- Falk, J.A. 1990, Landscape Level Raptor Habitat Association in Northwest Connecticut. M.S. Thesis, Virginia Polytechnic Inst. 127 pp

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

- Bosakowski. T. and D.G. Smith. 1997. Distribution and species richness of a forest raptor community in relation to urbanization. J. Raptor Res. 31(1):26-33.

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

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

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

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

- Helena, Montana. 19 pp.

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

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

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

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

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

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

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

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

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

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

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

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

- UDWR Website: http://dwrcdc.nr.utah.gov/ucdc/
  Including: Utah's Federally (US-F&EWS) Listed Threatened (T), Endangered (E), and Candidate (C) Plant Species – ~~August 5, 2010~~November 6, 2018.

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

- UDWR. 2009. Utah Greater Sage-Grouse Management Plan. Utah Division of Wildlife Resources. Salt Lake City, UT.

- UNHP, Lindsey, Sarah. 12 August 2010. Personal communications. State of Utah, Natural Heritage Program, Salt Lake City, UT.

- Utah Sensitive Species List, ~~May 11, 2010~~November 1, 2017.

- Utah's State Listed Species by County, ~~June 24, 2010~~November 6, 2018.

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

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

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

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

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

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

More than eighty percent of the surface disturbances related to mine development will be in areas which have already been disturbed by previous mining related activities, some of which were reclaimed by the State of Utah, Utah Division of Oil, Gas & Mining's (UDOGMs), Abandoned Mine Reclamation (AMR) program in the 1980's. This percentage may be higher since mining has been conducted in the area since the early 1900's. Historically, there were four mines in the area of the proposed surface facilities of the Kinney No. 2 Mine (Kinney Mine, Columbine Mine, Jones Mine, and the UP Mine). These four mines disturbed approximately 74% of the area estimated to be disturbed by the proposed Kinney No. 2 Mine.

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

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

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

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

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

R645-301-322.210 Threatened, Endangered and Sensitive Species

The Endangered Species Act of 1973 (ESA) requires federal agencies to "*insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species*." 4 of the ESA (Determination of Endangered Species or Threatened Species) grants the Secretary of the Interior power to determine whether any species is considered threatened or endangered. While 7 of the Act (Interagency Cooperation) specifies that all other federal departments and agencies shall take such action necessary to insure that actions authorized, funded, or carried out by them (federal departments and agencies) do not jeopardize the continued existence of any listed species (pursuant to 4) or result in the destruction or modification of critical habitat of such species. It should be noted that all of the permit area is on private property and the coal reserves are either private or are controlled by Carbon County and therefore the only federal action in the Kinney No. 2 Mine operation is concurrence by the Office of Surface Mining and Reclamation, with primacy held by UDOGM.

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

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

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

The following table shows the most recent federally listed plant and animal species) for Carbon County, Utah (updated by the agency ~~June 24, 2010~~November 1, 2017).

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

NOTE**: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS). This list includes both current and historic records. (Last updated on November ~~9~~1, ~~2010~~2017).**

Common Name	Scientific Name	Status*	Site-Specific Notes
Humpback chub	*Gila cypha*	LE	Humpback chub in Utah are now confined to a few white-water areas in the Colorado, Green, and White Rivers. These rivers do not occur in the study area. The drainage control measures of the site limit impacts to the downstream drainage of the Colorado River system. There should be no impacts to this species as a result of construction and operation the proposed new mine.
Bonytail	*Gila elegans*	LE	The bonytail is a very rare minnow originally native to the Colorado River system. These rivers do not occur in the study areas. The drainage control measures of the site limit impacts to the downstream drainage of the Colorado River system. There should be no impacts to this species as a result of construction and operation of the proposed new mine.

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

NOTE**: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS). This list includes both current and historic records. (Last updated on November ~~9~~1, ~~2010~~2017).**

Black-footed ferret - (Unconfirmed)	*Mustela nigripes*	LE Ext	Black-footed ferret habitat is primarily prairie grasslands. The ferret has a diet consisting of almost 90% prairie dogs. This habitat and food source does not occur in the study areas. There ~~should~~ will be no impacts to this species as a result of construction and operation the proposed new mine.
Clay phacelia	*Phacelia argillacea*	LE	This plant is found in pinyon-juniper plant and mountain brush plant communities on steep slopes in the Green River Shale Formation. These communities and geologic formation are not found within the project area. There should be no impacts to this species as a result of construction and operation the proposed new mine.
Colorado pikeminnow	*Ptychocheilus lucius*	LE	The Colorado pikeminnow is a fish that prefers medium to large rivers. With the loss of habitat they are now restricted to the upper Colorado River system. These rivers do not occur in the study area. The drainage control measures of the site limit impacts to the downstream drainage of the Colorado River system. There should be no impacts to this species as a result of construction and operation the proposed new mine.

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

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

NOTE**: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS). This list includes both current and historic records. (Last updated on November ~~9~~1, ~~2010~~2017).**

Razorback sucker	*Xyrauchen texanus*	LE	This species prefers slow backwater habitats and impoundments in the Colorado River system. UDWR distribution maps of this species for Carbon County shows to occur near the Green River in extreme eastern portion of the county. These rivers do not occur in the study areas. The drainage control measures of the site limit impacts to the downstream drainage of the Colorado River system. There should be no impacts to this species as a result of construction and operation the proposed new mine.
~~Greater sage-grouse~~	~~*Centrocerus urophasianus*~~	~~C~~	~~*Centrocercus urophasianus* habitat has been documented in and around the project area. UDWR biologists have mapped much of the area to be crucial brooding habitat as well as crucial winter habitat for this species (see Map 2F).~~

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

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~~Gray Wolf~~	~~*Canus lupus*~~	~~E~~	~~Although once common in Utah, the gray wolf was extirpated (exterminated) from the state by early settlers. Although they have been reintroduced in adjacent states, and may move into the state, reintroduction to Utah has been planned to-date.~~ ~~There should be no impacts to this species as a result of construction and operation the proposed new mine.~~

* Status

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

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

Ext = Extirpated

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

Conservation Agreement Species

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

- Northern goshawk (*Accipiter gentilis)*

Species of Concern

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

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

R645-301-220 High-Value Habitats

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

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

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

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

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

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

Black Bear

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

Blue Grouse

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

Blue grouse, as year-long residents of the Wasatch Plateau, prefer open stands of conifers which serve as the principal source of forage. In the warmer months, blue grouse are found in the lower elevation sagebrush, pinyon-juniper, and mixed brush habitats where they can obtain newly developing buds and other tender vegetation. At various times during the breeding and brooding seasons, insects and berries become an important dietary component and habitats which supply these requisites are classified as high-priority. During the colder months, young needles and buds from Douglas-fir and spruce trees at higher elevations provide the necessary forage for survival. Therefore, high elevation coniferous stands rank as critical habitat during the months of December through February for blue grouse. Even though there are no conifer stands in the mine surface disturbance area, the UDWR database show~~s~~ed the permit and adjacent areas to be crucial year-long habitat for blue grouse in 2010, but not in 2018.

Moose

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

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

Mule deer

Mule deer *Odocoileus hemionus*) habitat has been mapped in the area by UDWR biologists. Mule deer (Herd Unit 17) are common year-long inhabitants of the Wasatch Plateau with crucial

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

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Rocky Mountain elk

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

Rocky mountain elk are inhabitants of the Wasatch Plateau with habitat spanning from the submontane through the montane regions. The local elk population does not exhibit as strong a vertical migration as mule deer; however, such a migration does exist resulting in some concentration during the winter months. These concentration areas, known as winter range, are variably utilized depending on the severity of the winter. In all cases, the summer range is defined as crucial for elk. Although no specific areas are known, calving grounds for this herd unit could possibly occur within the permit area. Use of calving grounds during critical periods (June), would be considered to be of critical value to the elk population. Since the mine operations area lies within close proximity to both the town of Scofield and Highway 96, it is unlikely that elk would use the area for calving due to current human activity.

Sage-grouse

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

Sage-grouse are listed on the Utah Sensitive Species List (November 1, 2017) as a "species of concern", and are year-round residents of the high plateau and adjacent portions of the permit area which lie east of the mine site. However, within their crucial winter habitat at the site it is also crucial brooding habitat. Sage-grouse only occur in sagebrush dominated vegetation types or communities in close proximity to sagebrush types within the submontane life zone. Open areas (e.g., wet meadows) surrounded by sagebrush are often utilized as strutting grounds during the critical breeding period from March 15 through June 15. Sagebrush stands within a two-mile radius

of such sites are also classified as crucial value areas due to their use as brooding habitat following nesting. Following the brooding period, the sage-grouse disperse over the entire substantial use area until about mid-November. No leks have been identified in the mine area.

Snowshoe hare

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

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

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

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

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

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

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

While the permit area occupies only a very small portion of the Wasatch Plateau, it has some of the same plant communities and wildlife habitats that are typical of the montane regions in

central Utah. However, the proposed mine facilities area is located in an area that has been impacted by historical and recent mining activities, as well as residential development, commercial development, transportation corridor, and electrical power transmission facilities and operations. It should be noted that generally only three plant communities exist in the permit boundary, the Aspen, Sagebrush/Grass and Rabbitbrush/Grass (previously disturbed). In the general area of the mine site, and within a one mile radius around the permit boundary, there are other communities including a riparian complex along Mud Creek. Given the characteristics of these vegetation types, the permit area could provide potential habitat for approximately 329 species of vertebrate wildlife, including: 7 fish species, 8 amphibians, 17 reptile species, 231 birds, and 66 mammals. Table 2, Potential Wildlife Species of the Wasatch Plateau, identifies those species known to occur in this general area as well as the likelihood of occurrence in the permit area. Of the 329 species identified as occurring in the general area, 92 are known, have potential, or are likely inhabitants of the permit area, and 237 are considered unlikely, or not inhabitants based on known range or habitat preference. Included on this list are several species of wildlife considered to be of high interest to the State of Utah. High interest wildlife are defined as all game species, any economically important species, and any species of special aesthetic, scientific, or educational significance, and those species listed on the Utah Sensitive Species List. Included in this category are those species of wildlife that are federally listed as endangered or threatened or candidates for these designations.

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

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

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

TABLE 2 POTENTIAL WILDLIFE SPECIES OF THE WASATCH PLATEAU

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

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

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

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

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

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

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

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

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

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

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

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Life Form	Common Name	Scientific Name	Status in Wasatch Plateau *	Likelihood In Mine Plan Area **	T & E Status
65	Common snipe	*Capella gallinago*	C	U	
66	Long-billed curlew	*Numenius americanus*	R	U	C3
67	Willet	*Catoptrophorus semipalmatus*	U	U	
68	Spotted sandpiper	*Actitis macularia*	C	U	
69	Solitary sandpiper	*Tringa solitaria*	U	U	
70	Greater yellowlegs	*Tringa melanoleuca*	U	U	
71	Lesser yellowlegs	*Tringa flavipes*	C	U	
72	Pectoral sandpiper	*Calidris melanotos*	U	U	
73	Baird's sandpiper	*Calidris bairdii*	U	U	
74	Least sandpiper	*Calidris minutilloa*	C	U	
75	Western sandpiper	*Calidris mauri*	C	U	
76	Sanderling	*Calidris alba*	U	U	
77	Short-billed dowitcher	*Limnodromus griseus*	U	U	
78	Long-billed dowitcher	*Limnodromus scolopaceus*	C	U	
79	Marbled godwit	*Limosa fedoa*	C	U	
80	American avocet	*Recurvirostra Americana*	C	U	
81	Black-necked stilt	*Himantopus mexicanus*	U	U	

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

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

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

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

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

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

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

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

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

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Life Form	Common Name	Scientific Name	Status in Wasatch Plateau *	Likelihood In Mine Plan Area **	T & E Status
212	White-crowned sparrow	*Zonotrichia leucophrys*	C	L	
213	Fox sparrow	*Passerella iliaca*	U	U	
214	Song sparrow	*Melospiza melodia*	C	U	
215	Sage sparrow	*Amphispiza belli*	U	U	
216	Black-throated sparrow	*Amphispiza bilineata*	U	U	
217	American tree sparrow	*Spizella arborea*	U	U	
218	Harris' sparrow	*Zonotrichia querula*	U	U	
219	Common grackle	*Ouiscalus quiscula*	A	U	
220	Evening grosbeak	*Coccothraustes vespertinus*	C	P	
221	Lincoln's sparrow	*Melosoiza lincolnii*	U	U	
222	Lesser goldfinch	*Cardvelis Psaltria*	C	U	

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Life Form	Common Name	Scientific Name	Status in Wasatch Plateau *	Likelihood In Mine Plan Area **	T & E Status
223	American goldfinch	*Cardvelis tristis*	C	U	
224	Cassin's finch	*Carpodacus cassinii*	C	U	
225	House finch	*Carpodacus mexicanus*	C	U	
226	Pine grosbeak	*Pinicola enucleator*	U	U	
227	Evening grosbeak	*Coccothraustes vespertinus*	C	U	
228	Rosy finch	*Leucosticte arctoa*	U	U	
229	Common redpoll	*Carduelis fl' ammea*	C	U	
230	Pine siskin	*Carduelis pinus*	C	U	
231	Red crossbill	*Loxia curvirostra*	U	N	
Mammals – * 66 species total in mine biogeographic area					
1	Dwarf shrew	*Sorex nanus*	L	P	
2	Water shrew	*Sorex palustris*	C	U	

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Life Form	Common Name	Scientific Name	Status in Wasatch Plateau *	Likelihood In Mine Plan Area **	T & E Status
3	Merriam's shrew	*Sorex merriami*	U	U	
4	Vagrant shrew	*Sorex vagrans*	U	U	
5	Masked shrew	*Sorex cinereus*	C	U	
6	Little brown myotis	*Myotis lucifugus*	C	P	
7	Fringed myotis	*Myotis thysanodes*	U	U	C3
8	Long-eared myotis	*Myotis evotis*	C	U	
9	Long-eared myotis	*Myotis volans*	C	U	
10	Yuma myotis	*Myotis yumanensis*	R	U	
11	Silver-haired bat	*Lasioncteris noctivagans*	C	P	
12	Big brown bat	*Eptesicus fuscus*	C	P	
13	Hoary bat	*Lasiurus cinereus*	C	P	
14	Townsend's big-eared bat	*Plecotus townsendii*	C	U	C3

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Life Form	Common Name	Scientific Name	Status in Wasatch Plateau *	Likelihood In Mine Plan Area **	T & E Status
15	Spotted bat	*Euderma maculatum*	U	U	C3
16	Pallid bat	*Antorozous pallidus*	U	U	
17	Pika	*Ochotona princes*	R	N	
18	White-tailed jackrabbit	*Lepus townsendii*	C	L	
19	Snowshoe hare	*Lepus americanus*	C	P	
20	Black-tailed jackrabbit	*Lepus californicus*	U	U	
21	Nuttall's cottontail	*Sylvilagus nuttallii*	C	P	
22	White-tailed prairie dog	*Cynomys leucurus*	C	N	C3
23	Red squirrel	*Tamiasciurus hudsonicus*	C	U	
24	Rock squirrel	*Spermophilus variegates*	C	U	
25	Uintah ground squirrel	*Spermophilus armatus*	C	U	

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

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

TABLE 2 POTENTIAL WILDLIFE SPECIES OF THE WASATCH PLATEAU

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

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

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

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

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

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

TABLE 2 POTENTIAL WILDLIFE SPECIES OF THE WASATCH PLATEAU

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

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

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

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

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

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

TABLE 2 POTENTIAL WILDLIFE SPECIES OF THE WASATCH PLATEAU

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

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

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

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

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

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

Amphibians

Eight species of amphibians, as listed on Table 2, "Potential Wildlife Species of the Wasatch Plateau", are believed to be potential inhabitants of the biogeographic area in which the permit and adjacent areas are located. However, only one amphibious species is categorized as possible, or a likely inhabitant of the permit area. The western toad is the only species listed on the Utah Sensitive Species List that has the potential to inhabit the mine permit area. Refer to Table 2A for more detail about this species.

Fishes

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

Reptiles

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

Birds

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

Waterfowl (ducks and geese), all of which are considered to be of high interest to the State of Utah due to their status as "gamebirds", are represented by 21 species that may, on occasion or seasonally, occur as minor inhabitants or transients in the general permit area. Of these, only nine (9) species could reasonably be expected to occur in the permit area, other than on an occasional basis. In general, the limited riparian and wetland vegetation types encompassed by

the proposed permit area and adjacent areas provide marginally suitable habitat values for these nine (9) and possibly other waterfowl species. Each species has different life prerequisites. The nature and frequency of use of the riparian and wetland habitats found in the area may vary significantly. The importance, however, of these habitats for breeding purposes results in their being ranked as high-priority if utilized during the breeding period though such use is not expected.

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

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

Raptor Nest Deterrent

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

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

As a condition to the nesting deterrent action approval ~~CR~~ CEG3 commits to mitigation for the deterrent action including a plan approved by the Utah Division of Oil, Gas and Mining , U.S. Fish

and Wildlife Service, and the Utah Division of Wildlife Resources. The mitigation plan will be limited to a total of $3000.00 as agreed by the agencies. The mitigation plan will consist of any one or a combination of the following, Purple martin nesting boxes, Osprey nesting platforms, purchasing non-lead hunting ammunition and making it available to hunters to help prevent raptor lead poisoning. The mitigation plan will be completed during the 2011 season (by the end of October), or in a time frame determined and approved by the agencies. Refer to details of the plan including the three alternatives with additional information on each alternative in Exhibit 8, Fish and Wildlife Information.

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

Basis for Request for Deterrent Action

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

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

Deterrent Plan

The deterrent plan includes two components:

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

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

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

Monitoring Plan

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

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

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

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

Schedule

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

Future Mining Operations

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

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

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

Avoidance

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

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

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

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

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

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

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

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

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

Mammals

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

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

Special Status Wildlife Species of the Wasatch Plateau

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

R645-301.322.300 Fish & Wildlife Service Review

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

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

Utah Division of Wildlife Resources Review

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

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

be found along Mud Creek west of the mine area, and in or near Scofield Reservoir north and west of the mine permit area.

Utah Natural Heritage Review

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

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

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

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

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

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

Wildlife Summary

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

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

Additionally, a review of all species known to exist on the Wasatch Plateau was reviewed. A summary of those species that have the potential to occur within or adjacent to the Kinney No. 2

Mine site was also made. The permit area provides potential habitat for approximately 329 species of vertebrate wildlife, including; 7 fish species, 8 amphibians, 17 reptile species, 231 birds, and 66 mammals. Table 2, "Potential Wildlife Species of the Wasatch Plateau", identifies those species known to occur in this general area as well as the likelihood of occurrence in the permit area. Included on this list are several species of wildlife considered to be of high interest to the State of Utah, and/or are listed on the Utah Sensitive Species List. High interest wildlife are defined as all game species; any economically important species; and any species of special aesthetic, scientific, or educational significance. Included in this category are those species of wildlife listed as Federally Endangered or Threatened.

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

R645-301.323 MAPS & AERIAL PHOTOGRAPHS

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

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

R645-301.330 OPERATION PLAN

Biological Resources Protection Plan

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

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

mining operations has been designed to minimize habitat disturbance.

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

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

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

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

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

- Contemporaneous Reclamation. Reclamation and revegetation of disturbed areas will be conducted when they are no longer needed to support ongoing mining and related activities.

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

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-

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

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

Potential Impacts to the Biological Resources

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

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

Impacts to Sensitive Species

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

Impacts to High Interest Species

Other species of high interest have been identified and described for the study area [see "Fish & Wildlife Information" (R645-301.322)]. The potential for specific species that may have any adverse mining related impacts has been explained in that section.

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

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

~~reclamation program including all surface disturbance areas which will be implemented when the mine facilities are no longer needed to support ongoing operations.~~

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

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

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

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

this type may be associated with the displacement of any small mammals and birds utilizing the area. Disruption of raptor species will likely not be considered significant due to the close proximity of Highway 96 and the town of Scofield, with their associated noise, and other human activity.

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

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

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

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

Potential Impact on Aquatic, Riparian Resources & Sensitive Species

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

Prior to reclamation, stormwater runoff from disturbed areas would be a potential source of additional sediment contributions to Mud Creek. Sediment contributions will be, however, effectively controlled by construction, operation, and maintenance of an integrated drainage

and sediment control system including diversion and collection ditches, sedimentation ponds, and alternative sediment control measures. Implementation of drainage and sediment control measures as described in R645-301-731, "Hydrologic Resource Protection", will limit any increase in suspended sediments to levels corresponding to general background concentrations. Mining related sediment contributions would, therefore, result in little or no significant incremental impacts on fish and macroinvertebrate communities or aquatic habitat values in and near Mud Creek, and Scofield Reservoir.

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

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

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

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

Reservoir.

Measures to Stabilize and Minimize Erosion from Mine Disturbance Areas

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

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

Subsidence Potential and Related Impacts on Renewable Resource Lands

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

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

Provisions to Minimize Raptor Electrocution Hazards

~~CR~~ CEG3 will design and construct any mine related power transmission lines as shown on Figure 22, "Typical Raptor Proof Power Pole Configuration" (or equivalent) for protection of raptors from potential electrocution hazards in accordance with the guidelines set forth in "Environmental Criteria for Electric Transmission Systems" (USDI, USDA, 1970) and/or REA Bulletin 61-10 "Powerline Contacts by Eagles and Other Large Birds". These guidelines specify pole and transmission line configurations which isolate the ground wire minimizing the potential for simultaneous contact with a live and ground wire by a raptor or other bird approaching or landing on the support poles or cross beams. An existing powerline traverses from south to north immediately east of the proposed mine facilities and belongs to Rocky Mountain Power.

Fish and Wildlife Monitoring

Terrestrial Wildlife

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

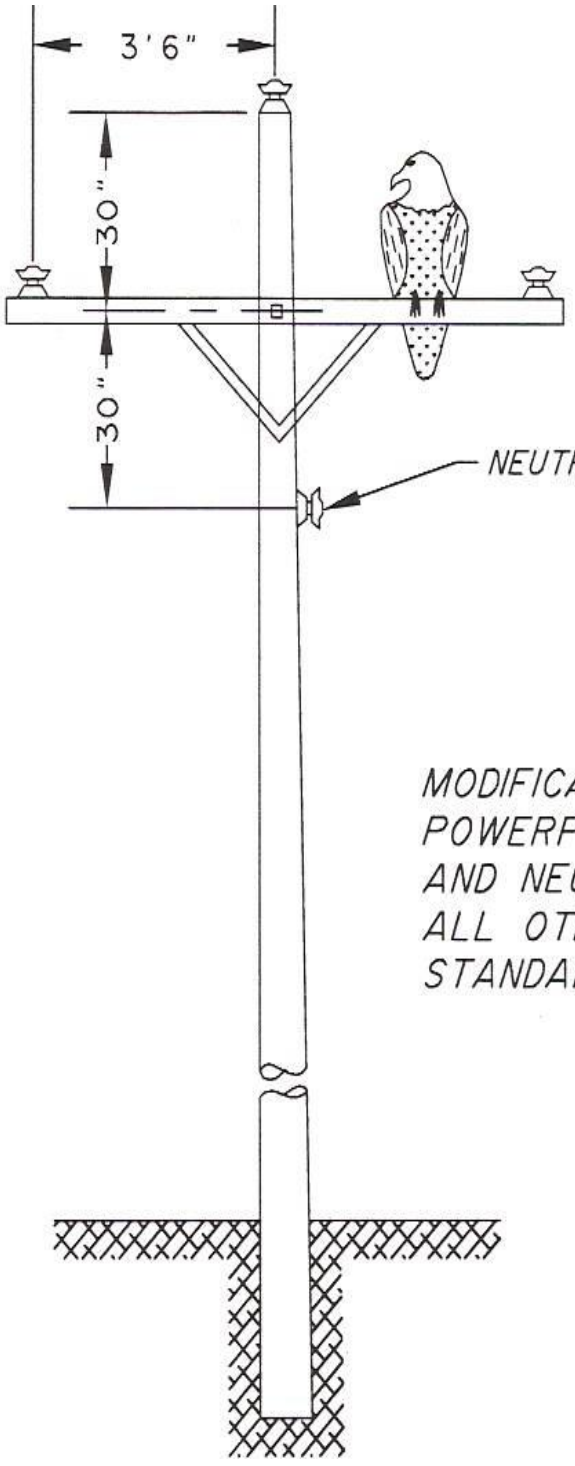
Aquatic Resources

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

Measures to Minimize Barriers to Large Mammal Movements

Site-specific evaluation of the facilities area resulted in the conclusion that the proposed conveyor location parallel to the base of the natural valley slope would not represent a significant barrier to large mammal movements. An additional important consideration relative to potential animal movements is the existence of Highway 96 and the city of Scofield which have probably already eliminated most large mammal movements in the mine facilities area. Although the likelihood of large mammal movements through the facilities area is small, ~~CR~~ CEG3 has made provision for any potential movements by designing conveyor structures to provide a minimum clearance of approximately 40 inches and will establish a maximum speed limit for mine roads of 15 miles per hour. Several areas of the conveyors will have clearances well over 40 inches where the conveyors

are elevated for mechanical reasons or for vehicular underpasses as shown on the Map 13, Surface Facilities Map. These elevated areas provide crossing areas for larger animals. In addition, the relatively short length of the overland conveyor system would allow animals to go around the site if they feel threatened.



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

Figure 22 Typical Raptor Proof Power Pole Configuration

~~Minimum clearance of approximately 40 inches and will establish a maximum speed limit for mine roads of 15 miles per hour. Several s of the conveyors will have clearances well over 40 inches where the conveyors are elevated for mechanical reasons or for vehicular underpasses as shown on the Map 13, Surface Facilities Map. These elevated s provide crossing areas for larger animals. In addition, the relatively short length of the overland conveyor system would allow animals to go around the site if they feel threatened.~~

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

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

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

Provisions for Protection of Threatened, Endangered or Sensitive Species

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

Compliance with the Bald Eagle Protection Act

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

Reporting and Consultation Procedures

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

R645-301.322.333 Protection & Enhancement Plan

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

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

During a site visit in the growing season of 2011 that ~~will~~ included biologists representing ~~Carbon Resources~~Coal Energy Group 3, DOGM, DWR and/or USFWS (see "Specific Resources Requiring Special Protection Measures" below), suggestions ~~will be~~were formulated about recommendations for planting tree species at the time of final reclamation near the remaining

highwall for aesthetic reasons as well as to provide additional wildlife habitat and cover. Below is a summary of specific habitat that will be improved by successful revegetation.

Specific Resources Requiring Special Protection Measures

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

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

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

Black Bear

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

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

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

Blue Grouse

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

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

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

Moose

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

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

Mule Deer

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

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

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

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

Rocky Mountain Elk

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

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

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

Sage-Grouse

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

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

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

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

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

Snowshoe Hare

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

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

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

R645-301.331 INTERIM RECLAMATION PLAN

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

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

R645-301.340 RECLAMATION PLAN

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

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

- Snowshoe Hare (Crucial, Year-Long Habitat)

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

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

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

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

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

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

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

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

- Revegetation

These activities are discussed in detail in the following sections.

Reclamation Plans and Practices

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

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

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

Reclamation Plans and Practices

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

Completion as a Monitoring Well or Plugging and Sealing Boreholes

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

the remainder of the hole to within 20 feet of the ground surface; and filling the remainder of the hole to the ground surface with cement to form a surface plug. A steel fence post will be placed in the center of the surface plug before the cement sets-up to provide a permanent marker for the hole location.

Drainage and Backfilling of any Mud Pits

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

Collection and Removal of any Trash or Debris

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

Grading of pad areas to establish the final configuration

Drill pad surface areas will be regraded to their approximate original configuration. Grading will involve the use of a tracked dozer, wheel loader, or backhoe to move, place, and grade fill materials. Generally, the material utilized in constructing the pad will be pulled back onto the cut bench from downslope fill areas and the fill will be graded and contoured to blend with the surrounding terrain and provide for effective drainage. On completion of grading the regraded surface will be ripped along the contour to control drainage and provide a good bond with the replaced soil material. Fill slopes will be limited to a maximum slope of approximately 3H: I V and graded slopes in native material will vary dependent on material from less than 5H: I V to as much as O.5H: 1 V in competent rock.

Drainage Reestablishment

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

Road Removal

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

Soil Replacement

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

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

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

General Habitat Restoration Requirements

The Kinney No. 2 Mine surface facilities area will be the only surface disturbance area resulting from the planned mining and related activities. As described in R645-301-312 and 313, General Biological Resource Protection Requirements, the majority of the mine facilities area has been extensively disturbed by previous mining related activities resulting in destruction, elimination, or significant modification of vegetation and habitat values. Beyond the practical limitations on habitat value and use relating to the previous disturbance, wildlife use of both existing and proposed surface disturbance areas is also limited by current levels of human activity in the immediate area due to the proximity of Highway 96, and Scofield Town.

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

R645-301-341 Revegetation

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

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

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

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

Timing of Revegetation Activities

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

Revegetation Practices

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

Seedbed Preparation

Prior to seeding, ~~CR~~ CEG3 will prepare regraded and resoiled areas to provide a firm but uncompacted seedbed. As described in R645-301-243, Soil Suitability and Testing, and in R645-301-542.300 through 800, 550 through 553.900, and 560, Reclamation Practices, under the sub-

headings of Backfilling and Grading to Establish Final Configuration, Soil/Substitute Replacement, and Revegetation; backfilling, grading, and soil/substitute replacement activities will be conducted so as to minimize compaction.

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

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

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

Given that seeding will normally follow soil/substitute replacement within a very short time period and that the soil/substitute surface will be left in a roughened condition, seedbed preparation requirements will be minimal. In order to limit mixing of soil/substitute and underlying backfilled materials, surface manipulations will be minimized and will generally be limited to appropriate gouging/roughening techniques.

Seeding

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

seeded at twice this rate (92.66 lbs. PLS/acre). To the extent operationally feasible, ~~CR~~ CEG3 will drill seed along the contour on sloping areas.

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

Woody Species

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

Mulching and Surface Stabilization

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

Management and Revegetation Success Monitoring

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

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

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

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

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

Revegetation Species and Amounts

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

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

may also be used as a stubble mulch to stabilize areas which are particularly subject to potential erosion.

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

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

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

TABLE 21 TEMPORARY SEED MIXTURE

Group/Species	PLS (Drill) lbs/acre*	Number of Seeds/FT2
Grasses		
Thickspike Wheatgrass (*Elymus lanceolatus*)	4.0	14.14
Western Wheatgrass (*Elymus smithii*)	5.0	14.46
Bluebunch Wheatgrass (*Elymus spicatus*)	6.0	19.28
Kentucky Bluegrass (*Poa pratensis*)	0.40	19.99
Forbs		
Utah Sweetvetch (*Hedysarum boreale*)	5.0	3.86
TOTALS TOTAL	20.40	71.74
* Based on drill seeding methods. Rates should be doubled in areas that are broadcast seeded.		

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

Species	PLS (Drill) lbs/acre*	Number of Seeds/FT2
Grasses Bluebunch Wheatgrass (*Elymus spicatus*)	1.50	4.82
Kentucky Bluegrass (*Poa pratensis*)	2.00	4.0
Sandberg Bluegrass (*Poa secunda*)	0.20	4.25
Needle-and-thread (*Stipa comata*)	1.00	2.64
Forbs Common Yarrow (*Achillea millefolium*)	0.03	1.91
Utah Sweetvetch (*Hedysarum boreale*)	5.00	3.86
Lewis Flax (*Linum lewisii*)	0.70	4.47
Silky Lupine (*Lupinus sericeus*)	8.00	4.51
Meadow Penstemon (*Penstemon rydbergii*)	1.50	4.54
Goldeneye (*Viguiera multiflora*)	0.20	4.84

TABLE 22 FINAL REVEGETATION SEED MIXTURE FOR SAGEBRUSH/GRASS AND RABBITBRUSH/GRASS PLANT COMMUNITIES		
Shrubs Utah Serviceberry (*Amelanchier utahensis*)	6.00	3.55
Mountain Big Sagebrush (*Artemisia ~~tridentate~~ tridentata var. vaseyana*)	0.10	5.74
Winterfat (*~~Ceratoides~~ Krascheninnikovia lanata*)	4.00	5.05
Antelope Bitter Brush (*Purshia ~~tridentate~~tridentata*)	15.00	5.17
Mountain Snowberry (*Symphoricarpos oreophilus*)	3.00	5.17
TOTALS	46.33	65.51
* Based on drill seeding methods. Rates should be doubled in areas that are broadcast seeded.		

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

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

341.230 Mulching Techniques

As described in R645-301-542.300 through 800, 550 through 553.900, and 560, Reclamation Practices, under the sub-heading of Backfilling and Grading to Establish Final Configuration, and

Drainage Reestablishment; and in this chapter under R645-301-341 under the sub-heading of Seedbed Preparation; reclaimed areas will be graded to a stable configuration with reestablishment of effective surface drainage patterns. Prior to seeding, ~~CR~~ CEG3 will prepare regraded and resoiled areas to provide a firm but uncompacted seedbed. Soil materials will be left in a roughened condition to control runoff, limit erosion and soil loss, and promote moisture infiltration. ~~CR~~ CEG3 will also selectively apply alternative sediment control measures as described in R645-301-730, Hydrologic Resource Protection Plan. Revegetation seeding will occur immediately following soil material placement so additional stabilization measures will not be required prior to seeding. In conjunction with seeding operations, the soil material will be deep ripped (up to 3 feet deep), plowed or disked to prepare the seedbed in areas where the slopes are 3:1 or flatter. Where the slopes are steeper than 3:1, deep gouging, or plowing along the contour will be done to prepare the seedbed. The reclaimed ground surface will be very similar in topography to the pre-mining surface as shown on Map 29. Reclaimed ground gradients can be seen on Map 33, Slope Analysis Map. Deep gouging is the preferred method, with plowing along the contour as an alternative where slope angle allows. In all cases, UGOGM will be consulted prior to seedbed preparation to insure that the reclamation plan is being followed. Following seeding, the reseeded areas will be mulched with straw or native hay at a rate of two tons per acre and the mulch will be crimped, plowed, or disked into the soil on slopes at 3:1 or steeper to minimize wind loss. Another method of soil stabilization that may be used on areas with slopes steeper than 3:1 is spray on organic mulch at a rate of 2 tons per acre with a tackifier to stabilize the mulch and seeds. Again, UDOGM will be consulted prior to seeding and soil stabilization to insure the reclamation techniques used are the best for the particular slope, soil type and surface aspect, and that the application rates are appropriate for the slope and time of season when reclamation is done.

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

All of these reclamation practices contribute to effective stabilization of the reclaimed surface.

341.240 Irrigation

While irrigation can potentially facilitate initial vegetative establishment it is not a practical long-term management practice and may actually reduce long-term revegetation success. For these reasons, and because irrigation is incompatible with both the postmining land use of wildlife habitat and the objective of a self-sustaining vegetation community, ~~CR~~ CEG3 does not to propose to utilize irrigation in conjunction with site revegetation efforts.

341.250 Determination of Revegetation Success Criteria and Evaluation Methods

Measurements proposed to be use to determine the success of reve~~v~~getation are described in section 341.356 below.

~~In order to accurately and objectively evaluate the effectiveness of revegetation efforts and provide a quantitative determination of ultimate revegetation success, CR CEG3 will conduct field revegetation success sampling and will evaluate the resulting field data. The following discussion~~

~~outlines revegetation success monitoring practices and evaluation criteria for those new disturbance areas associated with the Kinney No. 2 Mine surface facilities area.~~

~~Sampling of revegetated areas will be conducted at intervals of four, eight, nine, and ten years following initial permanent revegetation seeding. Consistent with the baseline and reference area approaches for evaluation of revegetation success as outlined in the UDOGM Vegetation Information Guidelines, and the baseline vegetation sampling program as discussed in R645-301-321.100, Vegetation Parameters, CR CEG3 will sample cover and productivity for all permanently revegetated areas and will evaluate revegetation success on the basis of these two primary parameters.~~

~~Revegetation success sampling and evaluation methods for ground cover and productivity will be essentially the same as previously utilized for baseline data collection. These methods, as described in R645-301-321.100, and 200, Sources of Vegetation Information, will include the use of randomly located sampling transects, measurement of cover using an inclined ten-point frame, and measurement of productivity by clipping randomly located sample plots. For revegetation success evaluations, woody plant density will be measured by counting all woody plants rooted within one meter on either side of the 50 meter random transects utilized for cover sampling and extrapolating the corresponding woody plant density to determine density on a "stems per acre" basis. Sample adequacy for all revegetation success sampling will be evaluated using the formulae presented in Appendix A of the UDOGM Vegetation Information Guidelines and will be based on the objective of achieving a 90 percent confidence interval within 10 percent of the mean.~~

~~The purpose of revegetation sampling efforts during years three and seven of the extended liability period will be to determine and evaluate the effectiveness of site revegetation efforts and to determine trends for vegetative reestablishment. The resulting data and evaluation results will be utilized as appropriate to identify any potential areas of concern and to guide post-reclamation management efforts in order to meet specific requirements for a revegetation success determination and ultimately achieve the overall reclamation objectives. Revegetation success monitoring during years nine and ten of the extended liability period will focus on data collection and development of the necessary documentation to allow for effective comparison of reclaimed and baseline conditions as the basis for a revegetation success determination.~~

~~The original baseline sampling involved collection of cover and production data for two distinct vegetation types: 1) Previously Disturbed AMR (now Rabbitbrush/grass; 2) Native Sagebrush/grass. All reclaimed areas will be revegetated using essentially the same methods and seed mixture. In order to evaluate revegetation success for reclaimed areas, areas identified as Disturbed or Reclaimed and native Sagebrush/grass types will be sampled together as a unit.~~

~~Cover and production values resulting from the revegetation success monitoring for the areas will be compared with weighted average values based on the reference area values. Weighting will be based on the corresponding acreages of each of the vegetation type. The statistical comparison utilized to evaluate revegetation success will be based on the "t-test comparison" method. If the absolute values for cover and production for the reclaimed areas are greater than or equal to the calculated 90 percent confidence interval for the baseline data then the mean values for the designated revegetation success parameters can be considered to be statistically equivalent and it can be concluded that the applicable revegetation success criteria have been achieved.~~

~~For woody plant density, revegetation success monitoring data will be compared with a reclamation standard of 1,700 plants per acre for areas identified in the baseline sampling. Consistent with cover and production sampling, if the absolute values for woody plant density for~~

~~the reclaimed areas are greater than or equal to the calculated 90 percent confidence interval for the numeric standards then the mean values for the designated revegetation success parameters can be considered to be statistically equivalent and it can be concluded that the applicable revegetation success criteria have been achieved.~~

~~General revegetation requirements under applicable UDOGM regulations include consideration of erosion control, and vegetative diversity, seasonality, and permanence. In order to address these secondary considerations relative to revegetation success, CR~~ CEG3 ~~proposes the following secondary success standards:~~

> ~~Erosion Control - Formation of rills and gullies on reclaimed areas will be limited to a maximum of 0.75 feet in depth. General erosion will be evaluated using Mark H. Humphrey's Erosion Condition Classification System (Draft 12/5/90) as adapted from BLM's Erosion Condition Classification System (BLM Technical Note - Number 346)~~
>
> ~~Vegetative Diversity and Permanence - Premining and postmining values will be compared using Sorenson's Similarity Index as outlined in the UDOGM Vegetation Guidelines~~
>
> ~~Seasonality - Seasonality of reclaimed plant communities relative to premining conditions will be evaluated by comparing percent composition of warm season plant species~~

~~Success evaluations for these secondary criteria will be based on the same weighting approach as previously discussed for the evaluation of the primary parameters of vegetative cover and production.~~

R645.301-342 Fish and Wildlife Reclamation Plan

Given the proposed postmining land use of wildlife habitat, watershed, and commercial and the extent of existing site disturbance with the related constraints on wildlife habitat values, ~~CR~~ CEG3 as part of their overall reclamation plans will restore and enhance where reasonably possible site conditions and habitat values which will support and benefit wildlife use, watershed and commercial uses. In addition to the general reclamation measures and practices which will be implemented on completion of mining as described in the preceding s, ~~CR~~ CEG3 will implement supplemental wildlife habitat enhancement measures as discussed in the following s.

Restoration of surface disturbance areas will ultimately be achieved by backfilling, grading, drainage reestablishment, soil/substitute replacement, and revegetation to a configuration and condition consistent with the postmining land uses. Plans for reclamation and revegetation activities are discussed in the preceding .

R645.301-350 Performance Standards

R645.301-351 General Requirements

The UDWR has developed a variety of seed mixes and seeding recommendations for various areas, conditions, and wildlife habitat restoration objectives. These recommendations were reviewed in developing the proposed permanent reclamation seed mixture and a number of the

species selected for the proposed seed mix were included because of their value for habitat restoration as outlined by the UDWR recommendations.

Placement of Rock Piles - Piles of rocks and large boulders would be randomly placed on the reclaimed surface to serve as shelter for reptiles and small mammals and temporary perches for raptors and other birds.

R645.301-352 Contemporaneous Reclamation

The Kinney No. 2 Mine is an underground mine and the surface facilities areas are anticipated to be active through the duration of mining activities and as such there will be little need for contemporaneous reclamation. Any coal exploration sites will be reclaimed as discussed in other sections of this chapter when the drill sites are not longer in use, and in the case where a coal exploration hole is converted to a ground water monitoring well, the site will be prepared as discussed under R645-301-340 earlier in this chapter.

In the event any surface areas are no longer needed for continued operation of the mine, ~~CR~~ CEG3 will reclaim those areas contemporaneously as discussed in this chapter.

R645.301-353 Revegetation General Requirements

Reclamation will be an integral part of the Kinney No. 2 Mine mining and related activities, however, because the mine will be an underground mine and the surface facilities and related surface disturbance areas will remain in place until the end of the mine life, mining and reclamation will not occur concurrently or, in the case of progressive mining activities, sequentially. Reclamation of surface disturbance areas will generally occur following the cessation of mining operations to complete the mining and reclamation cycle although ~~CR~~ CEG3 will implement temporary stabilization measures in certain areas following initial construction or during ongoing operations.

Objectives of the planned reclamation activities will be twofold; 1) For construction disturbance, temporary stabilization and contemporaneous reclamation will serve to stabilize disturbance areas, minimize erosion, and limit potential surface water impacts; 2) For long-term use areas, final reclamation is designed to restore disturbed areas to a safe, stable condition and to reestablish the productivity of the land consistent with the postmining land use(s). The proposed postmining land uses of wildlife habitat, water shed, and commercial use reflects the predisturbance use of this and adjacent areas, existing land use plans and policies, the desires of affected surface landowners, and practical constraints relative to land use capability and condition. Specific land use considerations and constraints are discussed in R645-301-400, Land Use Information. The Kinney No. 2 Mine reclamation plan has been designed to successfully meet these objectives and will result in effective temporary stabilization, and a postmining configuration which blends with the surrounding terrain and provides environmental values consistent with or superior to those which existed prior to mining.

~~of affected surface landowners, and practical constraints relative to land use capability and condition. Specific land use considerations and constraints are discussed in R645-301-400, Land Use Information. The Kinney No. 2 Mine reclamation plan has been designed to successfully meet~~

~~these objectives and will result in effective temporary stabilization, and a postmining configuration which blends with the surrounding terrain and provides environmental values consistent with or superior to those which existed prior to mining.~~

The Kinney No. 2 Mine reclamation plan has been developed utilizing available information on the existing environmental resources as described in R645-301-200, 300, 400, 600, and 700, Environmental Information. In addition, ~~CR~~ CEG3 has incorporated both available information on current successful reclamation technology and practices and their extensive operating experience in the area. the plans presented in this permit represent what ~~CR~~ CEG3 feels to be the most effective reclamation practices for this site, it is important to note that successful reclamation must be a dynamic process, incorporating new information to optimize overall effectiveness. In order to meet the reclamation objectives these plans may be modified as appropriate to reflect changing conditions, revised regulatory requirements, advances in reclamation technology, and the results on ongoing research and experience relative to the long-term effectiveness of various reclamation practices. Any future plan modifications will be submitted for approval to the UDOGM through the normal permitting process.

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

- Facility Demolition and Removal
- Stabilization and Sealing of Mine Openings
- Disposal of Non-Coal Wastes, and Mine Waste Materials
- Backfilling and Grading to Establish the Final Design Configuration
- Drainage Reestablishment
- Road Removal
- Soil/Substitute Replacement
- Revegetation
- Post-Reclamation Management, Maintenance, and Monitoring
- Removal and Reclamation of Sedimentation Ponds and Associated Structures
- These activities are discussed in detail in this chapter, in Chapters 2, 3 and 5.

353.250 Noxious Weeds

Regular periodic inspections of revegetated areas will include inspection for any noxious weed infestations or insect damage. If noxious weed infestations or insect problems are identified which have the potential to adversely impact revegetation success, ~~CR~~ CEG3 will consult with both UDOGM and Carbon County Weed Control to develop and implement appropriate control measures. If the controls determined through this consultation process involve the application of herbicides or insecticides, only those chemicals approved for use by the appropriate State and Federal agencies will be considered and control practices will be limited to spot application at the appropriate time period for best control of the problem species.

R645.301-354 Revegetation: Timing

Generally, seeding of areas where soil/substitute materials have been replaced will occur immediately after seedbed preparation. In areas where the slope is greater than 3:1 where deep

gouging, or plowing along the contour is done, seeding, mulching, or other soil stabilization methods will immediately follow seedbed preparation.

While late fall plantings represent the preferred schedule for revegetation and will be implemented in most situations, there may be occasions where prompt revegetation of small construction or other disturbance areas may be desirable to minimize erosion and sedimentation potential. Cases where this exception may apply could include newly established soil/substitute stockpiles, road cuts, newly constructed diversion and collection ditches, and small areas where erosion or other repairs have occurred, and as discussed above. In such cases, revegetation activities may occur at any time provided that site and climatic conditions offer a reasonable potential for successful vegetative reestablishment.

R645.301-355 Revegetation: Mulching and Soil Stabilizing

Prior to seeding, ~~CR~~ CEG3 will prepare regraded and resoiled areas to provide a firm but uncompacted seedbed. As described in R645-301-243, Soil Suitability and Testing, and in R645-301-542.300 through 800, 550 through 553.900, and 560, Reclamation Practices, under the sub-headings of Backfilling and Grading to Establish Final Configuration, Soil/Substitute Replacement, and Revegetation; backfilling, grading, and soil/substitute replacement activities will be conducted so as to minimize compaction. Soil materials will be left in a roughened condition to control runoff, limit erosion and soil loss, and promote moisture infiltration. ~~CR~~ CEG3 will also selectively apply alternative sediment control measures as described in R645-301-730, Hydrologic Resource Protection Plan. Revegetation seeding will occur immediately following soil material placement so additional stabilization measures will not be required prior to seeding. In conjunction with seeding operations, the soil material will be deep ripped (up to 3 feet deep), plowed or disked to prepare the seedbed in areas where the slopes are 3:1 or flatter. Where the slopes are steeper than 3:1, deep gouging, or plowing along the contour will done to prepare the seedbed. The reclaimed ground surface will be very similar in topography to the pre-mining surface as shown on Map 29. Reclaimed ground gradients can be seen on Map 33, Slope Analysis Map. Deep gouging is the preferred method, with plowing along the contour as an alternative where slope angle allows. In all cases, UGOGM will be consulted prior to seedbed preparation to insure that the reclamation plan is being followed. Following seeding, the reseeded areas will be mulched with straw or native hay at a rate of two tons per acre and the mulch will be crimped, plowed, or disked into the soil on slopes at 3:1 or steeper to minimize wind loss. Another method of soil stabilization that may be used on areas with slopes steeper than 3:1 is spray on organic mulch at a rate of 2 tons per acre with a tackifier to stabilize the mulch and seeds. Again, UDOGM will be consulted prior to seeding and soil stabilization to insure the reclamation techniques used are the best for the particular slope, soil type and surface aspect, and that the application rates are appropriate for the slope and time of season when reclamation is done.

Incorporation of the mulch will occur either by plowing along the contour, deep gouging/roughening, or a combination of those methods. Hay purchases will be based on specifications which minimize the potential for introduction of any noxious weed species. While this treatment is intended primarily to increase soil organic content and provide soil biota, it will also be effective in alleviating compaction and promoting moisture infiltration and retention.

R645.301-356 Revegetation: Standards For Success

In order to accurately and objectively evaluate the effectiveness of revegetation efforts and provide ~~a~~ qualitative and quantitative determinations of ultimate revegetation success, ~~CR~~ CEG3 will conduct field revegetation success sampling and will evaluate the resulting field data. The following discussion outlines revegetation success monitoring practices and evaluation criteria for those new disturbance areas associated with the Kinney No. 2 Mine surface facilities area.

Qualitative and quantitative ~~Sampling~~ sampling of revegetated areas will be conducted at intervals of three (qualitative), four (quantitative), seven (qualitative), eight (qualitative), nine (quantitative), and ten (quantitative) years following initial permanent revegetation seeding. Consistent with the baseline and reference area approaches for evaluation of revegetation success as outlined in the UDOGM Vegetation Information Guidelines, and the baseline vegetation sampling program as discussed in R645-301-321, Vegetation Parameters, ~~CR~~ CEG3 will sample total cover, woody species density, ~~and~~ productivity and diversity for all permanently revegetated areas and will evaluate revegetation success on the basis of these ~~two~~ four primary parameters.

Revegetation success sampling and evaluation methods for ground cover, ~~and~~ woody species density and productivity will be essentially the same as previously utilized for baseline data collection. These methods, as described in R645-301-320, Sources of Vegetation Information, will include the use of randomly ~~located~~ placed sampling transects~~,~~; measurements of cover will be done using an inclined ten-point frame~~,~~ or square meter quadrats. Woody species density will be measured employing distance methods such as the point-quarter technique, or when more appropriate, belt transects. ~~and~~ M~~m~~easurements of productivity will be accomplished by clipping and weighing randomly located sample plots. ~~For revegetation success evaluations, woody plant density will be measured by counting all woody plants rooted within one meter on either side of the 50 meter random transects utilized for cover sampling and extrapolating the corresponding woody plant density to determine density on a "stems per acre" basis~~. Sample adequacy for all revegetation success sampling will be evaluated using the formulae presented in Appendix A of the UDOGM Vegetation Information Guidelines and will be based on the objective of achieving a 90 percent confidence interval within 10 percent of the mean.

The purpose of ~~revegetation~~ qualitatively sampling ~~efforts~~ during the additional years three, ~~and~~ seven and eight of the extended liability period will be to determine and evaluate the effectiveness of site revegetation efforts and to determine trends for vegetative reestablishment. The resulting data and evaluation results will be utilized as appropriate to identify any potential areas of concern and to guide post-reclamation management efforts in order to meet specific requirements for a revegetation success determination and ultimately achieve the overall reclamation objectives. Revegetation success monitoring during years nine and ten of the extended liability period will focus on data collection and development of the necessary documentation to allow for effective comparison of reclaimed and baseline conditions as the basis for a revegetation success ~~determination~~evaluations and to determine whether or not final or Phase III Bond Release may be warranted.~~.~~

The original baseline sampling involved collection of cover, and ~~production~~ woody species density and production data for two distinct vegetation types: 1) Previously Disturbed AMR (now Rabbitbrush/G~~g~~rass and~~;~~ 2) n~~N~~ative Sagebrush/~~g~~Grass. All reclaimed areas will be revegetated using essentially the same methods and seed mixture. ~~In order to evaluate revegetation success for reclaimed areas, areas identified as Disturbed or Reclaimed and native Sagebrush/grass types will be sampled together as a unit.~~

Cover and production -values resulting from the revegetation success monitoring for the areas will be compared ~~with weighted average values based on~~ to the reference area values. ~~Weighting will be based on the corresponding acreages of each of the vegetation type~~. The statistical comparison utilized to evaluate revegetation success will be based on the "t-test comparison" method. If the absolute values for cover ~~and production~~ for the reclaimed areas are greater than or equal to the calculated 90 percent confidence interval for the baseline data then the mean values for the designated revegetation success parameters can be considered to be statistically equivalent and it can be concluded that the applicable revegetation success criteria have been achieved.

For woody plant density, revegetation success monitoring data will be compared with a fixed reclamation standard of 1,700 plants per acre. ~~acre for areas identified in the baseline sampling. Consistent with cover and production sampling, if the absolute values for woody plant density for the reclaimed areas are greater than or equal to the calculated 90 percent confidence interval for the numeric standards then the mean values for the designated revegetation success parameters can be considered to be statistically equivalent and it can be concluded that the applicable revegetation success criteria have been achieved~~.

General revegetation requirements under applicable UDOGM regulations include consideration of erosion control, and vegetative diversity, ~~seasonality,~~ and permanence. In order to address these secondary considerations relative to revegetation success, ~~CR~~ CEG3 proposes the following sec

> Erosion Control - Formation of rills and gullies on reclaimed areas will be limited to a maximum of 0.75 feet in depth. General erosion will be evaluated using Mark H. Humphrey's Erosion Condition Classification System (Draft 12/5/90) as adapted from BLM's Erosion Condition Classification System (BLM Technical Note - Number 346)
>
> Vegetative Diversity and Permanence - Premining and postmining values will be compared using Sorenson's Similarity Index or MacArthur's Diversity Index as outlined in the UDOGM Vegetation Guidelines
>
> ~~Seasonality - Seasonality of reclaimed plant communities relative to premining conditions will be evaluated by comparing percent composition of warm season plant species~~

~~Success evaluations for these secondary criteria will be based on the same weighting approach as previously discussed for the evaluation of the primary parameters of vegetative cover and production.~~

R645.301-357 Revegetation: Extended Responsibility Period

No extended responsibility period is anticipated, however, if an extended period is necessary, all of the requirements of the regulations will be complied with as set forth.

Chapter 4

R645-301-400 Land Use and Air Quality

Kinney No 2 Mine

Table of Contents

R645-301-400 Land Use and Air Quality 1
Sources for Land Use Information 1
R645-301-410 Land Use 1
General Land Use Patterns of Permit Area and Adjacent Areas 1
R645-301-411 Environmental Description 2
411.100 Pre-Mining Land Use Information 2
411.110 Use of Land Existing at Time of Filing 2
Mapping of Land Use Information 2
411.120 Capability of Land to Support a Variety of Uses 4
Land Use Capability and Condition 4
411.130 Land Use Classification Under Local Law 5
Descripton of Existing Land Uses 5
LEGISLATED ZONES: 5
Carbon County Zoning Regulations 4.1.1 Zone Designations - From Carbon County Zoning Ordinance, Section 4, Zoning and Regulations Within Zones 5
Scofield Town Zoning Regulations Chapter IV, 4-1 Zone Designations 6
CARBON COUNTY PLEASANT VALLEY PLANNING AREA – GENERAL PLAN 7
LAND DESIGNATIONS: 8
Industrial/Commercial Uses 8
Undeveloped Lands 8
Developed Lands 9
Land Use Constraints Due to Other Environmental Values 11
Restricted Use Areas 12
Land Use Classifications and Zoning Restrictions 12
411.140 Cultural and Historic Research Information 12
Cultural and Historic Resources 12
Cultural Context 13
Historic Context 13
Paleontological Context 14
Cultural, Historic, and Paleontological Resources 15
411.141 Cultural and Historic Resources Maps 15
411.142 Coordination with State Historic Preservation Officer 16
411.143 Identification of Historic and Archeological Resources 16
411.144 Protection of Historic and Archeological Properties 16
411.200 Previous Mining Activities 16
History of Previous Mining Activity ..... 17~~16~~
Description of Known Historic Mining Operations 17
R645-301-412 Reclamation Plan 17
General Reclamation Objectives and Activities 17
412.100 Post-Mining Land Use Plan ..... 19~~18~~
412.110 Methods for Achieving Post-Mining Land Use 19
Reclamation Timing and Sequencing 19
Mapping of Reclamation Information 20
412.130 Alternative Post-Mining Land Use 20
412.140 Consideration of Surface Owners & Local Land Use Plans 20
412.200 Land Owner Comments ..... 21~~20~~
412.300 Suitability and Compatibility 21
413 Performance Standards 21
413.100 Postmining Land Use 21
413.200 Premining Uses of Land 21
413.210 Premining Uses of Land 21
413.300 Alternative Postmining Land Uses ..... 22~~21~~

414 Alternative Postmining Land Uses 22
R645-301-420 Air Quality 22
R645-301-421 Compliance with Clean Air Act 22
R645-301-422 Coordination and Compliance with Utah Bureau of Air Quality 22
Sources of Air Quality Information 22
Regional Air Quality Conditions 22
Coordination With Applicable Federal and State Air Emission Requirements 23
Coordination and Compliance With UDAQ 24

R645-301-400 Land Use and Air Quality

Sources for Land Use Information

Land use history, designations, capabilities, and values in the permit and adjacent areas have been characterized in this section using information from local land use records, studies and reports, existing environmental documents, and previous and ongoing baseline characterization efforts. Available land use information and relevance to this site are summarized below.

Carbon County Assessor's Office, Zoning and Land Ownership Records, Recorders Office, and Information – The County records provided zoning designations for the proposed permit area and surrounding areas as well as documentation of both present and historical ownership.

Scofield Town Zoning information – Town records providing zoning designations for the proposed permit area and surrounding area within Scofield Town.

The wildlife documentation describes wildlife use and habitat values in the Project and adjacent areas. Rather than create both a baseline report and the related permit section, all wildlife baseline information was prepared and formatted for inclusion in the permit.

R645-301-410 Land Use

General Land Use Patterns of Permit Area and Adjacent Areas

Land uses in the permit area and adjacent areas are presently and have historically been constrained by location, topography, climate, and availability of important resource values. Rugged terrain, limited soil resources, low precipitation, high elevation, and seasonally harsh weather conditions, limited water resources, and existence of significant high quality coal reserves are the primary factors which determine land use capabilities in this area. Generally, these factors limit land use options to mining, scattered oil and gas production, low-intensity grazing, wildlife habitat, limited timber production at the higher elevations, and dispersed recreational uses including hunting, fishing, hiking and similar activities. The Scofield Reservoir, located north and west of the permit area, represents a unique land use which is indirectly tied to the surface water and the coal resources available in the area. With the exceptions of the Scofield Reservoir, historic and current mining activities, and limited grazing, there are no significant residential, commercial, or agricultural land uses in the permit area. A portion of the permit area has been annexed into the boundaries of Scofield Town.

The land uses and zoning designations shown on Map 4, Regional Land Use and Zoning Map includes a much larger area than the permit area in an effort to describe uses in the broader general area. All of the uses, and legislated zoning designated areas shown do not necessarily apply to the Kinney No. 2 Mine.

Land uses in the Kinney No. 2 Mine permit area consist of legislated uses by Carbon County and Scofield Town, as well as land uses of wildlife habitat, grazing and dispersed recreation on private property. The Carbon County and Scofield Zoning Codes both have common language such as, "This Ordinance shall be known as, and shall be entitled the LAND USE CODE of Scofield Town, Utah, and may be so cited and pleaded." Therefore, zoning codes are land uses as set forth in the Zoning Codes. These Zoning Codes will be discussed in more detail later in this chapter.

R645-301-411 Environmental Description

411.100 Pre-Mining Land Use Information

Land uses and capabilities in the permit and adjacent areas have been determined through historical records and evaluation of baseline soils, vegetation, wildlife, and hydrology information.

411.110 Use of Land Existing at Time of Filing

Mapping of Land Use Information

Information presented on the Regional Land Use & Zoning Map (Map 4) includes

- Current land use designations and areas
- Locations of identified cultural, historic, and paleontological resource values
- Boundaries of any public parks, or units of the National System of Trails or Wild and scenic Rivers System
- Any cemetery located within 100' of the permit area
- Locations of existing and historic mining related surface disturbance.
- Legislated Zoning designations of the permit and adjacent areas.
- Proposed Kinney No. 2 Mine disturbance footprint.

Information presented on the Previous Mining Activity Map (Map 5) includes:

- The location and extent of historic mine workings in the proposed Kinney No. 2 Mine permit area.

Consistent with applicable provisions of R645-301-512, information on previous mining activities has been prepared under the direction of, and certified by a qualified, registered professional engineer or land surveyor with assistance from experts in the related field.

Existing Land Uses

Land uses in the permit area at the time of filing consist of the following:

Land uses in the permit area at the time of filing this application are shown in Table 3, Historic Land Use, Land Use During Mining Operation and Post Mining Land Use. The land uses will not change from existing uses, they will be exactly the same during mining and for post mining. Zoning Ordinances in the Carbon County Water Shed Zone, Mountain Range Zone and in the Scofield Town Commercial Zones have been established by the County and Town under authority of Utah State Law Title 17, Chapter 27a. This State Law gives authority to local authorities to establish land uses. In addition, wildlife use lands as they will according to the resources available to them.

TABLE 3
HISTORIC LAND USE, LAND USE DURING MINING OPERATION AND POST MINE LAND USE
LAND USES PROPOSED FOR POST MINING ARE THE SAME AS PRE-MINING

Land Uses	Water Shed Zone *No Kinney No 2 Mine Facilities in this zone	Mountain Range Zone *Kinney No 2 Mine Facilities in this zone	Scofield Commercial Zone *Kinney No. 2 Mine Facilities in this zone
Wildlife Habitat	X[1]	X[1]	X Historic,Mining,PMLU
Grazing	X[1]	X[1]	X Historic,Mining,PMLU
Recreation	X[1]	X[1]	X Historic,Mining,PMLU
Mineral Extraction	X[1]	X[1]	X Historic
Ranching	X[1]	X[1]	X Historic
Mining	X[1]	X[1]	X Historic
Water Shed	X[1]	X[1]	
Railroads	X[1]	X[1]	X[2]
Heavy Equipment Storage			X[2]
Loading & Storage of Minerals		X[1]	X[2]
Heavy Equipment Repair			X[2]
Storage Warehouse		X[1]	X[2]
Welding, Metal Fabrication & Machine Shop		X[1]	X[2]
General Business or Professional Offices			X[2]
Electrical Utilities	X[1]	X[1]	X[2]

1. ***Carbon County Zoning Ordinance 4.2.16 Water Shed Zone*** states. "The WS Water Shed Zone (formerly CE-1 Zone) covers the canyons, mountains, and other lands above 7,000 feet in elevation, and of environmental concern in the County. Because of limitations imposed by topography, climate, soil conditions and other natural features, use of the land within this zone has been limited primarily to livestock grazing and related uses, wildlife habitat, certain outdoor recreation activities and facilities, and limited mineral extraction."

   "The land within this zone has functioned historically as part of the watershed for a majority of the irrigation, culinary, and industrial water supply for the Price River Valley and East Carbon City area. It is also recognized that the landscape is constantly changing due to natural occurrences such as fire, flood, insect infestations and landslides. Human activities such as logging, grazing, hunting, camping and other uses affect the landscape, and are accepted as normal in this zone. Experience has shown this watershed area to be fragile; its confirmed function as a water source is of critical importance to the County."

   Carbon County Zoning Ordinance 4.2.17 Mountain Range Zone states."Historically, lands within this zone have been used for livestock grazing, ranching, mining, logging, and other productive uses. These lands also function as a part of the watershed that supplies nearly all the irrigation and culinary water for the Price River Valley and East Carbon City areas."

   "Because of a combination of factors, including accessibility from existing roads, railroads, availability of water, suitable topographical, soil and vegetative conditions, and aesthetic

attractions, the territory included within this zone is capable of accommodating irrigated agricultural and certain mining, recreational and summer housing developments without due adverse effect on the quality of the watershed, provided that such developments are constructed and maintained under regulated conditions."

2. The Scofield Town zoning ordinance language is not as detailed as the Carbon County zoning language, and does not discuss historic land uses. No mention is made of use of the subject land for grazing, recreation or wildlife habitat. From observation by the author, wildlife utilize the area, the area has been used for recreation (campsites on flatter areas are evident), and grazing has been done evidenced by sheep observed and tracks and droppings observed. The zoning ordinance allows 134 separate land uses in this zone as shown on Table 2 of the ordinance. Zoning ordinances specifically include these land uses.

   Only the land uses pertinent to the Kinney No. 2 Mine are listed here.

411.120 Capability of Land to Support a Variety of Uses
Land Use Capability and Condition

The primary constraints relative to the condition and capability of lands within the permit and adjacent areas to support various land uses are the rugged terrain of the area, high elevation, short spring and summer seasons, and long winters. The rugged natural topography of the area may generally be characterized as a small, high elevation valley, with high plateaus to the east and west, narrow ridgelines cut by deep drainages with steep, narrow drainage valleys over most of the proposed permit and adjacent area. The area is semi-arid with mean annual precipitation of only 14.56 (Scofield Dam) inches. Most of the precipitation occurs as either snowfall during the winter months or as brief high-intensity thunderstorms during late summer and early fall. Generally, mining and other development in the area has been limited to valley bottoms and the adjacent lower valley slopes with little or no significant development of high plateau and steep ridge and valley areas. In recent years, summer home construction has become a major development on the ridges west and north of Scofield Reservoir.

Upper plateaus on the east and west of the permit area receive slightly greater amounts of precipitation and because they are typically higher in elevation. Access problems due to the rugged surrounding terrain and harsh climatic conditions during portions of the year have limited both disturbance and use of these areas. The land east of the mine site is private property and has historically been heavily used for sheep and cattle grazing. Generally, potential land uses for the high plateaus in this area are limited by topography and resource constraints to wildlife habitat, low intensity grazing, recreational uses, and scattered timber production. The mining and related activities will not directly affect upper plateau areas since no surface disturbance is proposed or anticipated in these areas.

Land use capability and condition for the permit area is a direct reflection of the rugged terrain. Because the rugged natural terrain makes access and development so difficult and most of the area remains in a natural, undisturbed condition, except for cattle and sheep grazing as mentioned previously. The potential for alternative land uses in these areas is also affected by shallow, poorly developed soils with low water holding capacity and high erosion potential, and by a general lack of adequate surface or ground water resources. The mining and related activities will not directly affect steep ridge and valley areas since no surface disturbance is proposed or anticipated in these areas.

Most existing and historical development in the general area has occurred in the valley bottoms and adjacent lower valley slopes. These areas offer the benefits of practical access, proximity to surface water sources, and more extensive and fertile soil resources. Extensive historical mining and related activities have occurred in the Pleasant Valley within the permit area. Generally these

activities have resulted in extensive surface disturbance and alteration of natural conditions in the effected areas. Specifically, within the proposed disturbed area historic mining has affected approximately 74% of the area. Existing and potential uses in the valley bottom areas include mining, transportation, wildlife habitat, low intensity grazing, and undeveloped and developed recreational uses, as well as development of private property in and around the Town of Scofield. While areas do exist outside of the permit boundary where valley bottom soil resources are adequate to support limited agricultural activities, these areas are limited to the Mud Creek (Pleasant Valley), in the flatter valley bottom. Due to the high elevation of Pleasant Valley, this agricultural use is limited to grass-type pasture use. The short warm season limits crops to grass and grass-hay production, and therefore row crops are not possible.

Production of the valley bottom adjacent to the permit area is discussed in detail in Chapter 9, where an alluvial valley floor may exist. Although there is adequate irrigation water, the climatic conditions and elevation of the valley as discussed above severely limits crops to very short season types. Only grass and grass hay are produced in the valley, with an estimated tonnage of 3500 tons per year in a good year. The area can support 1 AM U per acre according to the Utah State University Extension Service in Price, Utah. Range land, or grazing land higher in elevation than the valley floor can be expected to produce less vegetation for livestock due to steepness of the terrain, generally thinner soils, and more competition by trees and brushy species of plants with plants that are palatable to grazing animals. In turn, less AMU's would also be expected.

The area of the mine is all private property, which limits use by the general public. Private property owners use the lands for a variety of uses including cattle grazing, sheep grazing, hunting, and recreation. Carbon County zoning ordinances and Scofield Town zoning ordinances place restrictions on the type of land use possible in the area. There are no private property developments such as cabin sites or private recreation areas in the mine permit area.

The Town of Scofield is located adjacent to the mine site, and there are a number of homes and cabins in Scofield that are used as vacation or summer homes. The town has a small park that is used for town functions and is available to the public. This park is located at the northern entrance to town and is approximately 500 feet south of the permit boundary.

411.130 Land Use Classification Under Local Law

Description of Existing Land Uses

Existing land use zones and land designations in the proposed permit area and adjacent areas, are illustrated on the Regional Land Use & Zoning Map, (Map 4), including the following classified under specific land use categories as defined by Rule 645-100-200, and are discussed below. Only the land uses and legislated zoning designated areas in close proximity to the Kinney No 2 Mine area are discussed below.

LEGISLATED ZONES:

Carbon County Zoning Regulations 4.1.1 Zone Designations - From Carbon County Zoning Ordinance, Section 4, Zoning and Regulations Within Zones

4.2.16 Carbon County Water Shed Zone (WS) #16

"The WS Water Shed Zone (formally CD-1 Zone) covers the canyons, mountains, and other lands above 7,000 feet in elevation, and of environmental concern in the County. Because of limitations imposed by topography, climate, soil conditions and other natural features, use of the land within this zone has been limited primarily to livestock grazing and related uses, wildlife habitat, certain outdoor recreation activities and facilities, and limited mineral extraction."

There are no planned facilities associated with the Kinney No. 2 Mine within the WS Zone. The coal reserves controlled by CRCEG3 are located beneath this zone.

4.2.17 Carbon County Mountain Range Zone (MR) #17

"The Mountain Range Zone (formerly CE-2 Zone) covers the mountain lands of the County generally which, because of the presence of less severe physical conditions, have experienced historic settlement and are of less critical water shed concern than the WS Zone, and are suitable for limited levels of development activity. These lands are situated over the elevation of 7,000 feet."

A 22.88 acre portion of the surface facilities for the Kinney No. 2 Mine are located on lands within this zone. As shown on Map 4, Regional Land Use & Zoning Map, the eastern portion of the facilities are located in Carbon County, and in this zone. This area allows major underground and surface mine developments (4.2.17.C.6.). The mine portals, coal loadout, coal stockpiles, and sediment pond are in this zone.

Scofield Town Zoning Regulations Chapter IV, 4-1 Zone Designations

5-2.2 Scofield Residential Zone (R-1)

"The Residential (R-1) Zone has been created to provide suitable areas within Scofield Town for the development of residential neighborhoods."

None of the Kinney No. 2 Mine permit area lies within this zone. A small neck of this zone approaches the southwest corner of the permit area but does not connect with the permit boundary.

5-3.1 Scofield Commercial Zone (C)

"The Commercial (C) Zone has been created to provide a suitable areas within Scofield Town for the establishment of retail commercial and service uses, light industrial uses. The C Zone is characterized by a mixture of dwellings and commercial uses such as retail stores, banks, restaurants, office structures, a wide variety of specialty ships, light industrial facilities, located in surroundings which are aesthetically pleasing and conveniently and safely accessible. In general, this zone should be located adjacent to collector or arterial roadways. The specific regulations necessary for the accomplishment of the intent of the zone are hereinafter set forth."

Permitted uses are shown in Table 2 in the code. Number 131 of the permitted uses is "Loading and Storage of Sand, Gravel, Earth, Stone, Gas, Minerals, Petroleum or Similar Resources." The Kinney No. 2 Mine facilities located within this zone are comprised of the mine operating facilities, including bath house, shop/warehouse, storage sheds, and the fueling facility. The mine portals, coal piles, loadout facility and sediment pond are located in the Carbon County Mountain Range Zone (MR).

Scofield Agricultural Zone (A)

"The Agricultural Zone (A) has been created for the purpose of providing suitable areas within Scofield town for the establishment of uses that involve the tilling of soil and raising of crops, or keeping or raising domestic animals, for the purpose of commercial food production. The A Zone shall have the further purpose of providing suitable sites for the placement of dwellings and other uses consistent with a rural lifestyle."
This zone abuts the permit boundary on the west side as can be seen on Map 4, Regional Land Use & Zoning Map, however, there is not A zone within the permit boundary.

CARBON COUNTY PLEASANT VALLEY PLANNING AREA – GENERAL PLAN

Carbon County has adopted the Pleasant Valley Planning Area – General Plan, with the stated purpose of, "Carbon County adopts this General Plan for the Pleasant Valley Planning Area, and as also described by the map materials, and all other necessary maps and other illustrative materials, consistent with purposes of the State of Utah's County Land Use, Development, and management Act, Section 17-27a et. seq. Utah Code Annotated, 1953, as amended. Carbon County also adopts this Pleasant Valley General Plan to achieve the additional purposes of the County including the protection of the various qualities of the Planning Area, including the appropriate development of existing resources, the provision of necessary services in a coordinated and efficient manner, protection of the Planning Area's environmental qualities and the promotion of recreation and tourist activities."

Resource Development

The Resources Development section states the following:

"Carbon County will support appropriate natural resource development within the Planning Area, including the exploration and development of natural gas, coal and other resources, consistent with best management practices to protect the natural environment and physical qualities and features of the Planning Area."

and,

"Carbon County will require and work with all natural resource development operators to achieve necessary site rehabilitation and reclamation actions necessary to protect the water resources of the planning area."

Discussion

The Kinney No. 2 Mine is consistent with the Pleasant Valley Planning Area General Plan as can be determined from the first Resource Development value stated above. In addition, all of the coal in the initial mining plan is owned by Carbon County, which collects a yearly lease fee, and will collect a tonnage fee upon sale of the coal. Carbon County defers regulatory authority for environmental protections to the Utah Division of Oil, Gas and Mining, and accepts the Mining and Reclamation Permit as the definitive plan for environmental protection and reclamation of the site. The County requires a Conditional Use Permit (CUP) for the mining operation. The permit application for the CUP includes some of the information from the DOGM permit application, and states that the operator commits to adhering to the DOGM permit for environmental protections and for final reclamation. The CUP from Carbon County has been approved, a copy of which can be found in Exhibit 4, Other Permits.

Runoff from the Kinney No. 2 Mine operation will be routed through a sedimentation pond, which will protect the environment from degradation, and will meet the requirements of the Carbon County Pleasant Valley Plan. In addition, culinary water, mine dust suppression water, and sewer services will be provided by Scofield Town through an agreement, which has been approved.

LAND DESIGNATIONS:

Pre-SMCRA Mining Disturbance

The Kinney No. 2 Mine permit area, and the general area has an extensive coal mining history. The mine site to be developed by ~~CR~~ CEG3 has been used by at least three mines in the past, the Kinney Mine, the Jones Mine and the Columbine mine. All of these mines were closed before 1980, and the area was reclaimed by the Utah Division of Oil Gas and Mining Abandoned Mine Reclamation program in the early 1980's. Very little is left of the historic mining, and since the area is private property, there has been little public interest, or visitorship of the site. Approximately 74% of the area to be disturbed by ~~CR~~ CEG3 has previously been disturbed and reclaimed.

BOR – Bureau of Reclamation Property Scofield Reservoir

The Bureau of Reclamation (BOR) is responsible for the Scofield Dam and oversees maintenance of the dam. Regulation of the lake level is done in a joint effort by the BOR and the irrigation water users. The BOR does not own any land adjacent to the reservoir near the Kinney No. 2 Mine permit boundary. The BOR does not conduct or maintain any other facilities in the area.

The State of Utah maintains the Scofield Lake State Park, which is located near the dam and at the northern end of the reservoir, but there are no facilities at the southern end of the reservoir.

BLM Property

According to the Carbon County records, the Bureau of Land Management owns a small area of land (80 acres) at the south end of Scofield Reservoir as can be seen on Map 4, Regional Land Use & Zoning Map. This area is small, adjoins the high water line of the reservoir, and is of little use other than for wildlife habitat. The land is surrounded by private property so it cannot be developed for other uses, nor would it be possible since the land is subject to lake flooding in very high precipitation years.

Kinney Mine Proposed Disturbance Footprint

The Kinney No. 2 Mine facilities have been designed to be very efficient, and will occupy a small footprint. The disturbance area will be comprised of 27.6 acres on fee land, and on land leased from a private property owner. There is no public land involved with the mine.

Industrial/Commercial Uses

- Underground Coal Mining
- Scattered Oil and Gas Production
- Transportation and Utilities

Undeveloped Lands

- Low-Intensity Grazing

- Fish and Wildlife Habitat
- Dispersed Recreation
- Limited Timber Production
- Watershed

Developed Lands

- Residential – (Within Scofield Town)
- Mountain Homes & Lake Front Homes – Several developments are located on the east and west sides of the Scofield Reservoir. These developments consist of cabins and homes developed near the lakeshore north of the dam on the east side; on the lakeshore on the west side of the reservoir about one third of the way north from the south end of the reservoir; in the mountains on the west side of the reservoir. The closest developments to the Kinney No. 2 Mine other than in Scofield Town are on the west side of the reservoir approximately 2.2 miles, and 2.7 miles from the mine site. The developments on the east side of the reservoir are located approximately 4.4, 4.9 and 5.5 miles north of the mine site.

Of these multiple uses, watershed, grazing, and wildlife habitat are the dominant use for undeveloped lands and mining constitutes the primary developed land use in the immediate area. Residential and a few commercial uses are located within Scofield Town. The following descriptions characterize the nature of and areas associated with each of these land use categories.

Underground Coal Mining - Extraction of reserves of high quality coal using underground mining methods has resulted in extensive historical mining related development and use within the permit boundary and adjacent areas. Generally, mining related surface disturbance has been limited to that disturbance associated with mine openings, surface facilities, coal processing facilities, transportation systems, and housing for miners and their families. While locally extensive, the underground mine workings have not resulted in significant surface disturbance or other impacts on overlying surface areas or associated land uses. There are some relatively minor subsided areas in the permit boundary resulting from historic mining near the outcrop. Several sink-holes and areas of mine portal areas that collapsed due to very thin overburden, and apparently inadequate roof support. Previous mining activities are discussed in greater detail in R645-301-411. Given the configuration of the coal seams and access constraints imposed by the relatively rugged terrain of the area, most mining related development has been limited to valley bottoms and adjacent lower valley slopes.

The period of active mine development and operation in this area extended from the late 1880's through the early 1970's. At the present time there are no active mining operations in or near the proposed permit boundary. Within the proposed permit planned disturbance area, approximately 74% has been previously disturbed by historic mining activities. The State of Utah AMR Program completed extensive work involving the removal of multiple piles of coal fines and coal material in disturbed areas paralleling Highway 96 in the area planned to be used for the Kinney Mine facilities. This coaly material was placed in areas of the previously disturbed areas, covered with soil, graded, and revegetated. Extensive remaining coal reserves offer the potential for future mining related development and use.

Scattered Oil and Gas Production - Oil and gas production activity in the general permit area and adjacent areas is very limited with no active wells in the permit area. Based on available information, there are no known plans for development of oil and gas wells in the proposed permit area vicinity and the potential for future oil and gas development is limited.

Transportation and Utilities - The rugged terrain of the area limits routing options for major roads and utility transmission lines, consequently roads and utility lines typically follow the existing natural drainage valleys. Within the general permit area, State Highway 96 follows the Pleasant Valley from it's northern head, starting at Highway 6 junction, and running west and south to the old mining community of Clear Creek. A north-south rail line follows generally the eastern toe of Pleasant Valley from the Scofield dam southward to the Skyline Mine load out. Due to access considerations and practical construction constraints, transportation and utility related development is also concentrated in the valley bottom and adjacent lower valley slope areas. The narrow configuration of area drainage valleys and existing developed transportation and utility infrastructures generally preclude any significant additional development or use for this land use category.

Low-Intensity Grazing - Effective grazing use of portions of the permit area and adjacent areas is limited by the rugged terrain and lack of adequate water sources. Small cattle ranching and sheep grazing operations do, however, utilize some of the high plateau areas on a seasonal basis. Since the property in the permit boundary and adjacent areas is privately owned, no formal animal number limits are imposed, and the area is heavily grazed. Grazing use will not be significantly impacted by proposed mining operations since very little surface disturbance will occur in potential grazing areas and underground development will not significantly impact overlying areas or uses. The potential for future expansion of grazing use is generally constrained by topography, and vegetation and water availability.

Fish and Wildlife Habitat - As described in R645-301-300 of this permit application, the permit area and adjacent areas provide habitat for a wide variety of fish and wildlife species. Generally, any areas not utilized for other designated uses are considered to be undeveloped lands, which are utilized to varying degrees, dependent on the availability of other resource, values as wildlife habitat. Given this consideration, wildlife habitat is one of the two primary land uses for the permit and adjacent areas and these areas are subject to low-intensity management for wildlife use by the responsible wildlife management agency. Various species are associated with one or more of the habitat zones which occur throughout the area. Portions of the permit area have been designated by the UDWR as critical and high-priority habitat for mule deer and elk, and sage grouse as shown on the wildlife maps, (Maps 2A through 2G). Species occurrence and habitat values have been impacted to some degree in those areas affected by previous mining related surface disturbance. Historic mining disturbances typically remain in a partial state with varying levels of plant reestablishment and resultant restoration of habitat values. In those limited areas where more recent mining activity has occurred, full-scale reclamation efforts have resulted in effective vegetative reestablishment and general restoration of many of the premining habitat values.

Historic mining operations resulted in disturbance of relatively limited surface areas generally, although much of the disturbance was near the valley bottom areas associated with high-value habitat. Generally, surface disturbance for the Kinney Mine mining and related activities will be in previously disturbed areas (20.7 acres previously disturbed = 74% of total Kinney No. 2 Mine disturbancd) so incremental disturbance (6.9 acres) and associated wildlife habitat impacts will be negligible. Although, the reclaimed areas of historic mining by the Utah AML project in the 1980's have provided some habitat for local wildlife species. On completion of the Kinney Mine proposed mining and related activities, affected surface disturbance areas will be reclaimed, resulting in restoration of the premining habitat values.

Dispersed Recreation - Generally, these activities occur on a seasonal basis primarily on public lands in the area, such as the Scofield Reservoir area. Since all of the permit boundary area, and adjacent areas are privately owned, recreation activities are limited to those private land owners and their guests. The recreational activities associated with Scofield Reservoir are limited to the

lake itself and a narrow band along the shore of the lake where the general public has access. These activities will not be affected by mining at the Kinney Mine. Availability of and proximity to much more desirable recreational areas along the Wasatch Front and in the canyonlands to the south are also limiting factors. Given existing low use levels and the various limiting factors, the potential for expanded recreational use of the mine area is small, and limited to developments on private property.

Limited Timber Production - The scattered coniferous forest growth in the general area supports limited logging on private property in the general area. Limited public lands available for logging and access constraints generally make large-scale logging activities economically infeasible. The permit area, and adjacent areas north, south and east of the mine area do not contain significant stands of conifers that would support timber production. Given the limited importance of logging use in this area and the practical operational and economic constraints, there is little potential for expanded future logging use.

Watershed – A majority of the general area is zoned by Carbon County as Watershed Zone (WS). The entire permit area is tributary to Scofield Reservoir, a Bureau of Reclamation project that serves water users in the Price and Carbon County areas. The main source of irrigation and one of the main sources for culinary water for Carbon County, and Price City is Scofield Reservoir. Impacts from livestock grazing adjacent to Scofield Reservoir has been a problem to water quality in the reservoir, as well as human uses in the area. These water impacts are well known and well documented in the literature and are not presented in this application other than a general reference. Also refer to a discussion of the Carbon County Pleasant Valley Planning Area – General Plan presented previously in this Chapter.

Land Use Constraints Due to Other Environmental Values

As previously noted, topography and climate are the primary environmental constraints on potential land uses in the permit and adjacent areas. In addition, the following specific environmental constraints may limit potential land uses either generally or in specific areas:

Soils - Potential soil constraints correspond to three general soil groupings; 1) Upland soils; 2) lowland and riparian soils; and 3) Disturbed soils. Upland soils are commonly shallow, poorly developed, and have moderate to high erosion potential and low to moderate water holding capability. Given these considerations combined with the rugged terrain, upland soils are generally not suitable for intensive agricultural uses or commercial/industrial/residential development and may be a limiting factor for grazing, logging, and wildlife habitat. The areal extent of lowland and riparian soils is typically limited by high drainage gradients and narrow stream valleys. Limited occurrence and a high proportion of coarse fragments are limiting factors for lowland soils relative to any intensive agricultural uses. Given poor soil development in many areas, soil disturbance may not significantly impact overall soil productivity. Disturbed soils in the permit area, do, however, frequently contain coal materials and coarse fragments which may affect soil handling activities and soil productivity relative to any intensive agricultural uses. A more thorough discussion of soils in the mine area can be found in Chapter 2, Soils, and in Chapter 9, Special Categories, specifically in the AVF area west of the mine development site.

Vegetation - Site vegetation is generally a reflection of soils, water availability, elevation, and topographic configuration and aspect. Vegetation type and occurrence are natural constraints relative to potential grazing and wildlife habitat uses. No threatened, endangered, or sensitive plant occurrences have been identified in mining and related activities surface disturbance areas.

Wildlife - Wildlife is a constraining land use factor only to the extent that certain development activities may be precluded or otherwise limited in areas identified as critical habitat for certain species of high interest. These areas would include breeding and rearing areas, animal migration routes, and areas in close proximity to active raptor nests. Significant habitat areas for most wildlife species do not exist in the planned permit disturbed area. There have been no identified eagle nests in the area. Since prime nesting habitat for eagles does not exist in the mine plan area, no specific habitat mitigation measures are proposed for eagle nests in close proximity to active surface disturbance or operating areas. There are no riparian habitat areas within the proposed disturbance area or the immediate adjacent area.

Hydrology - As a critical component of both intensive agricultural practices and grazing activities, and an important element relative to fish and wildlife uses, water availability may limit these uses in most portions of the permit area. The only identified riparian habitat in the general area of the mine is a narrow band of riparian vegetation along Mud Creek, which is approximately one quarter mile west of the permit area. There are no identified riparian habitat areas within the permit boundary.

Restricted Use Areas

With the exception of the existing public right-of-way for Highway 96 that borders the permit area on the west, and the watershed area tributary to Scofield Reservoir there are no public parks, components of either National river or trail systems, renewable resource lands, areas designated unsuitable for mining, or other restricted use areas within the proposed permit area or immediately adjacent areas. The mining and related activities have been planned and designed to maintain a minimum distance 300 feet from any occupied dwelling. There are Identified cultural/historic resource sites within or adjacent to the mine permit area that are addressed in other sections of this application, however, none of these sites are significant and should not preclude mining. The mining activities will occur within 100 feet of the outside right-of-way line of Highway 96 and ~~CR~~ CEG3 has complied with applicable public notification and comment requirements as described in R645-300-100.

Land Use Classifications and Zoning Restrictions

The majority of the eastern portion of the permit area in Section 33, T12S, R7E, and Section 4 T13S, R7E, Salt Lake Base & Meridian as shown on the Regional Land Use & Zoning Map, (Map 4) is zoned by Carbon County as Watershed, which does not allow coal mining surface facilities. A small area encompassing the proposed disturbed area as shown on Map 4 has been rezoned by Carbon County to Mountain Land, effective October 17, 2007, which does allow surface facilities associated to coal mining. The area shown on Map 4 in Section 32, T12S, R7E lying within Scofield Town boundaries has been rezoned to Commercial, effective January 2008, which allows coal mining facilities. The designated land use classifications and any related zoning restrictions are consistent with both existing land use activities and those activities proposed in conjunction with the Kinney No. 2 Mine mining and related activities operation and reclamation plans.

411.140 Cultural and Historic Research Information

Cultural and Historic Resources

This section describes existing cultural, historic, and paleontological resource values identified within the permit and adjacent areas which could potentially be impacted by mining and related operations. Cultural/historic/paleontological resource values in the permit and adjacent areas

have been identified and characterized through review of previous studies and reports, conversations with individuals familiar with the history of the area, and site specific field investigations of surface disturbance areas. The Regional Land Use & Zoning Map (Map 4) shows the area included within the detailed study area boundary.

Site specific field inventories of the proposed surface disturbance areas were conducted during the month of May 2007. Field inventory work followed extensive research and review of previous studies of the area, and historical accounts. Field surveys involved coverage of an area of approximately 395 acres by a qualified archaeologist using parallel pedestrian transects spaced at intervals of up to 10 meters to search for any evidence of cultural, or historic values. Detailed discussion of site specific field inventories and descriptions of any resources identified as a result of the field investigations are presented in Exhibit 3, Cultural Resource Information (included in the confidential information section).

Cultural Context

Although human habitation of the area may have occurred as early as the Clovis Period (12000 to 9000 B.C.), the majority of prehistoric cultural resource sites identified in this part of Utah date from the Black Rock (4000 B.C. to A.D. 500) or more recent periods. The dominant prehistoric cultures known to have inhabited the general area are the Fremont and Numic/Shoshonean Cultures. The Fremont Culture (A.D. 400 to 1300) was characterized by a settled horticultural lifestyle with well developed construction practices (laid masonry), distinctive ceramics, and advanced farming methods. The Fremont Culture appears to have been supplanted by semi-nomadic Numic/Shoshonean speaking Indians which migrated into Utah from the northern Great Basin of Nevada and Idaho. These Numic/Shoshonean peoples are probably the ancestors of the Northern and Western Utes which now inhabit the Uintah-Ouray Indian Reservation located to the northeast of the proposed permit area. The Numic/Shoshonean habitation extended from approximately A.D. 1200 to 1400 with individual family groups or larger multi-family bands migrating seasonally within semi-fixed territories in response to the availability of various food sources.

The Ute descendants of the Numic/Shoshonean peoples continued to reside in the general proposed permit area vicinity until shortly after the arrival and initial settlement of the area by Mormon settlers in 1847. At that time the Timpanogots, a subgroup of the Western Ute, were displaced from the Utah Valley and Spanish Fork Canyon and resettled on a reservation at the south end of Utah Lake. They subsequently abandoned this reservation in favor of a larger reservation established in the Uintah Basin, although they continued to return to their original lands through the early 1900's to fish during the spawning season. While the proposed permit area and adjacent areas are not known to have been primary settlement areas for either prehistoric or historic native peoples they were probably utilized on an occasional or intermittent basis for migrational food gathering activities.

Historic Context

The first non-native exploration of this general area occurred in approximately 1776 when members of the Dominguez-Escalante expedition passed through Spanish Fork Canyon to the north on their way to California. While exploration and fur trapping in the 1820's and 1830's covered large areas to both the north and south, John C. Fremont's exploration of this general area in 1844 is the only other known occurrence of non-native exploration or use of the area prior to the arrival of Mormon pioneers in 1847.

Following initial settlement of Salt Lake City by the Mormons, Mormon settlement began expanding southward to the Utah Valley and adjacent areas. The settlements of Palmyra and Spanish Fork were founded at the mouth of the canyon adjacent to the Spanish Fork River in 1852. Settlement of the very desirable rich open farmlands of the Utah Valley delayed settlement of other nearby areas until much later. The early settlers did, however, utilize the natural resources of the nearby mountains, establishing a rough road up Spanish Fork Canyon prior to 1869 which was apparently used to access logging areas and by settlers to move their herds to summer range areas near Colton and Soldier Summit.

The more modern history of the Scofield/upper Pleasant Valley area is diverse and dramatic, despite the fact that Europeans did not firmly establish themselves until the early 1870's (Madsen 1947). The earliest settlers in Pleasant Valley came not for coal, but the abundant grasses that covered the valley floor, with which they grazed herds of cattle. Timber was another early resource found in the area, and b the early 1880's numerous mills were in operation. However, neither of these industries brought as many people to the valley, however, as coal mining. Coal deposits in the region were recognized by the Beckwith-Gunnison Expedition a early as the mid-1870's. Near Scofield, at least one mine was in operation as early as 1877 and several others began operations during the first few years of the 1880's (Madsesn 1947).

A narrow-guage railroad between Pleasant Valley and Springville, started in 1877, was completed in 1879; the Utah and Pleasant Valley Railway made the transportation of coal much more cost-effective than hauling the material by wagon (Carr and Edwards 1989). In 1881 the Denver and Rio Grande Western purchased the Utah and Pleasant Valley Railway, which helped to break Union Pacific's monopoly on railroad transportation to and within Utah (Watt 1997). In 1877, Peter Morgan located the Winter Quarters Mine near Scofield. Until 1900, coal mining was extremely prosperous in the Scofield area and the small town prospered. The coal mining industry's demand for labor required the recruitment of men from outside the state and resulted in the emigration of varied nationalities including Italians, Greeks, Chinese, Finns, Japanese, Mexicans, and Yugoslavians (Watt 1997). Labor conflicts and strikes were recurrent after the turn of the century, with the largest occurring in 1901, 1902-1903, 1922, and1933. Unionization attempts and strikes during this period attracted the attention and support of Charles DeMolli and Mother Mary Jones, prominent American labor and community organizers (Watt 1997). A recurrent labor demand was for safer working conditions.

The most deadly mining accident in Carbon County occurred at the Winter Quarters Mine. On May 1, 1900 a coal mine explosion commonly referred to as the Scofield Mine Disaster occurred. In Number 4 Mine of the Winter Quarters Mine, a spark ignited coal dust, ultimately resulting in the death of 200 miners (Madsen 1947, O'Neil 1981, Watt 1997). After the May 1 mine accident, coal mining began a series of boom and bust cycles resulting from political and economic factors in an ever-shrinking world market. Boom cycles occurred in conjunction with World War 1, World War II, and to a smaller degree the Korean War. Coal production has fallen dramatically since the 1950's as natural gas and oil began to fulfill the nation's energy needs.

Paleontological Context

Within the permit area, the Upper Cretaceous Blackhawk Formation of the Mesa Verde Group is the only geologic formation which is exposed at the surface within the existing or proposed surface disturbance areas. The Blackhawk Formation has been characterized as a representing a wave dominated delta system (Chan et. al., 1991) with a broad, flat marshy belt along a shoreline coastal plain. Vegetation included marginal coniferous forests, scattered deciduous trees such as gum, walnut, fig, and cottonwood, and numerous grass and sedge species. Dinosaurs roamed the marshy areas as evidenced by numerous dinosaur tracks. Generally, known fossils occurring

in the Blackhawk Formation include plants, palynomorphs (pollen), occasional mollusks, dinosaur tracks, animal tracks, and other trace fossils. Actual bone or skeletal fossils are rare and most of the known fossils are found in association with the coal seams. A listing of paleontological Sensitive Formations in Utah (Madsen, 1985) ranks the Blackhawk Formation as second for trace fossils, third for fossil plants, twenty-seventh for vertebrate fossils, and does not present a ranking for this formation for invertebrate fossils. Generally, trace fossils, and specifically dinosaur tracks, are the most common fossils associated with the Blackhawk Formation in this area.

Cultural, Historic, and Paleontological Resources

As previous described in R645-301-400, cultural, historic, and paleontological investigations for the permit area included research and review of previous studies and records, conversations with individuals familiar with the area, and site specific field investigations for surface disturbance areas which generally corresponds to the mine facilities and permit boundary area. Generally, the research and review phase established the context of the area as discussed in the preceding sections and provided some insight relative to the locations and types of resources which might be present. Cultural, and historical, investigations for the proposed permit area resulted in identification of one previously documented site, the documentation of three previously recorded sites, and the documentation of five new sites.

The complete Cultural Resource Inventory report is located in Exhibit 3, Cultural Resource Information and considered to be confidential. The locations of all inventoried sites can be found in Figure 1 of the report, and normally would not be found on any other map in the permit application due to the sensitive nature of cultural, historical information, however due to a requirement by the UDOGM, the sites in the surface facilities area have been added to Map 14, Mine Surface Facilities, Pre-Mining Topography Map.

The Conclusion and Recommendations from the Cultural Resource Inventory Report states:

> "The inventory of ~~Carbon Resources~~Coal Energy Group 3 LLC's proposed Kinney No. 2 Mine resulted in the location of one previously documented site, the documentation of three previously recorded sites, and the documentation of five new sites. Three of these sites are recommended as eligible to the NRHP and the remaining six sites are recommended as not eligible to the NRHP. Sites 42Cb477 (Jones Mine), 42Cb479 (Kinney Mine) and 42Cb1032 (Utah & Pleasant Valley Railway) are evaluated as eligible to the NRHP under Criterion A (associated with significant events in regional history). Therefore, the proposed undertaking will not diminish the integrity of these properties which deems them eligible under Criterion A. Based on the findings archeological clearance is recommended for this project."

Copies of correspondence, permits, or any other documentation will be added to Exhibit 21, Permit Documentation as they become available.

411.141 Cultural and Historic Resources Maps

A map showing the inventory of cultural resources is included in Exhibit 3, Confidential Information, Cultural Resource Inventory of ~~Carbon Resources~~Coal Energy Group 3 Kinney 2 Mine. The locations of all inventoried sites can be found in Figure 1 of the report, and normally would not be found on any other map in the permit application due to the sensitive nature of cultural, historical

information, however due to a requirement by the UDOGM, the sites in the surface facilities area have been added to Map 14, Mine Surface Facilities, Pre-Mining Topography Map.

There are no cemeteries located within 100 feet of the permit area. The Scofield Cemetery is located approximately 950 feet south and 685 feet west of the permit boundary.

There are no National System of Trails or Wild or Scenic Rivers System resources in the area of the permit boundary.

411.142 Coordination with State Historic Preservation Officer

As a component of the initial site investigations the State Historical Preservation Office (SHPO) was contacted to obtain information on existing identified cultural resource sites in the permit area. Following the site specific field investigations, official site listing forms for any new cultural resource sites identified have been prepared and submitted to the SHPO for review and determination of eligibility.

411.143 Identification of Historic and Archeological Resources

Site specific field inventories of the proposed surface disturbance areas were conducted during the month of May 2007. Field inventory work followed extensive research and review of previous studies of the area, and historical accounts. Field surveys involved coverage of an area of approximately 395 acres by a qualified archaeologist and a paleontologist using parallel pedestrian transects spaced at intervals of up to 10 meters to search for any evidence of cultural, or historic values. In addition, accessible rock outcrop exposures around the perimeter of the survey area were examined for any evidence of paleontological values. Detailed discussion of site specific field inventories and descriptions of any resources identified as a result of the field investigations are presented in Exhibit 3, Cultural Resource Information (included in the confidential information section).

411.144 Protection of Historic and Archeological Properties

On September 23, 2010 the UDOGM sent a letter to Lori Hunsaker, Deputy State Preservation Officer, Division of State History with a Decision of No Adverse Effect to Historic Properties, ~~Carbon Resources~~Coal Energy Group 3 Kinney No. 2 Mine. On October 13, 2010 Lori Hunsaker sent a letter to the UDOGM recommending a determination of No Adverse Effect for the undertaking. Copies of both letters have been added to Exhibit 21, Permit Documentation.

411.200 Previous Mining Activities

Previous mining activities within the permit area and adjacent areas are important because they directly impact the coal resource available to support further mining operations and are associated with existing site disturbance and environmental impacts as reflected by baseline environmental characterizations. The nature and extent of previous mining and related activities in the permit area and adjacent areas have been identified and characterized through review

of historical mine maps, records, publications, and reports and conversations with individuals familiar with the history of the area. Old mine maps have been obtained from the Utah Geological Survey Office in Salt Lake City, and from other sources.

History of Previous Mining Activity

As previously described in R645-301-411, Historical Context, the earliest recorded mining activity in the area was the development of the Winter Quarters Mine in 1877. Extensive mine development and operations continued throughout the area through World War II. After the war, mining in the area experienced a gradual decline due primarily to the shift from coal fired to diesel locomotives. In the proposed permit area and adjacent areas numerous mines operated through the 1970's. The UP (Union Pacific) Mine, with portals located south of the proposed mine permit area mined from 1877 through about 1936. Underground workings from this mine extended well into the area where the Kinney No. 2 Mine is planned. Four other mines operated in the area of the proposed Kinney No. 2 Mine, from north to south in the following order; 1) the Blue Seal Mine, located approximately 1 mile north of Scofield Town, and approximately 500 feet north of the proposed permit boundary operated from 1921 to the 1940's, 2) the Kinney Coal Company operated the Kinney Mine from 1918 to 1956, and was known from 1946 through 1956 as the Monay Mine; 3) the Columbine Mine was operated from 1960 through early 1971; and 4) the Jones Mine was operated by the Spring Creek Coal Company from 1960 to about 1970 (Cunningham 1990).

Description of Known Historic Mining Operations

All of the previous historical mining operations in the area have been conventional underground room and pillar coal mines extracting coal reserves from one or more of the known coal seams in the Blackhawk Formation. These mines operated in the Hiawatha, UP Upper Split, and UP Lower Split coal seams. Map 5, Previous Mining Activity shows the aerial extent of historic mining in the various coal seams in the area of the proposed Kinney No. 2 mine. This same map shows the locations of the portals for these mines. There is some confusion as to which of these portals actually belong to each mine in some cases because the mines were partially interconnected.

R645-301-412 Reclamation Plan

This section presents and describes reclamation plans and practices to be used to restore disturbed areas resulting from mining and related activities to productive self-sustaining use. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-500) for coal mine permitting in the State of Utah.

The specific reclamation plans developed for the Kinney No. 2 Mine area and the proposed reclamation practices reflect the overall reclamation objectives, site specific conditions and constraints, and the best current reclamation techniques and methods. The following sections describe the timing and sequencing of reclamation activities, general reclamation requirements, and specific reclamation practices.

General Reclamation Objectives and Activities

Reclamation will be an integral part of the Kinney No. 2 Mine mining and related activities,

however, because the mine will be an underground mine and the surface facilities and related surface disturbance areas will remain in place until the end of the mine life, mining and reclamation will not occur concurrently or, in the case of progressive mining activities, sequentially. Reclamation of surface disturbance areas will generally occur following the cessation of mining operations to complete the mining and reclamation cycle although ~~CR~~ CEG3 will implement temporary stabilization measures in certain areas following initial construction or during ongoing operations.

Objectives of the planned reclamation activities will be twofold; 1) For construction disturbance, temporary stabilization and contemporaneous reclamation will serve to stabilize disturbance areas, minimize erosion, and limit potential surface water impacts; 2) For long-term use areas, final reclamation is designed to restore disturbed areas to a safe, stable condition and to reestablish the productivity of the land consistent with the postmining land uses of wildlife, grazing and recreation. The proposed postmining land uses of wildlife habitat, water shed, and commercial use reflects the predisturbance use of this and adjacent areas, existing land use plans and policies, the desires of affected surface landowners, and practical constraints relative to land use capability and condition. Specific land use considerations and constraints are discussed in R645-301-400, Land Use Information. The Kinney No. 2 Mine reclamation plan has been designed to successfully meet these objectives and will result in effective temporary stabilization, and a postmining configuration which blends with the surrounding terrain and provides environmental values consistent with or superior to those which existed prior to mining.

The Kinney No. 2 Mine reclamation plan has been developed utilizing available information on the existing environmental resources as described in R645-301-200, 300, 400600, and 700, Environmental Information. In addition, ~~CR~~ CEG3 has incorporated both available information on current successful reclamation technology and practices and their extensive operating experience in the area. While the plans presented in this permit represent what ~~CR~~ CEG3 feels to be the most effective reclamation practices for this site, it is important to note that successful reclamation must be a dynamic process, incorporating new information to optimize overall effectiveness. In order to meet the reclamation objectives these plans may be modified as appropriate to reflect changing conditions, revised regulatory requirements, advances in reclamation technology, and the results on ongoing research and experience relative to the long-term effectiveness of various reclamation practices. Any future plan modifications will be submitted as permit modifications through the normal regulatory process. Reclamation will involve a logical sequence of activities designed to achieve the overall reclamation objectives in an organized progressive manner. The following represent the general steps for reclamation of any mine or mine related surface disturbance areas:

- Facility Demolition and Removal
- Stabilization and Sealing of Mine Openings
- Disposal of Non-Coal Wastes, and Mine Waste Materials
- Removal and temporary storage of topsoil/substitute materials from long term storage (necessary because of segregation of better quality topsoil on top of substitute topsoil materials in stockpile)
- Backfilling and Grading to Establish the Final Design Configuration
- Drainage Reestablishment
- Road Removal
- Soil/Substitute Replacement
- Revegetation
- Post-Reclamation Management, Maintenance, and Monitoring
- Removal and Reclamation of Sedimentation Ponds and Associated Structures
- These activities are discussed in detail in the following sections.

412.100 Post-Mining Land Use Plan

The postmining land use for the mine area is the same as the current land uses, which are Mountain Range, Water Shed, Wildlife Habitat and Commercial within the Scofield Town boundary as well as those uses shown in Table 3 presented previously in this chapter as per the legislated zoning ordinances. Beyond the general reclamation objectives of restoring disturbed areas to a safe, stable condition and reestablishing the productivity of the land consistent with the postmining land use(s), this reclamation plan is designed to achieve the following specific operational and environmental objectives:

- Removal of Mining Related Structures and Facilities
- Eliminate Potential Hazards
- Establish a Stable Postmining Configuration
- Restore Effective Drainage
- Establish a Productive Self-Sustaining Vegetation Community

412.110 Methods for Achieving Post-Mining Land Use

Reclamation Timing and Sequencing

~~CR~~ CEG3 will reclaim mining related surface disturbance areas as soon as operationally practicable following completion of mining and related activities. For construction related disturbance, this commitment translates into regrading, establishment of effective drainage and sediment control, and temporary vegetation of the disturbed areas to stabilize these areas and prevent erosion or uncontrolled runoff.

With the exceptions of temporary stabilization of construction disturbance, other mining related disturbance areas are expected to remain in a disturbed condition until after the completion of mining and related activities. Reclamation of mine surface facilities areas following completion of mining will be initiated as soon as operationally feasible after mining ceases and no later than the next normal field season (typically May through October). It is anticipated that final reclamation would be completed within 24 months from the time the last coal is either produced or shipped from the property, whichever is later. Figure 36, Reclamation Timetable - Mine Facilities Area, outlines the specific sequence and anticipated timing of final site reclamation activities.

Final reclamation will involve removal of all mine related structures and facilities, closure and sealing of portals and mine openings, disposal of waste materials, temporary stockpiling of topsoil materials, backfilling and grading, drainage reestablishment, road removal, placement of soil or substitute materials, and revegetation. Generally, soil/substitute replacement and revegetation efforts will be coordinated so that soil materials are revegetated as soon as practically possible following placement. Normally this will involve placement of soil/substitute and immediate reseeding at the end of the field season in late fall. This approach allows the seed to "winter over" with germination in the spring when soil moisture conditions are elevated due to winter snow accumulations and spring melt. Because the main topsoil/substitute stockpile is configured to place the best material on top of lower quality topsoil/substitute, some of the better topsoil may have to be double handled to get to lesser quality material or backfill material beneath the topsoil. If this is the case, the better material will be temporarily stockpiled in a stable location and protected from erosion until it is finally spread. A detailed plan for this topsoil handling plan will be coordinated with the DOGM during reclamation.

Following final reclamation of mine facilities areas, the facilities to remain for postmining land use include the roads shown on Map 29, Mine Surface Facilities Area - Postmining Topography and

Interim Drainage Control Map. Also remaining will be some permanent drainage structures shown on Map 29. These structures will remain in place to provide protection from erosion and degredation of the reclaimed areas and to provide long term protections for the postmining land uses in the area as discussed in this Chapter. The proposed interim drainage and sediment control plan includes four areas where ~~CR~~ CEG3 proposes to utilize alternative sediment control methods as the primary means of controlling erosion and sediment contributions. The Mine Surface Area - Postmining Topography and Interim Drainage Control Map (Map 29), shows the drainage and sediment control features which will be retained during the reclamation liability period, and for post mining land uses. Components of the interim drainage and sediment control plan are identified and discussed in detail in R645-301-730 Hydrologic Resource Protection and PHC. ~~CR~~ CEG3 proposes to control sediment contributions during reclamation of the site using a combination of silt fences, straw bales, and other appropriate alternative sediment control measures. These temporary controls will be installed prior to any reclamation activities and serve as a protective barrier between the reclamation areas. The alternative sediment controls will remain in place during backfill/regrading operations, placement of soil material, reseeding, and re-establishment of vegetation, and will be removed following vegetative re-establishment. ~~CR~~ CEG3 anticipates that reclamation of these features will be completed within 6 to 9 months following receipt of a reclamation success determination, dependent on the time of year that the determination is issued.

Mapping of Reclamation Information

Information presented on the reclamation maps and cross-sections includes:

- Anticipated final surface configuration – Map 29
- Postmining drainage features – Map 29
- Location of any structures and facilities which will be retained as permanent structures following the completion of mining – Map 29
- Any roads to be retained in conjunction with the postmining land use – Map 29

412.130 Alternative Post-Mining Land Use

No alternative post-mining land uses are proposed for the Kinney No. 2 Mine area.

412.140 Consideration of Surface Owners & Local Land Use Plans

The post-mining land use plan considers the use of the land consistent with the current land owners and the post-mining land use designations. A portion of the land is privately owned and leased to ~~CR~~CEG3, with the intent of operating a coal mine. The land owner therefore approves of mining as an acceptable land use, and final reclamation for the proposed land uses for post mining. The land owner will construct the bypass road shown just east of the proposed surface facilities area on Map 13, Surface Facilities Map and Map 29, Mine Surface Area – Postmining Topography and Interim Drainage Control Map. This road will replace the existing road running through the mine site that will be destroyed by mine construction. This road and ditch will necessarily serve as an undisturbed area diversion for runoff water from the area upslope from the mine facilities as shown on Map 24, Drainage and Sediment Control Plan – Disturbed Areas.

412.200 Land Owner Comments

Chapter 1 addresses land ownership and references the agreement with George Telonis ETAL, which gives ~~CR~~ CEG3 the right to use the land for coal mining. Only one landowner comment was received during the two public comment periods conducted for this permit application. A formal request was received by DOGM during the initial comment period. This comment was a request for a hearing, which was held and the Division made a finding that the commentor did not make their case.

412.300 Suitability and Compatibility

The reclamation plan addresses the suitability of soils materials for reclamation, refer to Exhibit 6, Soils Information.

413 Performance Standards

413.100 Postmining Land Use

The disturbed areas will be reclaimed in a timely manner to conditions that are capable of supporting the uses they were capable of supporting before mining, or to a better use. The reclaimed area will be compatible with all of the land uses in place prior to mine development, and will be compatible with all zoning ordinances and designations.

413.200 Premining Uses of Land

The land in the permit boundary has historically been used as grazing land by the private property owners. No dwellings or other structures exist at the time of this permit application submittal. The planned surface facilities area has historically been used for coal mining by several mining companies, notably, The Kinney Mine, Columbine Mine, and the Jones Mine. The planned surface disturbance area for the Kinney No. 2 Mine comprises 27.6 acres, of which only 6.9 (25%) acres have not been previously disturbed.

The permit area is also wildlife habitat, and falls within the Carbon County Water Shed (WS) zone, the Carbon County Pleasant Valley Zone (PV), the Carbon County Mountain Range Zone (MR), and the Scofield Town Commercial Zone (C) as previously discussed in this Chapter. The land will be returned to the pre-mining condition and will be compatible with both water shed, wildlife, Carbon County Zones, and Scofield Town Zone values.

413.210 Premining Uses of Land

The eastern portion of the disturbance area lies within Carbon County and is zoned by Carbon County as Mountain Range (MR) Zone which allows coal mining operations. The western portion of the disturbance area lies within Scofield Town and is zoned by Scofield Town as Commercial (C), which allows coal mining operations. These areas will be returned to the pre-mining condition, or better, and will be compatible with requirements of the regulations.

413.300 Alternative Postmining Land Uses

No alternative postmining land uses are planned for the area.

414 Alternative Postmining Land Uses

No alternative postmining land uses are planned for the area.

R645-301-420 Air Quality

R645-301-421 Compliance with Clean Air Act

R645-301-422 Coordination and Compliance with Utah Bureau of Air Quality

Sources of Air Quality Information

Air quality conditions in the proposed permit area and adjacent areas have been characterized in this section using information from studies and reports, previous and ongoing monitoring activities, and existing air emission permit application. Available air quality information and relevance to this site are summarized below.

Gault Group, Inc. Draft Notice of Intent for Kinney No. 2 Mine Project, February, 2008. Draft notice outlines proposed development plans, describes potential emissions and controls, and provides documentation for calculated emissions projections.

No site specific emission studies or monitoring were conducted given the classification of this area as an "attainment" area and the lack of site-specific monitoring requirements under applicable regulatory provisions.

Regional Air Quality Conditions

The permit and adjacent areas lie within the central area of the Upper Colorado River Air Basin. The central area has been divided into smaller sub-basins, each of which is characterized by meteorological conditions and related dispersion characteristics which are relatively homogeneous. The sub-basin concept, which assumes contained airflow within the basin, is generally applicable for normal air flow conditions but breaks down under storm conditions or other situations where strong regional air movements result in greater air turbulence and mixing between sub-basins and even major air basins.

Air movements in this area are strongly affected by natural drainage patterns and daily temperature variations. As local air masses cool at night, the denser, cool air flows down valleys and other natural drainage channels. Generally, the winds associated with downslope movements are low to moderate, however, if the drainage alignment parallels the prevailing wind direction or if topographic features concentrate natural air flows, moderate to strong downslope winds and high intensity gusts may result. As natural warming occurs during the morning and early afternoon, warm air masses begin to move up-valley. Differential heating and upper level winds

tend to have a greater impact on the upward air movements resulting in greater mixing and instability with resultant variable winds and greater potential for gusty conditions. Normally, prevailing winds in the area are from the west and northwest, however,
during the winter persistent high pressure cells which settle above the Wasatch Mountains to the north can shift the prevailing winds to the northeast for extended periods.

The Federal Clean Air Act establishes acceptable levels of air quality based primarily on human health related exposure levels. Quantitatively, air quality exposure levels are defined by the National Ambient Air Quality Standards (NAAQS) as maximum allowable primary and secondary concentration levels for the following specific pollutants:

- Nitrogen Dioxide (NO_2)
- Sulfur Dioxide (SO_2)
- Carbon Monoxide (CO)
- Particulate matter smaller than 10 microns in size (PM_{10})
- Ozone (O_3)
- Lead (Pb)

Based on the standards and available regional air quality monitoring data, specific areas are then evaluated and classified relative to compliance with the NAAQS. Areas where monitoring data indicate exceedances of the standards for one or more of the designated pollutants are designated as "non-attainment areas" for those specific pollutants. Carbon County, which encompasses most of the proposed permit area and adjacent areas, has been designated as an attainment area for all NAAQS primary pollutant levels indicating no significant existing air pollution problems in this area. Available monitoring data does indicate spot exceedances of secondary standards for total suspended particulates (TSP) for the areas of Price, Huntington, and Cedar Mountain, however, these exceedances are generally due to natural conditions of blowing dust and are not related to any specific development or operating activities.

There are specific areas designated by Federal regulation where potential air emission sources are not allowed to result in any significant deterioration of existing air quality. These areas, which include National Parks and designated Wilderness areas, are classified as "Prevention of Significant Deterioration - Class I Areas" (PSD). The only Class I PSD area in the general vicinity of the proposed permit area is Capital Reef National Park, which is located approximately 90 miles southwest of the proposed permit area. Given the combined factors of very limited potential from air emissions, mining and related activities, distance, and prevailing wind direction, the mining and related activities have negligible potential to adversely affect air quality in this area. Other areas under consideration for Class I designation in the general vicinity include Desolation Canyon, the San Rafael Reef, Lower Green River, Mexican Mountain, and Sids Mountain. The closest proposed Class I area is over 45 miles from the permit area and the same limiting factors would apply relative to potential mining related air quality impacts. With the exception of these specific areas, all other areas within and in the immediate vicinity of the permit area are classified as PSD Class II areas.

Coordination With Applicable Federal and State Air Emission Requirements

Given that the permit and adjacent areas fall within a designated attainment area, the only applicable Federal air emission requirements are those provisions providing for State responsibility for protection of air quality within the State and applicable provisions providing for application of the best available control technology (BACT) for potential emission sources. Applicable State air emission requirements include provisions for air emissions permitting, application of BACT, submission of an annual air emissions inventory, stack height limitations, a 20 percent opacity limitation at all emission points, evaluation of visible emissions, reporting unavoidable control

equipment breakdowns, and emergency episode requirements.

Coordination and Compliance With UDAQ

All applicable State air emission requirements will be addressed through maintenance of an air permit with the UDAQ. CR submitted a Notice of Intent application for mining and related activities to UDAQ in early 2008. The application was approved by the Utah Department of Environmental Quality, Division of Air Quality on December 11, 2008. ~~A copy of the Approval Order is included in Exhibit 4, Other Permits.~~ This permit has since lapsed. CEG3 submitted a Notice of Intent application in November of 2018. It is anticipated that approval will be received prior to approval of this MRP.

Chapter 5

R645-301-500 ENGINEERING

Kinney No 2 Mine

Table of Contents **Page Number**

RR645-301-500 ENGINEERING 1
645-301-511 GENERAL REQUIREMENTS 1
R645-301-512 CERTIFICATION 1
Certification, Inspection, Reporting, and Emergency Procedures 1
R645-301-513 Compliance with MSHA Regulations 2
Federal Agencies 2
R645-301-514 Inspections 3
R645-301-515 Reporting and Emergency Procedures 3
515.100 Slides 3
515.200 Impoundment Hazards 3
515.300 Temporary Cessation of Operation 3
R645-301-520 Operation Plan 4
521.100 Cross Sections and Maps 4
Engineering and Mine Planning Information 5
521.110 Previous Mine Areas 5
521.120 Existing Surface and Subsurface Facilities 6
521.130 Land Ownership and Right of Entry Maps 6
521.131 Land Ownership Maps 6
521.132 Boundaries of Land ~~CR~~ CEG3 Mining has Rights to Enter 6
521.133 Protection of Public Interest 6
521.140 Mine Maps and Permit Area Maps 7
521.141 Disturbed Boundary and Timing of Mining 7
521.142 Underground Working and Subsidence Areas 7
521.143 Mine Waste Disposal Sites 7
Development Waste Temporary Storage Area (Underground Development Waste) 7
521.150 Land Configuration Maps 8
521.151 Cross Sections and Slope Measurements 8
521.152 Previously Mined Area 8
521.160 Maps and Cross Sections of Features of Permit Area 8
521.170 Transportation Facilities Maps 9
521.180 Support Facilities 9
General Description of Mine Construction and Development 9
521.190 Other Relevant Information Required by the Division 15
521.200 Signs and Marker Specifications 15
521.240 Mine and Permit Identification Signs 15
521.250 Perimeter Markers 15
521.260 Buffer Zone Markers 15
521.270 Topsoil Markers 15
R645-301-522 Coal Recovery 16
Areas and Sequencing of Mine Development 16
Use and Conservation of Coal Resources 17
R645-301-523 Mining Method 18
Areas and Sequencing of Mine Development 18
Use and Conservation of Coal Resources 19
Mining Methods and Equipment 19
Mining Activities 20
Support Activities 20
Pillar Sizes ..... 29~~28~~
Approach of Old Workings ..... 29~~28~~

R645-301-524 BLASTING AND EXPLOSIVES 3029
R645-301-525 SUBSIDENCE CONTROL PLAN 3130
525.100 & 200 PRE-SUBSIDENCE SURVEY 3130
525.120 AND 300 SUBSIDENCE CONTROL 3130
Subsidence Monitoring Plan 32
R645-301-525.500 REPAIR OF DAMAGE 3231
R645-301-525-700 PUBLIC NOTICE OF MINING 3231
R645-301-526 MINE FACILITIES 3433
Soil Stockpiles 3534
Excavated Slopes 3534
Excess Spoil Material 3534
Mine Openings 3635
Underground Development Waste (Mine Development Rock) 3635
Mine Ventilation 3736
Mine Drainage Control and Dewatering 3837
526.100 Existing Mine Structures and Facilities 3837
526.116.1 Public Roads 3837
526.210 Utility Installation and Support Facilities 3837
Mine Ventilation 39
526.300 Water Pollution Control Facilities 3938
Drainage and Sediment Control Structures 3938
526.400 Air Pollution Control Facilities 4645
R645-201-527 Transportation Facilities 4645
Roads 4645
Proposed Roads in Kinney No. 2 Mine Facilities Area 4645
R645-301-528 Handling and Disposal of Coal, Overburden Excess Spoil, and Coal Mine Waste 4847
528.100 Coal Removal, Handling, Storage, Cleaning and Transportation Areas and Structures 4847
Coal Handling Systems and Facilities 4948
The Surface Coal Haulage system which consists of: 50
Loadout Facilities 5251
Support Structures and Facilities 5352
Utilities 58
Signs and Markers 63
528.301 Excess Spoil 6665
528.320 Coal Mine Waste 6665
Underground Development Waste Temporary Storage Area 6766
528.321 Return of Coal Processing Waste to Abandoned Underground Mines 6968
528.322 Refuse Piles 71
528.323 Burning and Burned Coal Mine Waste 7069
528.330 Non Coal Mine Waste 7069
528.340 Underground Development Waste 7169
Development Waste Temporary Storage Area (Underground Development Waste) 7170
R645-301-529 Management of Mine Openings 7170
R645-301-530 Operation Design Criteria and Plans for Surface Runoff Controls 7372
531 General 7372
532 Sediment Control 7372
Drainage and Sediment Control Structures 7473
533 Impoundments 8078
533.110 Static Safety Factor 8079
534 Roads 8079
Proposed Roads in Kinney No. 2 Mine Facilities Area 81
534.130 Static Safety Factor for Roads 8483

536 Coal Mine Waste ..... 84~~83~~
537 Regraded Slopes ..... 84~~83~~
537.100 Geotechnical Analysis ..... 84~~83~~
537.200 Settled and Revegetated Fills ..... 84~~83~~
R645-301-540 Reclamation Plan ..... 84~~83~~
R645-301-541 General ..... 84~~83~~
541.100 – 300 Reclamation of All Areas ..... 85~~84~~
R645-301-542 Narrative, Maps, and Plans ..... 86~~85~~
542.100 Timetable ..... 86~~85~~
Interim Reclamtion 88
Final Reclamation 89
542.200 Backfilling and Regrading ..... 88~~87~~
542.300 Final Surface Configuration Maps & Cross Sections ..... 88~~87~~
542.400 Removal of Temporary Structures ..... 88~~87~~
542.500 Timetable for Removal of Water Impoundments ..... 88~~87~~
542.600 Roads ..... 88~~87~~
542.700 Final Abandonment of Mine Openings & 5-49 Disposal Areas ..... 88~~87~~
Establish a Stable Postmining Configuration 90
Restore Effective Drainage 91
Establish a Productive Self-Sustaining Vegetation Community 91
Hydrologic Monitoring 91
Facility Demolition and Removal 93
Disposal of Mine Waste, and Non-Coal Waste 94
Backfilling and Grading to Establish Final Configuration 94
Drainage Reestablishment 96
Road Removal 96
Soil/Substitute Replacement 96
542.800 Reclamation Costs ..... 95~~94~~
R645-301-550 Reclamation Design Criteria and Plans ..... 95~~94~~
R645-301-551 Casing and Sealing Underground Openings ..... 95~~94~~
R645-301-552 Permanent Features ..... 96~~95~~
Removal of Mining Related Structures and Facilities 98
R645-301-553 Backfilling and Grading ..... 96~~95~~
553.100 Disturbed Area ..... 96~~95~~
553.120 Elimination of Highwalls ..... 96~~95~~
553.130 Reclaimed Area Static Safety Factor ..... 97~~96~~
553.200 Spoil and Waste ..... 98~~97~~
553.250 Refuse Pile & 553.260 Disposal of Coal Processing Waste ..... 98~~97~~
553.300 Exposed Coal Seams ..... 99~~98~~
553.400 Cut and Fill Terraces ..... 99~~98~~
553.500 Previously Mined Areas & 553.600 Approximate Original Contour ..... 99~~98~~
553.700 Backfill and Grading Thin Overburden ..... 99~~98~~
553.800 Backfill and Grading Thick Overburden ..... 99~~98~~
R645-301-560 Performance Standards ..... 99~~98~~

R645-301-511 General Requirements

This section describes and presents engineering designs and operating plans for the proposed mining and related operations and associated structures and facilities. It also provides detailed information and designs for the environmental control and mitigation measures which will be utilized to prevent or minimize potential mining related environmental impacts. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-500) for coal mine permitting in the State of Utah.

R645-301-512 Certification

Certification, Inspection, Reporting, and Emergency Procedures

Rule R645-301-512 specifies that certain designated cross-sections, maps, and plans be prepared by or under the direction of a qualified Registered Professional Engineer (PE) and that certain maps and design plans be certified by a PE or Registered Land Surveyor. Consistent with this requirement, the following components of this permit application meet the regulatory supervision and certification requirements:

- Previous Mining Activities Map, (Map 5)
- Mine Surface Facilities Map, (Map 13)
- Regional Hydrology Map, (Map 7)
- Drainage and Sediment Control Plan - (Map 24)
- Regional Geology (Figure 4, Chapter 6)
- Hiawatha Overburden Isopachs & Mining Blocks (Figure 10, Chapter 6)
- Geologic W-E X-Section A-A' (Figure 6, Chapter 6)
- Geologic W-E X-Section B-B' (Figure 7, Chapter 6)
- Geologic N-S X-Section C-C' (Figure 8, Chapter 6)
- Geologic N-S X-Section D-D' (Figure 9, Chapter 6)
- Mine Plan Layout & Production Schedule (Maps 15)Drainage and Sediment Control Plan, Map 24
- Sedimentation Pond No. 1, (Map 25)
- Mine Surface Facilities Area, Pre-Mining Topography Map, (Map 14)
- Mine Surface Facilities Area – Pre Mining, Mining & Post Mining Cross-Sections, (Maps 16 – 19)
- Exhibit 14, Geotechnical Investigations

In order to assure that designed structures are constructed according to the design plans and to verify that designed structures and facilities continue to function as designed, Rule R645-301-514 specifies that the following structures and facilities be inspected by a qualified Registered Professional Engineer or a qualified professional specialist under a professional engineer's direction and outlines specific inspection requirements:

- Excess spoil fills
- Coal refuse piles
- Impoundments

No excess spoil fill, or coal refuse pile is planned for the Kinney No. 2 Mine. Specific inspection and reporting practices for the proposed sediment pond is described in detail in the following sections of this operations plan.

Certain situations involving accidents, emergencies, or unforeseen circumstances may require immediate or timely reporting to provide for appropriate coordination of required control and mitigation measures. Under applicable regulatory requirements, these situations are specifically identified as including the following:

- Slides which may have potential adverse effects on public health and safety, property, or the environment
- Excess spoil fills
- Impoundment hazards
- Accidental releases of potentially hazardous or toxic materials including petroleum products
- Temporary cessation of mining operations

Reporting and emergency measures for potential slides are specifically addressed in R6456-301-600 Geologic Protection; for impoundment hazards and accidental releases of potentially hazardous or toxic materials in R645-301-731.300 Hydrologic Resource Protection; and for temporary cessation of mining operations in R645-301-731.500 - 522 Cessation.

R645-301-513 Compliance with MSHA Regulations

The proposed mining and related operations have been designed and will be operated and maintained to effect full compliance with all applicable Federal, State, and local laws and regulations. Specifically, ~~CR~~ CEG3 will comply with applicable regulatory requirements relating to the following designated activities/structures under the authority of the noted jurisdictional agencies:

Federal Agencies

Mine Safety and Health Administration (MSHA) – Compliance with applicable requirements relating to coal processing waste dams; impoundments and sedimentation ponds; plans for underground disposal of underground development waste, coal processing waste, or excess spoil; refuse piles; reclamation and closure of mine openings; any discharges into underground mines; mining within 500 feet of an active underground mine; and plans for extinguishing coal mine waste fires.

~~CR~~ CEG3 will work with MSHA and the state of Utah to devise plans to precisely locate old mine workings prior to approaching them that will safeguard all persons. This may involve drilling ahead with an in-mine drill, possibly injecting concrete into old workings to pre-stabilize them and other measures to prevent inundation and/or the introduction of gob gas to the active mine atmosphere should the drilling reveal the old mine workings will be unavoidably encountered in the planned mains.

Underground development waste backfill will be placed into designated panel areas and will further serve to encapsulate pillars. This will passively stabilize pillars in those areas with some confinement. Underground development waste backfill areas will be ventilated until they are filled and have been monitored for products of combustion for a period of 1 year after backfill operations are complete. If no significant products of combustion have been found the area will be sealed and monitored according to an approved ventilation plan.

R645-301-514 Inspections

In order to assure that designed structures are constructed according to the design plans and to verify that designed structures and facilities continue to function as designed, Rule R645-301-514 specifies that the following structures and facilities be inspected by a qualified Registered Professional Engineer or a qualified professional specialist under a professional engineer's direction and outlines specific inspection requirements:

- Excess spoil fills
- Coal refuse piles
- Impoundments

No excess spoil fill, or coal refuse pile is planned for the Kinney No. 2 Mine. Specific inspection and reporting practices for the proposed sediment pond is described in detail in the following sections of this operations plan.

R645-301-515 Reporting and Emergency Procedures

Reporting and emergency measures for potential slides are specifically addressed in R645-301-631 - 632 Geologic Protection; for impoundment hazards and accidental releases of potentially hazardous or toxic materials in R645-301-730, Hydrologic Resource Protection; and for temporary cessation of mining operations in R645-301-515.399, Temporary Cessation.

515.100 Slides

See discussion on reporting slides under R645-301-512 below.

515.200 Impoundment Hazards

Certain situations involving accidents, emergencies, or unforeseen circumstances may require immediate or timely reporting to provide for appropriate coordination of required control and mitigation measures. Under applicable regulatory requirements, these situations are specifically identified as including the following:

- Slides which may have potential adverse effects on public health and safety, property, or the environment
- Excess spoil fills
- Impoundment hazards
- Accidental releases of potentially hazardous or toxic materials including petroleum products
- Temporary cessation of mining operations

515.300 Temporary Cessation of Operation

Designs and plans for the proposed mining and related operations are based not only on geologic, environmental, and engineering information but also on existing coal contracts and conservative projections of future coal market demand. Given this consideration, ~~CR~~ CEG3 does not anticipate any temporary cessation of the proposed mining operations prior to the end of the

projected mine life. In the unlikely event that temporary cessation of operations becomes necessary, the mine surface facilities would be secured to minimize potential public health and safety hazards and to prevent or minimize potential related adverse impacts on the environment. Specifically, entrances to the mine, mine facilities, and loadout facilities would be barricaded and locked, buildings, equipment, fuel storage facilities and other support facilities would be locked and the site would be put on extended maintenance and care status until operations could be reactivated or a decision is made to permanently close the operation. In order to prevent unauthorized access to underground mine workings during any period of temporary cessation, mine openings including the mine portals and ventilation shaft will be secured by locked barricades. Dependent on the anticipated period of temporary closure, access to mine portals would be restricted by either temporary concrete block walls or fabricated locking metal gates. Maintenance and care status would involve the use of mine or contract security personnel to control site access, regularly inspect the site to identify any hazardous conditions, and conduct routine maintenance and repair to prevent significant deterioration or damage to the existing structures and facilities.

If temporary cessation of mining and/or reclamation operations for a period of 30 days or more becomes necessary, ~~CR~~ CEG3 will submit a notice of intention to UDOGM. The notice will include a statement of the exact number of acres which have been disturbed prior to cessation, the nature and extent of any reclamation completed, and any reclamation, environmental monitoring, water treatment, or other activities which will continue during the period of temporary cessation. Monitoring will include taking one composite sample of the temporary waste coal processing waste storage pile for each 5,000 tons in the pile, should there be coal processing waste in the temporary pile at time of cessation. The sample(s) will be analyzed for parameters listed on Tables 3 and 7 in the UDOGM January 2008 "Guidelines for Management of Topsoil and Overburden".

The mine site provides access to private property to the north and east, therefore, the private property owners involved will have keys to the site gates to access their property during any cessation period, and during the reclamation bond period. Roads have been designed into the reclamation plan for post mining land use to allow the private property owners access.

R645-301-520 Operation Plan

In developing the engineering designs and operating plans for the mining and related operations, ~~CR~~ CEG3 has reviewed and evaluated all existing available information on site geology, coal occurrence and characteristics, and environmental resource values. This information along with sound engineering principals has been combined to develop designs and plans which will provide for safe, efficient, and effective mining operations while minimizing potential related environmental impacts and effecting full compliance with all applicable regulatory requirements. The following sections describe the specific design methods, operating measures, and associated control and mitigation practices which will be utilized to accomplish these objectives.

521.100 Cross Sections and Maps

Maps presenting all of the information required by R645-521.100 are included in this permit document, including Maps 1 through end of maps. Each chapter of this document refers to particular maps that present and represent information required. A complete list of maps can be found as the List of Maps at the beginning of the document. Map scales have been chosen to represent the information contained on each map and according to R645-301-141.

In order to assure that designed structures are constructed according to the design plans and to verify that designed structures and facilities continue to function as designed, Rule R645-301-514

specifies that excess spoil fills, coal refuse piles and impoundments be inspected by a qualified Registered Professional Engineer or a qualified professional specialist under a professional engineer's direction and outlines specific inspection requirements:

- Excess spoil fills
- Coal refuse piles
- Impoundments

No excess spoil fills, or coal refuse piles are planned for the Kinney No. 2 Mine. Specific inspection and reporting practices for the proposed sediment pond is described in detail in the following sections of this operations plan. The only impoundment planned is a sedimentation pond for which the water holding capacity is totally incised.

Engineering and Mine Planning Information

Information presented on the regional and mine area engineering and planning maps includes:

- Proposed mine permit and disturbance boundaries
- Existing land configuration
- Existing and proposed surface structures and facilities
- Location, extent, and sequencing of proposed underground mine development
- Drainage and sediment control plans and designs for associated structures
- Existing and proposed roads and utility installations

The pre-mining topography of the mine site and area can be seen on Map 14, Pre-Mining Topography.

521.110 Previous Mine Areas

As described in R645-301-521.152, Previous Mining Activity, extensive historic mining activity has occurred throughout the proposed permit area with resulting development of underground mine workings in many areas and disturbance of limited surface areas for mine portals; coal stockpiles; coal handling, processing, and loadout facilities; and mine support facilities. Mining related underground workings are shown and labeled on Map 5, Previous Mining Activity Map. The surface disturbance area from the various historic mines is shown on Map 5, Previous Mining Activity, and on Map 4, Regional Land Use Map.

Some of the previous historical mining related disturbance is of particular significance with respect to its relationship to the proposed mining operations. The most obvious area of significance is the previous underground mine development and production which has resulted in depletion of discrete coal reserve blocks in the targeted mineable coal seam. ~~CR~~ CEG3 has utilized available maps of the previous underground workings to eliminate the previously mined reserves from consideration under the proposed mining plans and to establish the proposed mining layout and sequence. Extensive previous surface disturbance was also a factor in selecting the proposed mine surface facilities area. By utilizing an area which has been previously substantially disturbed, ~~CR~~ CEG3 can effectively avoid much of the disturbance and related environmental impacts associated with any new surface disturbance.

Site 42Cb477, although included in the archeology inventory and in the report is outside of any actual disturbance from mining. Two Clearance Letters, one from SHPO and the Concerence Letter from DOGM are included in Exhibit 4, Other Permits .

521.120 Existing Surface and Subsurface Facilities

As discussed in R645-301-410 Land Use Information, the rugged natural topography of the area may generally be characterized as a small, high elevation valley, with high plateaus to the east and west, narrow ridgelines cut by deep drainages with steep, narrow drainage valleys over most of the proposed permit and adjacent area. Existing site topography, structures, and facilities, are shown on Map 4, Regional Land Use Map.

Most of the structures and facilities associated with previous historic mining have been removed and most of the previously disturbed areas have been reclaimed. Those structures which remain include an old fan house, a small, one-room concrete structure, and several foundations and other minor mining related remnants. All of these features are documented in Exhibit 3, Confidential Information, Archeology report. In addition, the features have been added to Map 14, Pre-Mining Topography Map. None of the features or structures, either surface or subsurface, will be used for the Kinney No. 2 Mine, as they are old, dilapidated, and of no value to mining activities. There is only one of the sites included in the Archeology report that will be impacted by mining activities, Site 42Cb479; all of the features within this site will be impacted under permit from the Utah State Historic Preservation Office. A mitigation ("Treatment Plan") is being developed for approval to offset the impact. Documentation of this approval is either in Exhibit 4, Other Permits, or will be inserted as soon as the approval has been received.

521.130 Land Ownership and Right of Entry Maps

See discussion on land ownership in R645-301-521.132 below.

521.131 Land Ownership Maps

See discussion on land ownership in R645-301-521-132 below, and Map 11, Surface Ownership Map.

521.132 Boundaries of Land ~~CR~~ CEG3 Mining has Rights to Enter

The Surface Ownership Map and Coal Ownership Map. (Maps 11 and 12, respectively) show ownership blocks and boundaries. The Kinney No. 2 Mine permit area encompasses an area of approximately 448.14 acres, of which 15.33 is fee surface, 22.8 (less UDOT R-O-W) is leased, and the remaining 410.04 acres are private land.

The proposed Kinney No. 2 Mine will be operated by ~~Carbon Resources, LLC~~Coal Energy Group 3 (~~CR~~CEG3). ~~CR's~~ CEG3's offices are currently located at ~~P.O. Box 954, Sandia Park, New Mexico 87047~~6602 Ilex Circle, Naples Florida 34109. Upon start of operations, temporary office space will be located in Scofield, with permanent offices to be located at the mine site.

The area of surface disturbance is confined within the 38.13 acres (combined Fee and Easement) owned or controlled by ~~Carbon Resources~~Coal Energy Group 3. Only 27.6 acres of the 38.13 acres will be disturbed for surface facilities. The coal to be mined lies beneath the George Telonis, ETAL. fee surface land and is owned by Carbon County which in turn has been leased it to Western Reserve Coal, Inc, parent company of ~~Carbon Resources~~Coal Energy Group 3.

521.133 Protection of Public Interest

Mining operations will be conducted within 100 feet of Utah State Highway 96, which is a public road. In compliance with the applicable regulatory provisions of Rules R645-103-234.100 through 400, ~~CR~~ CEG3 has contacted and obtained approval from the Utah Department of Transportation (UDOT) for access to Highway 96. Opportunity for the public to request a public hearing on use of SR96 was provided in two public notices for the mine published in the Sun Advocate newspaper from June 24, July 1, 8 and 15, 2008,and on June 10, 17, 24 and July 1 2010. No requests for a public hearing were received. ~~CR~~ CEG3 has submitted detailed design plans for the highway intersection to the Utah Department of Transportation. Upon approval of the design, was received on March 14 2011, a copy of which is included in Exhibit 4, Other Permits.

521.140 Mine Maps and Permit Area Maps

See discussion on mine maps and permit area maps under R645-301-521.142, and R645-301-160 below.

521.141 Disturbed Boundary and Timing of Mining

See discussion on disturbed boundary and timing of mining under R645-301-142, 160, 522, and 523 below.

521.142 Underground Working and Subsidence Areas

The disturbed area boundary can be seen on Map 13, Surface Facilities, and the underground mining plan layout and timing can be seen on Map 15, Mine Plan Layout and Production Schedule.

No subsidence is planned for the Kinney No. 2 Mine since no second mining is planned. No pillars will be extracted, therefore no collapse of the strata above the coal seam will occur which creates subsidence.

521.143 Mine Waste Disposal Sites

See discussion below under 528.320

The only permanent waste disposal sites planned are in-mine storage of underground development waste.

Underground development waste from underground mining may be temporarily stockpiled in the portal area, off-spec coal pile, until it can be returned to the mine where it will be placed in areas specifically designated for this purpose.
See discussion below under 528.321

Development Waste Temporary Storage Area (Underground Development Waste)

See discussion below under 528.320

521.150 Land Configuration Maps

See maps discussion under R645-301-521.152 below including Map 14, Mine Surface Facilities Area Pre-Mining Topography, Maps 16 through 19, Mine Surface Facilities Area Pre-Mining , & Post Mining Cross Sections, Map 23, Drainage and Sediment Control Plan Undisturbed Drainage Areas, and Map 29, Mine Surface Facilities Area Post Mining Topography & Interim Drainage Control.

521.151 Cross Sections and Slope Measurements

See maps discussion under R645-301-521.160 below.

521.152 Previously Mined Area

See maps discussion under R645-301-521.160 below.

521.160 Maps and Cross Sections of Features of Permit Area

Information presented on the regional and mine area engineering and planning maps includes:

- Proposed mine permit and disturbance boundary – Map 13, Surface Facilities Map
- Existing land configuration – Map 14, Mine Surface Area Pre-Mining Topography, Maps 16 through 19, Mine Surface Facilities Area Pre-Mining & Post Mining Cross Sections
- Existing and proposed surface structures and facilities – Map 13, Surface Facilities Map
- Location, extent, and sequencing of proposed underground mine development – Map 15, Mine Plan Layout and Production Schedule
- Drainage and sediment control plans and designs for associated structures – Map 23, Drainage and Sediment Control Plan Undisturbed Drainage Areas; Map 24, Drainage and Sediment Control Plan Disturbed Drainage Areas; Map 25, Sedimentation Pond 1 Sections & Details; Map 26, Drainage and Sediment Control Plan Disturbed Drainage Sub-Basins; and Map 27, Runoff Control Details
- Existing and proposed roads and utility installations – Map 13, Surface Facilities Map, and Map 14, Mine Surface Facilities Area Pre-Mining Topography
- Previously mined area – Map 5, Previous Mining Activity

The pre-mining topography of the mine site and area can be seen on Map 14, Mine Surface Facilities, Pre-Mining Topography.

Some of the previous historical mining related disturbance is of particular significance with respect to its relationship to the proposed mining operations. The most obvious area of significance is the previous underground mine development and production which has resulted in depletion of discrete coal reserve blocks in the targeted mineable coal seam. ~~CR~~ CEG3 has utilized available maps of the previous underground workings to eliminate the previously mined reserves from consideration under the proposed mining plans and to establish the proposed mining layout and sequence. Extensive previous surface disturbance was also a factor in selecting the proposed mine surface facilities area. By utilizing an area which has been previously substantially disturbed, ~~CR~~ CEG3 can effectively avoid much of the disturbance and related environmental impacts associated with any new surface disturbance.

As discussed in R645-301-410, Land Use Information, the rugged natural topography of the area may generally be characterized as a small, high elevation valley, with high plateaus to the east and west, narrow ridgelines cut by deep drainages with steep, narrow drainage valleys over most of the proposed permit and adjacent area. Existing site topography, structures, and facilities, are shown on Map 4, Regional Land Use Map.

Most of the structures and facilities associated with previous historic mining have been removed and some of the previously disturbed areas have been reclaimed. Those structures which remain include an old fan house, a small, one-room concrete structure, and several foundations. The remaining historic structures are identified and described in R645-301-411.140, Cultural and Historic Resources.

521.170 Transportation Facilities Maps

In conjunction with the proposed mining and related operations ~~CR~~ CEG3 will construct, operate and maintain a number of new roads and will operate and maintain several existing roads. Both new and existing roads will be utilized to access existing and proposed facilities and for transportation of personnel, equipment, and supplies. All roads are classified as primary roads. The primary road classification includes any road used for transporting coal or spoil, roads which are used frequently for periods exceeding 6 months, and roads which will be retained to support the post mining land use. All roads will be utilized on a frequent, long-term basis to support the proposed mining and related operations. Proposed roads which will be used in conjunction with the proposed mining and related operations include the following:

Proposed Roads in Kinney No. 2 Mine Facilities Area

P-1 Primary mine access road for the proposed surface facilities area
P-2 Primary mine access road to Mine Office Pad
P-3 Primary mine access road to the Portal Pad
P-4 Primary mine access road to the Storage Area Pad
P-5 Primary mine access road to the Loadout Pad
P-6 Primary mine access road to Sedimentation Pond No. 1
P-7 Primary mine access road to the North Access Road
P8 Primary access road through site for post mining land use only, will replace P-7
P9 Primary access road east to private property on mountain and for post mining land use

All proposed roads, except P-8, are shown on, Map 13, Mine Surface Facilities Map. Road profiles can be seen on Maps 20 through 22, Mine Surface Facilities Road Profiles.

521.180 Support Facilities

General Description of Mine Construction and Development

The new mine facilities access road will generally follow the alignment of the undeveloped dirt road which begins near the south end of the proposed operations on Highway 96, and Mine construction and development will involve those activities necessary to complete the surface facilities and systems and to develop mine portals, main entries, and the entire underground infra-structure which will be required to support the proposed underground mining operations. From an environmental standpoint, the mine construction and development phase will be important due to the fact that essentially all direct mining related surface disturbance will occur during this phase. Mine construction and development activities will be conducted in a manner that prevents or controls erosion and siltation, water pollution, and damage to public or private property; and to the extent possible using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values, and minimizes additional contributions of suspended solids to streamflow or runoff outside the permit area. Any contributions of suspended solids from mine disturbance areas will not exceed applicable effluent limitations

under Utah or Federal law.

Construction/Development Schedule - Required highway modifications will occur prior to mine development and entirely within the existing Highway 96 right of way and will be conducted under approved plans developed in consultation with the Utah Department of Transportation (UDOT). All other proposed construction and development activities will proceed as soon as operationally feasible following receipt of required permit approvals. Construction and development activities proceeding immediately and continuing over the next 18 to 24 months.

Construction/Development Activities and Associated Control and Mitigation Measures - Required mine construction and development activities will proceed in a logical sequence to assure effective environmental protection and engineering control of these activities. The following general sequence of activities will be applicable for all proposed mine construction and development activities:

- Establish preliminary access
- Construct required drainage and sediment control structures
- Recover and stockpile available soil or substitute materials
- Construct required roads
- Proceed with required site grading, excavation, and cut/fill operations
- Complete required foundation preparation work
- Construct required structures and facilities
- Complete required utility installations
- Develop mine portals, and main entries
- Complete infra-structure for underground operations (includes electrical systems, water distribution, communications, ventilation, mine drainage systems, and conveyors)
- Systems testing and commissioning

The following sections describe each of these construction/development activities and the associated control and mitigation measures which will be utilized to minimize potential related environmental impacts and assure that each activity is conducted in conformance with approved designs and plans.

Establish Preliminary Access - Preliminary access for the proposed construction and development activities will be made at the location of the pre-mining dirt road to the site, and utilizing the other existing roads on the site. Preliminary access routes will only be utilized for a very brief period to facilitate initial drainage construction and soil removal activities, consequently, associated environmental control and mitigation measures will be limited to alternative sediment control such as silt fences, straw bales, sediment traps, berms and watering on an as needed basis.

Construct Required Drainage and Sediment Control Structures - Due to the importance of effective water quality protection, required drainage and sediment control structures will be constructed prior to any other significant site disturbance. Drainage construction will be a phased process with construction of the sedimentation pond, and principal undisturbed drainage diversion ditches and disturbed area collection ditches all of which are temporary ditches occurring as the first activities in the construction phase. Temporary sediment controls to be utilized during initial construction will include the use of silt fence, straw bales, berms, temporary ditches and sediment traps. Temporary controls will be utilized to effectively control runoff and sedimentation until designated structures can be completed. As progressive construction activities are extended to other areas, the associated drainage structures will be developed and connected to the existing drainage system prior to other area disturbance. Detailed descriptions of drainage design and construction procedures are presented in R645-301-526, Mine Structures

and Facilities, and the proposed drainage control system is shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. These structures have been designed and will be constructed, operated, and maintained to provide effective drainage and sediment control during both construction/development activities and subsequent mining and related operations. Construction of all drainage and sediment control structures will be monitored by qualified individuals under the supervision of a Registered Professional Engineer and specific designed structures including the sedimentation pond will be inspected according to design plans certified as required by applicable regulatory provisions.

Recover and Stockpile Available Soil and Substitute Materials - Once the required drainage structures are in place to effectively control surface runoff and minimize additional sediment contributions, construction will proceed with recovery of available soil and substitute materials from the proposed surface disturbance areas. Soil and substitute recovery will involve removal of existing materials which will be utilized as vegetative growth media during future site reclamation activities. These materials will be removed using either tractor scrapers or an equipment team composed of a tracked dozer, wheel loader, and rear dump truck, and will be transported and placed in temporary stockpiles for future reclamation use. The coal fines identified during the soils investigation will be removed and sold as discussed previously. The previously constructed drainage and sediment control structures will provide effective water quality control for soil removal operations and periodic watering of soil removal areas and haulage roads will be utilized to control dust emissions. A detailed discussion of soil and substitute recovery and stockpiling practices is presented in R645-301-230, Soil Handling Plans, and proposed soil/substitute stockpile locations are shown on Map 13, Mine Surface Facilities Map.

Construct Required Roads - Construction of required roads will be included in a phased manner as the site is developed. Nine primary access roads will be required in conjunction with the proposed mining and related activities as follows:

- Main Access Road – P1 - From Highway 96 to the Operations Pad
- Office Access Road – P2 – From P1 to the Mine Office Pad
- Portal Access Road – P3 – From P1 to the Portal Pad
- Storage Access Road – P4 – From P3 to Storage Area Pad
- Loadout Access Road – P5 – From the Operations Pad to the Loadout Pad
- Sediment Pond Access Road – P6 – From the Loadout Pad to the Sediment Pond
- North Access Road – P7 – From the Loadout Pad to the Private Property to the North
- North Access Road - P8 - Through site for post mining land use only, will replace P7
- East Access Road – P9 - Access road to top of mountain and for post mining land use

Primary roads which will be utilized in conjunction with the proposed mining and related operations as well as existing roads which are not related and will not be utilized in conjunction with the proposed activities are shown on Map 4, Regional Land Use Map, and Map 13, Surface Facilities Map. Roads existing prior to mining, and roads to be left for post mining land use are shown on Map 14, Mine Surface Facilities, Pre-Mining Topography Map. All roads have been designed and will be constructed and maintained to prevent or control damage to property; erosion, siltation, and air pollution; and minimize disturbance and impacts to fish, wildlife, and related environmental values. Construction of primary roads will be monitored and construction according to the design plans certified consistent with applicable regulatory provisions. Detailed discussions of road design, construction, and maintenance practices are presented in R645-301-526, Mine Structures and Facilities, and R645-301-531, Design Standards and Requirements.

Proceed With Required Site Grading, Excavation, and Cut/Fill Activities - Cut/fill operations and grading will be required to establish final design grades for the proposed mine surface facilities. Design grades for the proposed mine facilities area reflect an overall cut/fill balance so that no excess spoil disposal will be required. Cut/fill slopes have been designed at grades of

approximately 0.8H:1V to 3.0H:1V dependent on material to minimize erosion potential and provide for effective long-term stability as recommended by Rollins, Brown and Gunnel Geotechnical Engineers in their geotechnical investigations report, Exhibit 14, Geotechnical Investigations. Required site construction earthwork will involve the use of tracked dozers, tractor scrapers, wheel loaders, backhoes, and trucks to establish final design grades and all earthwork operations will be supervised and monitored by a qualified individual familiar with construction earthwork. Consistency with design plans will be monitored and checked using conventional engineering survey methods. Drainage from areas disturbed or otherwise affected by site grading activities will be controlled by either temporary controls or the previously constructed drainage and sediment control system and watering will be utilized to minimize potential fugitive dust emissions.

Complete Required Foundation Preparation Work - Once design grades have been established through completion of site earthwork and grading, work will proceed with preparation and installation of foundations for all proposed major structures and facilities. ~~CR~~ CEG3 has completed geotechnical investigations to evaluate site foundation conditions as a basis for foundation and facility design. Foundation investigations, as described in Exhibit 14, Geotechnical Investigations, included completion of 6 borings, and 14 test pits at the locations of proposed major facilities, penetration tests, and collection, laboratory analysis, and evaluation of the representative material types encountered by the test borings and pits. Findings and recommendations are presented in the final report found in Exhibit 14. Proposed mine facilities, structures, roads and the sedimentation pond have been designed according to these findings and recommendations.

Foundation preparation activities will generally involve excavation and removal of any potentially deleterious material including but not limited to organic material, debris, coal or carbonaceous materials, and wet or frozen materials and compaction of the upper three feet in the foundation area. In any areas where the surficial materials have been identified as having any limitations relative to use as foundation materials, appropriate remedial measures including over excavation and recompaction or replacement with more suitable materials will be implemented. Foundations will generally be spread footings with floating slabs, which will be used for most of the major buildings and structures, concrete pier type footings for the conveyor support structures, or slab type foundations for the electrical substation and other minor structures. Foundation construction will be monitored under a construction quality assurance program implemented under the ~~CR~~ CEG3 facility construction contract to assure compliance with design plans and specifications. Specific foundation designs are discussed for individual facilities in R645-301-526, Mine Structures and Facilities.

Construct Required Structures and Facilities - Construction of the major required structures and facilities will involve fabrication and erection of the following designed structures:

- Maintenance shop and warehouse building
- Administration/Bathhouse facility
- Coal handling system (includes coal conveyors and transfer points, stacking tubes, coal stockpiles, coal reclaim system, usher building and truck loadout building)
- Miscellaneous structures

All mine support buildings will be constructed with fixed concrete foundations, a structural steel framework, and pre-fabricated sheet steel siding and roofs or will be concrete precast structures. Internal design and construction will vary for each facility dependent on use. Conveyor structures and supports will be pre-fabricated steel frames supported by steel trusses which will be anchored by concrete piers. Conveyor transfer points will consist of a steel framework supporting conveyor head and tail pulleys, drive units, and any required chute work and dust control equipment. The coal stacking tubes will be steel tubes set on heavy reinforced concrete slab foundations. The

coal reclaim system will consist of several steel chutes and vibratory feeders supported by reinforced concrete foundation structures feeding to a heavy steel tunnel structure which will house the coal reclaim conveyor and associated support equipment. Facility construction will be monitored under a construction quality assurance program implemented under the ~~CR~~ CEG3 facility construction contract to assure compliance with design plans and specifications. All proposed mine structures and facilities are shown on Map 13, Surface Facilities Map, and detailed facility descriptions and operating/maintenance plans are presented in R645-301-526, Mine Structures and Facilities.

Complete Required Utility Installations - Concurrently with construction of the major structures and facilities, ~~CR~~ CEG3 will complete required utility installations including electrical power distribution, raw and potable water systems, and the sanitary sewer system. The mine electrical power distribution system will consist of a substation located near the mine portal area; transmission lines running from the substation to each of the major facilities, the mine fan installation, the major conveyor drive installations, and connecting to the underground mine electrical system; and related electrical transformers and switchgear.

Water systems will provide both raw and potable water for sanitary use in the mine facilities, fire-fighting reserve, mine water requirements, and dust control sprays in coal handling areas. A 50,000 gallon raw water storage tank along with associated piping, control valves, and control/monitoring systems will be constructed on the north end of the mine portal area and will connect to a distribution network running through the mine facilities area and connecting to the underground mine water system. Water for this tank and the mine water system will be provided by Scofield Town. The potable water system will connect to the existing Scofield Town water system and will supply potable water to the maintenance shop, warehouse, and administration building/bathhouse facility. All facilities served by the potable water system will also be connected to a main sewer line running from the mine facilities area to the Scofield Town sewer system near the southwest corner of the mine site. The location of all existing and proposed utility installations are shown on Map 13, Surface Facilities Map, and utilities are described in greater detail in R645-301-526, Mine Structures and Facilities.

Develop Mine Portals, and Main Entries - Portal development can be initiated following completion of required drainage and sediment control structures, access roads, and the portal pad area. In order to initiate portal development as early as possible in the construction/development process, temporary electrical connections, a temporary water supply, and temporary ventilation measures may be employed. Portal development will be initiated with erection of pre-fabricated steel portal structures to protect workers from any rocks falling off the steep slope above the face-up area. To the extent operationally feasible, portal and mine development will occur in the Hiawatha Seam from the point where it outcrops in the face-up area. In the event the coal seam does not exist at the face-up area, rock slopes will be constructed to access the coal seam. Portal development will involve development using conventional methods of a five entry system. One or more continuous miners will be utilized to drive the development entries and conventional roof bolters will be utilized to provide roof control during development operations. Blasting may be necessary for development of the portals and will be conducted according to the blasting plan addressed in Exhibit 15, Kinney No. 2 Mine Blasting Plan. Underground Development Waste rock from these activities will be temporarily stockpiled on the off-spec coal pile until it can be returned to the mine, where it will be placed in areas specifically designated for this purpose.

Entry No. 2 will be a Temporary Portal entry and will be used for the installation of a temporary auxiliary fan. This temporary configuration will initially consist of up to 2 - 100 HP auxiliary exhausting fans and ductwork to provide adequate airflow for initial portal face development operations and to sustain mains development until the main mine fan is installed. Intake air will be heated by

MSHA approved propane heaters as needed. All MSHA rules and regulations will be complied with as well as prudent safe operating practice. As lower cost natural gas becomes available to the local area intake air heaters may be converted according to improve the cost economics of the operation.

It is anticipated that these auxiliary fans will be required for an interim period of time while setting up the main mine fan installation and establishing the initial airways of the mine. Once progress has developed airways to the point and construction is complete so that the permanent fan can be placed in service the auxiliary fans will be taken out of service or will be used at the face in series or parallel with the mine fan to assist with face ventilation there.

The main mine fan will be installed on the northern-most portal entry to replace the temporary system (the auxiliary fans) and construction and installation will begin as soon as possible. The mine fan is shown on Map 13, Surface Facilities Map. This fan will be adequate for the duration of mining and will provide statutory fresh air volumes to working areas of the mine within the permit application as shown in Map 15, Mine Plan Layout and Production Schedule. The fans together with full or temporary stoppings and/or curtains will provide adequate ventilation volume and control for all initial portal and main entry development work and draw fresh air to the working places of the mine to places where coal and/or rock is cut mined and loaded.

Upon the completion of all five portal entries, development of the main entries will proceed with extension of the portal entries to the Southeast on an approximate bearing of South 102 Degrees East i.e., "S102E Portal Mains".

At some point during development of the main entries, the main mine fan installation will be completed, ventilation will switch over to the permanent ventilation system, and the temporary mine fan will be removed. All mine development and mine operations activities will be conducted in full compliance with all applicable state and federal regulatory requirements for health, safety, and environmental protection at all times.

Portal No. 5, the southernmost portal, is positioned such that it is not possible to construct the portal pad to include the portal as can be seen on Map 13, Surface Facilities and Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. Mine entry (No 5) will be constructed from inside the main by cutting back toward the outcrop. At the appropriate location, a short air shaft will be driven to the surface for intake air. The air shaft will be lined with a steel structure to support the walls of the shaft, and the steel structure will be covered with solid steel from approximately 15 feet below the ground surface to approximately 5 feet above the ground surface, and then grouted between the steel and the ground adjacent to seal the annulus from surface water infiltration. Runoff from the very small runoff area covered by the air shaft will be contained by a total containment berm as shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas.

Once development of all five portal entries is completed, development of the main entries will proceed with extension of the portal entries to the east. At some point during development of the main entries, the main mine fan installation will be completed, ventilation will switch over to the permanent ventilation system, and the temporary mine fan will be removed. All mine development activities will be conducted in full compliance with applicable regulatory requirements for health, safety, and environmental protection. ~~CR~~ CEG3 will monitor all mine development activities to assure compliance with both applicable regulatory provisions and mine plans. The location and configuration of the mine portals, and main entries are shown on Map 13, Mine Surface Facilities Map, and ,Map 15, Mine Plan Layout and Production Schedule Map, and additional discussion of development and mining methods and practices is provided in R645-301-522, General Description of Mine Plans, Mining Methods, and Related Design Requirements.

Complete Infra-Structure for Underground Operations - Installation of required mine utility systems, as previously described, will occur during development of the mine portals and main entries. Once these utilities are in place, ~~CR~~ CEG3 will complete and connect the infra-structure required to support underground mining operations. This infra-structure will include the underground electrical power and mine water distribution systems, required communications systems, the mine ventilation system, mine drainage systems, and the underground coal handling system. The systems are identified and discussed in R645-301-526, Mine Structures and Facilities

Systems Testing and Commissioning - As the specific components of the overall mine operations and support system are completed, they will be inspected and tested to assure consistency with design plans and safe and effective operation consistent with both the design plans and their intended purpose. Testing will include both no-load testing to identify any problems and allow repair or modification to address the problems and load testing to verify system reliability and performance under design operating conditions. Where systems rely on or are integrated with other operating systems, progressive testing will be completed to verify that all systems work together as an integrated whole. Final testing and commissioning of all mining and support systems will occur prior to initiation of full-scale mining operations.

521.190 Other Relevant Information Required by the Division

Historic mine maps included in this application were obtained from the Utah Geological Survey Office in Salt Lake City, and from other sources.

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

521.200 Signs and Marker Specifications

See discussion of signs and markers under R645-301-521.270 below.

521.240 Mine and Permit Identification Signs

See discussion of signs and markers under R645-301-521.270 below.

521.250 Perimeter Markers

See discussion of signs and markers under R645-301-521.270 below.

521.260 Buffer Zone Markers

See discussion of signs and markers under R645-301-521.270 below. There are no streams in the permit area that require buffer zone markers.

521.270 Topsoil Markers

~~CR~~ CEG3 will post and maintain all required signs and markers in compliance with applicable regulatory provisions of Rule R645-301-521.200. Signs and markers will be constructed of durable materials and will be posted so as to be clearly visible. Mine identification signs listing the name, business address, and telephone number of the permittee and the permit number for the

permanent program permit authorizing mining and reclamation operations will be posted at each point of access to the permit area from a public road. Perimeter markers will be posted outlining all areas affected by surface operations or facilities prior to initiation of mining, and soil/substitute stockpiles will be clearly marked for identification and to limit access and potential disturbance. Signs reading "Blasting Area" will be posted along the edge of any blasting area which comes within 100 feet of any public road right-of-way and at the point where any other road(s) provides access to the blasting area. All required signs and markers will be maintained or replaced during the period of active operations, site reclamation, and until final bond release is approved for all areas within the permit boundaries.

R645-301-522 Coal Recovery

The mine plans and proposed mining methods described in this section reflect ~~CR's~~ CEG3's detailed review and evaluation of all existing available geologic and coal quality data, consideration of related environmental factors such as hydrologic considerations. This broad base of relevant information was utilized to develop a number of conceptual mine plan alternatives which were then evaluated relative to consistency with ~~CR's~~ CEG3's overall project objectives. These objectives include the following:

- Maximize recovery and utilization of the available coal resource
- Optimize coal production efficiency and economics
- Facilitate potential future development of nearby coal reserves
- Provide a safe, healthy, secure working environment
- Minimize potential adverse environmental impacts

Based on ~~CR's~~ CEG3's detailed review and evaluation of possible alternative mining scenarios, the plans presented in this section were selected as the best combination of mine layout, mining method,

and mine sequencing in order to achieve the noted objectives and provide for organized sequential mining operations.

Areas and Sequencing of Mine Development

The proposed mining operations will target recovery of remaining minable coal reserves contained in the Hiawatha coal seam. This coal seam and other seams in the area have been previously mined in the area with access to the seams from portals at the coal outcrop. Previous mining areas are delineated for each seam on both Map 5, Previous Mining Activities Map, and Map 15, Mine Plan Layout & Production Schedule Map. Target minable coal reserves identified in this plan reflect consideration of practical mineral ownership, geologic, environmental, and mining constraints which may limit access to and recovery of coal reserves which otherwise might be considered as recoverable reserves. Generally, the proposed coal extraction limits are shown on Map 15, Mine Plan Layout & Production Schedule Map exclude all previously mined areas, any areas where ~~CR~~ CEG3 does not have existing rights to mine the coal. Proposed mining limits and the alignment of mine entries reflect consideration of those areas where historic mining removed the reserves and geological features that dictate mine layout and design. As indicated, considerable minable coal reserves remain in the area which can be effectively recovered while avoiding the existing abandoned mine workings. A maximum effective cover of approximately 1,000 feet exists in the permit boundary area and therefore there is no limit to coal recovery due to cover depth.

The proposed mine development and production sequence, as illustrated by Map 15, Mine Plan Layout & Production Schedule Map reflects orderly sequential development of available minable

reserve areas, and the development/production requirements necessary to meet ~~CR's~~ CEG3's current overall annual coal production targets. It should be noted that coal production requirements as outlined by Table 17, Projected Annual Coal Production, are based on current marketing projections for the first permit term. Additional coal reserves east and south of the proposed permit boundary are controlled by ~~CR~~ CEG3 as shown on Map 12, Regional Coal Ownership Map. These reserves are planned to be mined at a future date under a major permit revision completed as soon after the first permit approval as possible. The projected mine life is anticipated to be 20 years including the eastern and southern reserves controlled by ~~CR~~CEG3. Unanticipated fluctuations in coal market demand and other factors may result in some variance between projected and actual annual and total production rates. At the time of the permit mid-term review and permit renewal, ~~CR~~ CEG3 will re-evaluate coal production projections and make appropriate adjustments as necessary.

Proposed coal development and production is expected to occur as shown on Map 15, Mine Plan Layout & Production Schedule Map, and Table 17, and as outlined by the following general sequence:

2011 – Complete permitting and approval.

2011 - Development of the main mine portals in the Hiawatha Seam
Complete MSHA mine and ventilation plans

2011 - 2012 - Development of Hiawatha Seam S102E Portal Mains entries

2012 – Development of N13E Panel A entries
Set-up N13E Panel A
Mine N13E Panel A
Set-up N13E Panel
Mine N13E Panel B
Develop First Fault crossing FC1 Rock Slope Raises and slopes construction
Mine S79W Mains A
N11W Panel A

Ongoing engineering (mine and site design), permitting (permit revision work) for adjacent coal blocks and completion of any remaining backfill work in N13E Panels A and Panel B;

In simplified terms, mining will begin with the Hiawatha Seam (2009 through 2210).

Use and Conservation of Coal Resources

Maximum resource recovery has always been and will continue to be one of ~~CR's~~ CEG3's primary objectives as a matter of sound resource management and efficient mining and economic practice. Conservation and maximum utilization of the available coal resource will involve mining to the minimum practical seam thickness and maximizing overall coal recovery consistent with sound engineering and mining practices.

Proposed mining methods will result in extraction of minable coal reserves down to a minimum practical mining thickness of 5 feet which is below the lower limit for the continuous mining equipment which will be utilized. The average mining height in the permit area is expected to be 8 ft. in the Hiawatha seam which is the only targeted mineable seam in the permit area. At the current time, the quality, market price, and effective cost of mining the type of coal that occurs in this area at thicknesses less than 5 feet renders such operations economically infeasible. If, however, future changes in mining technology or market conditions make it feasible to mine seams below the present 5 foot cut-off, mining plans may be modified to accommodate the

resulting expanded mining operations.

R645-301-523 Mining Method

The mine plans and proposed mining methods described in this section reflect ~~CR's~~ CEG3's detailed review and evaluation of all existing available geologic and coal quality data, consideration of related environmental factors such as hydrologic considerations. This broad base of relevant information was utilized to develop a number of conceptual mine plan alternatives which were then evaluated relative to consistency with ~~CR's~~ CEG3's overall project objectives. These objectives include the following:

- Maximize recovery and utilization of the available coal resource
- Optimize coal production efficiency and economics
- Facilitate potential future development of nearby coal reserves
- Provide a safe, healthy, secure working environment
- Minimize potential adverse environmental impacts

Based on ~~CR's~~ CEG3's detailed review and evaluation of possible alternative mining scenarios, the plans presented in this section were selected as the best combination of mine layout, mining method, and mine sequencing in order to achieve the noted objectives and provide for organized sequential mining operations.

Areas and Sequencing of Mine Development

The proposed mining operations will target recovery of remaining minable coal reserves contained in the Hiawatha coal seam. This coal seam and other seams in the area have been previously mined in the area with access to the seams from portals at the coal outcrop. Previous mining areas are delineated for each seam on both Map 5, Previous Mining Activities Map, and Map 15, Mine Plan Layout & Production Schedule Map. Target minable coal reserves identified in this plan reflect consideration of practical mineral ownership, geologic, environmental, and mining constraints which may limit access to and recovery of coal reserves which otherwise might be considered as recoverable reserves. Generally, the proposed coal extraction limits are shown on Map 15, Mine Plan Layout & Production Schedule Map exclude all previously mined areas, any areas where ~~CR~~ CEG3 does not have existing rights to mine the coal. Proposed mining limits and the alignment of mine entries reflect consideration of those areas where historic mining removed the reserves and geological features that dictate mine layout and design. As indicated, considerable minable coal reserves remain in the area which can be effectively recovered while avoiding the existing abandoned mine workings. A maximum effective cover of approximately 1,000 feet exists in the permit boundary area and therefore there is no limit to coal recovery due to cover depth.

The proposed mine development and production sequence, as illustrated by Map 15, Mine Plan Layout & Production Schedule Map reflects orderly sequential development of available minable reserve areas, and the development/production requirements necessary to meet ~~CR's~~ CEG3's current overall annual coal production targets. It should be noted that coal production requirements as outlined by Table 17, Projected Annual Coal Production, are based on current marketing projections for the first permit term. Additional coal reserves east and south of the proposed permit boundary are controlled by ~~CR~~ CEG3 as shown on Map 12, Regional Coal Ownership Map. These reserves are planned to be mined at a future date under a major permit revision completed as soon after the first permit approval as possible. The projected mine life is anticipated to be 20 years including the eastern and southern reserves controlled by ~~CR~~CEG3.

Unanticipated fluctuations in coal market demand and other factors may result in some variance between projected and actual annual and total production rates. At the time of the permit mid-term review and permit renewal, ~~CR~~ CEG3 will re-evaluate coal production projections and make appropriate adjustments as necessary.

Proposed coal development and production is expected to occur as shown on Map 15, Mine Plan Layout & Production Schedule Map, and Table 17, Annual Coal Production.
Ongoing engineering (mine and site design), permitting (permit revision work) for adjacent coal blocks and completion of any remaining backfill work in N13E Panels A and Panel B;

In simplified terms, mining will begin with the Hiawatha Seam (2011 through 2212).

Use and Conservation of Coal Resources

Maximum resource recovery has always been and will continue to be one of ~~CR's~~ CEG3's primary objectives as a matter of sound resource management and efficient mining and economic practice. Conservation and maximum utilization of the available coal resource will involve mining to the minimum practical seam thickness and maximizing overall coal recovery consistent with sound engineering and mining practices.

Proposed mining methods will result in extraction of minable coal reserves down to a minimum practical mining thickness of 5 feet which is below the lower limit for the continuous mining equipment which will be utilized. The average mining height in the permit area is expected to be 8 ft. in the Hiawatha seam which is the only targeted mineable seam in the permit area. At the current time, the quality, market price, and effective cost of mining the type of coal that occurs in this area at thicknesses less than 5 feet renders such operations economically infeasible. If, however, future changes in mining technology or market conditions make it feasible to mine seams below the present 5 foot cut-off, mining plans may be modified to accommodate the resulting expanded mining operations.

Mining Methods and Equipment

The Kinney No. 2 Mine will be an underground mine utilizing development mining methods for primary coal. No pillar extraction is planned for the first 5 year permit term. Both mine plans and the proposed mining methods are designed to maximize recovery of the minable coal resource while limiting dilution of the coal by unmarketable waste, and to optimize mining operations to achieve maximum operational efficiency while assuring safe operating conditions. ~~CR~~ CEG3 has and
will continue to use sound engineering judgment and proven mining techniques in designing the overall mine layout; selecting appropriate pillar sizing, entry widths, and entry height; and in selecting suitable mining and support equipment and systems.

The following criteria listed in order of importance have been used to design the mine openings, select the mining methods and to layout the mine workings:

Maximum Overall Ultimate Safe Recovery of Coal to determine the extraction rate and the width of the openings;
Provisions for expedient development and for the use of large shuttle cars (25 ton) for hauling coal (60 deg chevrons);
Provisions for handling, stowage and backfill of underground development waste and provisions for wrap-around bleeder to ventilate fill areas and to allow monitoring them for spontaneous combustion until they can be completely sealed from the mine atmosphere;

Provisions for the drainage and collection of insitu mine water and for reuse for dust suppression;
Provisions for the future expansion of the mine into adjacent reserves blocks;
Provisions for the development of Rock Development at Fault crossings; and
Provisions to accommodate future long-term best extraction methods (i.e., shortwall or longwall mining methods in adjacent coal reserves) that will maximize the ultimate safe life of mine recovery rates.

~~CR~~ CEG3 currently projects an annual production rate of 0.18 to 0.49 million tons of coal per year for the first permit term from the Kinney No. 2 Mine. The long term goal is to revise the permit to include all coal reserves held by ~~CR~~CEG3, and possibly additional unleased Federal reserve's to increase production and sustain the mine over a 20 year mine life. Annual production may fluctuate dependent on changes in coal market conditions and other factors. Coal production for the first 5 year permit term is shown on Table 17, Projected Annual Coal Production.

TABLE 17
PROJECTED ANNUAL COAL PRODUCTION (Note 1)

YEAR	COAL (TONS)
~~2011~~2019	180,349
~~2012~~2020	491,514
~~2013~~2021	Additional reserves under revised permit
~~2014~~2022	Additional reserves under revised permit
~~2015~~2023	Additional reserves under revised permit

Note 1. See Map 12, Regional Coal Ownership for additional reserves controlled by ~~CR~~CEG3.

Underground mining is a relatively complex process involving a number of inter-related activities which are designed to optimize coal production and handling, minimize environmental damage, and assure safe and healthy working conditions for the miners. The proposed mining operations will involve the following activities:

Mining Activities

- Mine development
- Coal extraction
- Coal haulage
- Development rock handling

Support Activities

- Ground control
- Mine ventilation
- Mine drainage
- Maintenance and miscellaneous support activities

The mining activities are discussed in the following sections. Ground control is an integral part of mining and is addressed in the discussion of mining activities. Other associated support activities are discussed separately under individual sub- headings.

Mine Development - Mine development involves excavation and construction of the underground openings, or entries, required to access the minable coal reserves, provide for efficient production of those reserves, facilitate haulage of both coal and underground development waste rock, and provide for effective ventilation of the mine workings. Development activities will include development of mine portals, main entries, and sub-mains. All mine development activities including both development methods and actual physical dimensions of development entries have been designed to provide for long-term stability during active mining operations and to effect full compliance with all applicable regulatory provisions. ~~CR~~ CEG3 will generally complete most development in the minable coal seam to minimize underground development waste rock generation and provide some economic offset of development costs through production of marketable coal.

Mine development will involve the use of continuous miners to advance the development entries, electric or diesel shuttle cars to remove the excavated coal or waste rock, and electric roof bolters to provide required roof support. Fault crossings may require blasting to develop the crossing entries.

Development of slopes and raises may take advantage of modern raise boring technology which involves drilling a pilot hole using conventional surface or underground long-hole drilling equipment, connecting a rotary cutterhead on the lower level to a drive unit on the upper level, and progressively boring the required mine opening by advancing the rotating cutter-head toward the drive unit.

The main entries will be the primary mine access and supply routes for the minable coal seam, providing access and ventilation for all other underground mine workings and carrying the principal coal haulage conveyor. Typical main entry development may vary from a three to a seven entry configuration, however, most main entry development will consist of five parallel entries with crosscuts at regular intervals. Typical sub-main development may vary from a three to a seven entry configuration, however sub-main development in general will consist of five entries with crosscuts at regular intervals. Development of bleeder entries, which will be used to bleed off naturally occurring methane gas prior to mining and to route any continuing methane drainage to exhaust entries during and following mining, may consist of three to five entries. Figures 23 and 24, Typical Mine Entry Development Configuration, illustrate the normal anticipated development configuration along with typical design dimensions and Map 15, Mine Plan Layout & Production Schedule Map shows anticipated development requirements for the minable coal seam.

Coal Extraction - ~~CR~~ CEG3 plans to utilize the room development (first mining) mining method as the primary coal extraction and production technique. In these areas, conventional room development mining methods will be utilized with continuous miners, shuttle cars, and roof bolters as the primary production equipment. The following sections describe the two proposed coal extraction methods.

Conventional room development mining, using continuous miners, is one of the primary underground coal mining method utilized in many mines and offers the benefits of low capital cost for the required mining equipment and considerable flexibility. Continuous miners can negotiate technically disturbed areas of the mine and adapt to seam variations and uneven reserve blocks. Continuous mining equipment is also relatively mobile and can easily be moved to different locations within the mine allowing relatively quick adjustments and continued production if ground control, water or other problems prevent further mining in an active mining area. Room development mining involves development of underground mine openings (entries and cross-cuts) with intermediate pillars to support the mine roof during active mine advance.

Each mining area developed using this method then becomes a "room" with a grid of supporting pillars.

Conventional room development mining (first mining) methods will be used for essentially all mine development work except slopes and fault crossings. Room development mining involves the use of a continuous miner to cut the coal and progressively advance each entry and cross-cut in a pre-determined development sequence. The cut coal is collected by the gathering pan on the continuous miner and discharged from the miner tailpiece by conveyor to a waiting electric shuttle car. The shuttle car will transport the coal to a feeder-breaker which will be centrally located in each continuous miner section or development area. The feeder-breaker will then feed the coal to a section belt for transport to the mine coal haulage conveyor system. As a safety consideration consistent with applicable MSHA regulations, the continuous miner is not allowed to advance under unsupported roof so following each cut an electrically powered roof bolter will install roof bolts and any other support required under the an MSHA approved roof control plan in preparation for the next cut. During bolting operations, the continuous miner will move to a nearby face and take a full cut and miner and bolting operations will proceed in staggered sequence as development progresses. The following primary equipment required to support room and pillar mining operations:

- Continuous miner
- Shuttle cars
- Roof Bolter
- Feeder Breaker
- Section power center
- Mantrip vehicle
- LHD scoop
- Portable rock duster
- Section conveyor
- Miscellaneous support equipment

Coal Haulage - Marketable coal resulting from either underground mine production or mine development activities must be transported from the underground mine workings to the surface where it will be transfer to the surface coal handling system and be routed to the coal loadout. The mine coal haulage system will consist of several interconnected components to transport the coal to the surface. In conventional room development areas or production sections coal will be transported by electric or diesel shuttle car to a feeder-breaker which will feed a 42 inch section conveyor belt. From the active mining or development areas the section or panel belts will transfer the coal to either secondary haulage belts in the sub-mains or the primary coal haulage belts in the main entries. Secondary belts from the sub-mains will feed to the primary main haulage belt which will carry the coal to the surface. The section belts will move with progressive mining advance and will be 42 inch conveyors with modular components, take-ups, and drives capable of handling 1200 TPH. The secondary conveyor belts will remain in place for an extended time and will typically be 42 inch roof hung conveyors with modular tail section and intermediate booster drives capable of handling 1200 TPH. Coal haulage between the various mining levels (between faults) will involve the use of main haulage belts on the intermediate access slopes which will transfer the coal to the main haulage belt on the next level above, or below. These belts will typically be 42 inch roof hung conveyors with modular tail sections and intermediate booster drives as needed capable of handling 1200 TPH. All coal transfer points will be partially or fully enclosed to minimize coal breakage and dust generation, and contain both the coal stream and any associated coal dust. Consistent with safety considerations and applicable MSHA regulations, all underground coal haulage belts will be located in separate entries where they are isolated from both intake and return airways (refer to Figures 23 and 24, Typical Mine Entry Development Configuration).

Underground Development Waste Rock Handling - Several mining and related activities may result in production of significant quantities of underground development waste rock materials potentially including rock, carbonaceous shale, floor clay, and parting material. Operations which may result in generation of underground development waste rock will include general mine development, slope/raise development, room development mining operations, and development of overcasts for ventilation or coal haulage. Where underground development waste rock materials are encountered in mining operations or where the rock materials are integral to the coal seam in development areas or room development mining sections they will be recovered and handled with the coal during mining and coal haulage and will later be removed in the coal handling process. Where it is operationally feasible to separate these materials they will be removed and handled separately using the same equipment and haulage systems that will be utilized for conventional room development operations.

Disposal of Underground Development Waste Rock in Designated Areas Underground - Two special areas have been designated underground as underground development waste rock disposal sites for the emplacement of mining generated rock (see Map 15, Mine Plan Layout & Production Schedule Map,). Both areas are within practical operating proximity of the rock slope development area and also close to the Surface portal area where Underground Development waste may be temporarily stored as "off-spec" product coal. Disposal Area 1 is the area known as "N13E Panel A" and it is located on the North side of the Portal Mains. It is separated from the adjacent Disposal Area "N13E Panel B" with a 140 ft wide Barrier Pillar which adds to the long-term integrity of the backfill area stability. Both of these disposal areas are strategically located, life of mine fill emplacement areas designed for the emplacement of all types of underground development waste containing rock and coal or coal only.. Both areas will be ventilated before, during and after backfill emplacement operations and at all times according to MSHA standards and according to MSHA approved ventilation and roof control plans for the mine.

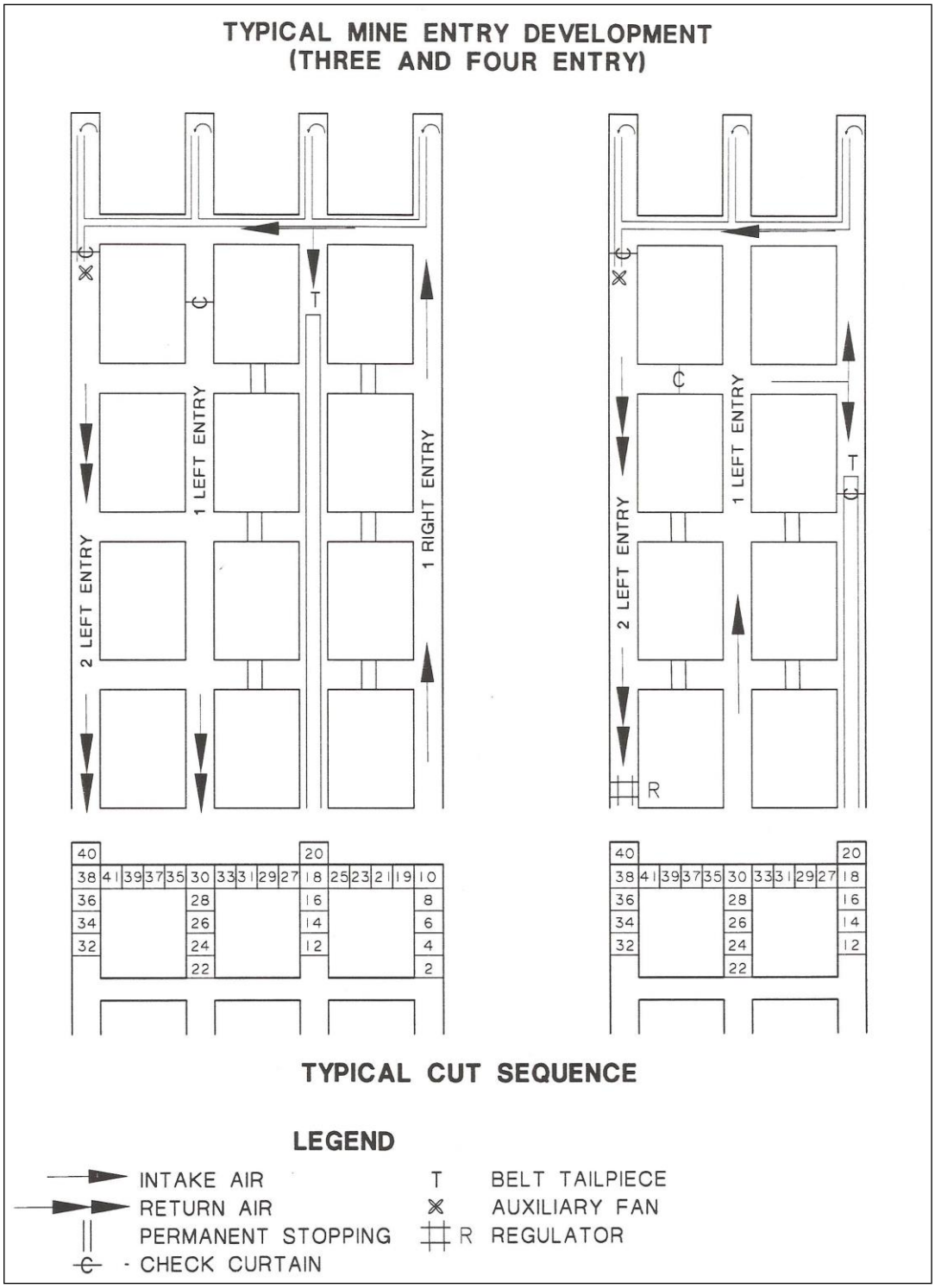
Mine Ventilation - The mine ventilation system has been designed to provide sufficient quantities of air and airflow rates in active working areas to sufficiently dilute any coal dust or methane gas present so that potentially explosive dust/gas/air mixtures do not develop and to provide sufficient fresh air flow to assure safe and healthy working conditions for the miners.

During portal development small auxiliary fans will be used to ventilate the working places. These fans will be used for primary ventilation only for a short time period during initial development. Once portal development progresses to the point where full ventilation crosscuts have been established, a temporary mine fan will be installed on the northernmost portal entry and this fan along with conventional full or temporary stoppings will provide adequate ventilation volume and control for the initial portal and main entry development. This fan will be used for approximately one year, or until development has progressed to the point where a second continuous miner can be placed in service. Use of the temporary mine fan will allow ~~Carbon Resources~~Coal Energy Group 3 the time to complete the permanent main mine ventilation fan installation and associated structures.

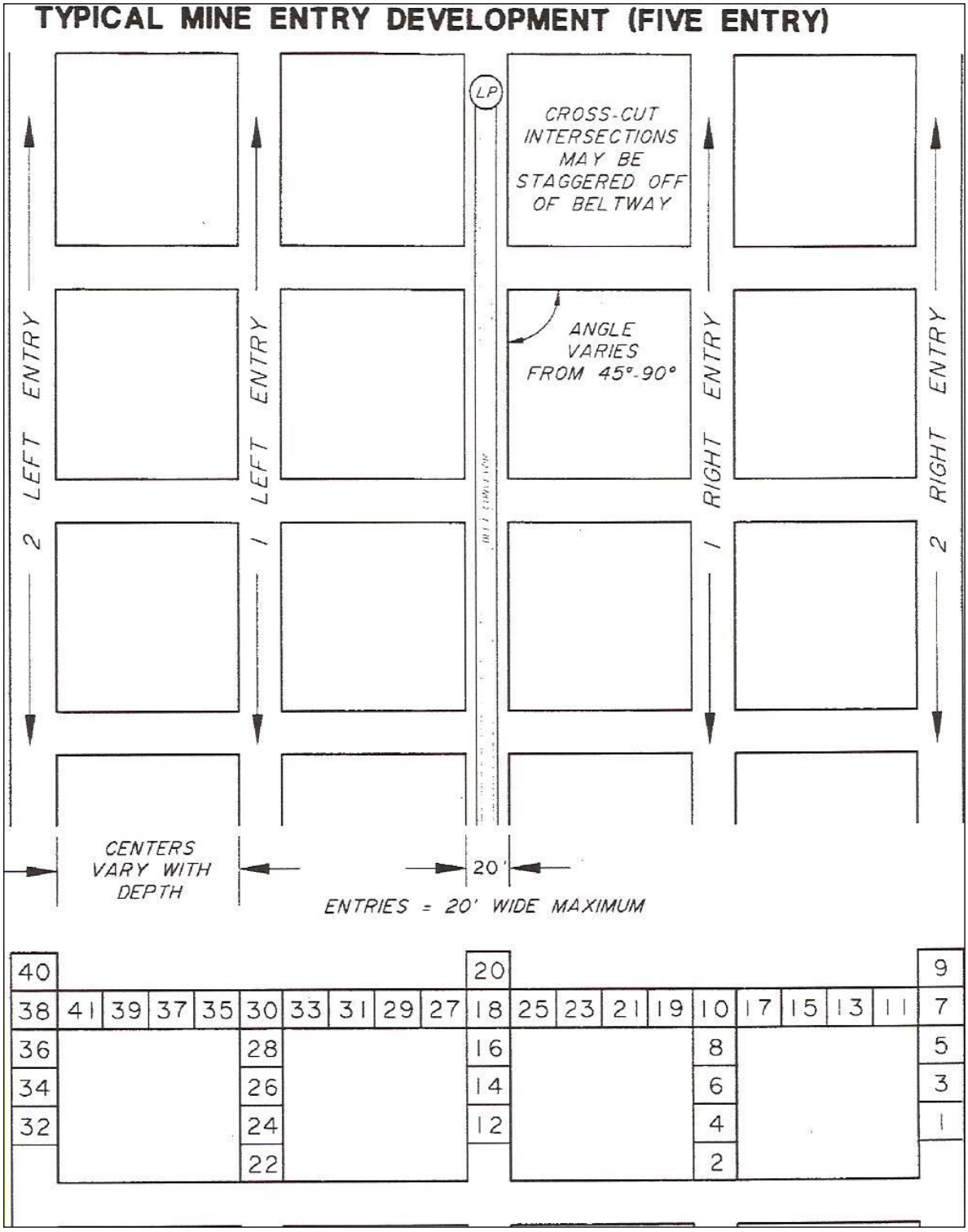
Permanent ventilation for the permit area will be provided by a minimum 6 ft diameter exhausting axial vane fan with a 300 HP motor operating at 1160 rpm (or equivalent). Temporary or auxiliary fans will be used in either blowing or exhausting mode with vet tubing to assist mining while setting up airways for the permanent ventilation system.

The main mine fan installation will include fan drive units, fan shroud structures, blow-out doors, heaters, and fan control systems located on Portal No. 1, as shown on Map 13, Surface Facilities Map. The main mine fan will provide adequate ventilation for all development and mine workings planned during the first five years of mining.

Figure 23, Typical Mine Entry Development Configuration



Figures 24, Typical Mine Entry Development Configuration



Effective ventilation of mine workings will involve control of airflow within the mine workings to provide adequate airflow volumes and flow rates in all active working areas. Airflow will be controlled, under mine ventilation plans submitted to and approved by MSHA, by maintaining a pressure differential which will force the air to follow a pre-determined path through the mine workings. The pressure differential and desired airflow will be maintained by isolating intake and return airways with air-tight stoppings and utilizing the network of mine entryways to effectively route both clean (intake) and used (return) air through the mine.

The mine fan is not intended to be a life of mine fan per se. However, it is sufficient for all of the needs for this permit application and from this standpoint it is deemed to be permanent. From the longer-term viewpoint with respect to the life of the reserves it is more or less a temporary installation and will need to be replaced at some future date as the permit is revised and the mine is extended.

As shown, mine intake air from this fan will enter through the underground mine workings through the Intakes Portal Openings No. 4 and No. 5 Entries. Intake air will be drawn through the mine to the working places and mining faces by the network of main, sub-main, and bleeder entries the negative pressures exerted by the exhausting fan. Air will be coursed through the mine and controlled by both permanent and temporary stoppings, curtains and regulators. From mine working areas, exhaust airflow will be carried by bleeder, sub-main, and main entry exhaust airways discharging from the Mine Portal No. 1 entry through the fan.

The mine ventilation system will meet all applicable MSHA requirements and according to an MSHA approved Ventilation Plan. The Ventilation plan will provide continuous effective ventilation of the active mine workings at all times. The Ventilation plan will also provide for regular inspections as required by CFR 30 Part 75 regarding pre-shift and on shift inspections and fire-boss inspections of outby workings.

Based on the planned extent of the mine workings, anticipated methane liberation and dust generation rates, and probable mining conditions the primary ventilation fan will provide adequate ventilation capacity for at least the first five years of mine development and production. It is expected that subsequent mine expansion will require development of additional ventilation facilities to assure continued effective airflow and ventilation of the underground workings. These will be addressed in future revisions of the permit as needed.

Dewatering and Mine Drainage Control - Given the relatively low overall permeability of the geologic sequence, limited recharge, extensive historic mining in the area both north and south of the proposed Kinney No. 2 Mine in multiple seams, and consequent lack of a significant ground water aquifer in the area to be mined, ground water inflow to the active mine workings is expected to be limited. Ground water accumulations in abandoned underground workings in the area may result in localized increases in the amount and availability of ground water, particularly in down-dip areas to the north and east. ~~CR~~ CEG3 is not expecting any significant amounts of water to be encountered during the permit term, other than possible minor amounts of perched localized water.

Any significant ground water inflows to the active mine workings will be controlled by intercepting the water near the point of inflow with either shallow ditches or sumps and transferring the water to either abandoned mine areas or temporary holding areas. Minor ground water inflows will not be addressed unless they interfere with mine operations or pose a potential safety hazard. Mine drainage will be transferred within the mine utilizing a series of ditches in combination with intermediate sumps and submersible pumps and pipelines. If adequate quantities of mine drainage are available to justify use of mine drainage as a supply source for operational mine water requirements, temporary holding areas within the mine may be developed and utilized as mine drainage storage areas and clarification basins.

Maintenance and Miscellaneous Support Activities - A number of support activities including rock dusting; extension of mine electrical, communications, and water systems; equipment maintenance and repair; and material and equipment supply and storage are necessary to maintain safe, efficient underground operations, to prevent or minimize potential mining related environmental impacts, and to effect ongoing compliance with applicable regulatory provisions and requirements. Generally, mining support activities will occur either concurrently and as a part of ongoing mining operations or on a scheduled or as needed basis. Many of the necessary mining support functions including electrical distribution, mine ventilation, underground communications, and health and safety considerations are governed and monitored by MSHA under applicable provisions of the Coal Mine Health and Safety Act of 1969, and will be conducted under specific MSHA plan approvals. The following briefly describe planned support activities which ~~CR~~ CEG3 will undertake in conjunction with the proposed Kinney No. 2 Mine mining activities:

Rock dusting - Rock dusting will occur in all applicable development areas and mining sections and will involve mechanical or pneumatic distribution of powdered limestone to cover exposed coal surfaces to limit generation distribution of potentially explosive mixtures of coal dust in the mine environment.

Extension of mine utilities - Recognizing that mining advance will be a continuous ongoing process, mine utilities including electrical, communications, and water systems have been designed and will be installed to facilitate extension with mining advance. Typically, these systems will consist of modular components which will permit progressive connection of additional segments either in a series or parallel configuration.

Equipment maintenance and repair - Normally, equipment maintenance will occur in the working area during scheduled maintenance shifts. Minor repairs will occur in the working area either in conjunction with scheduled maintenance or, if immediate repairs are required, during temporary shut-down periods on scheduled operating shifts. If major repairs or equipment overhauls are required, the equipment may be transported to either centralized underground or surface shop areas. All underground maintenance and repair activities will be conducted in compliance with applicable health and safety requirements.

Material and Equipment Supply and Storage - Materials and equipment required in conjunction with underground mining operations will generally be supplied from the surface warehouse and storage facilities. Limited quantities of certain consumable supplies including roof bolts, timbers, hydraulic fluid, rock dust, electrical cable, and similar materials may be stored in temporary underground storage areas near active working areas.

In addition to the specific production equipment previously listed for development mining, or first mining, a variety of maintenance and support equipment and systems will be required in conjunction with the proposed underground mining operations including the following:

- Personnel carriers
- Supply tractors and trailers
- Lubrication trailers
- Rock dust distribution system
- Electrical distribution system
- Underground communications systems
- Personnel first aid and safety equipment
- Miscellaneous equipment

Pillar Sizes

The primary means of support for any underground mine plan is the pillar itself and the Kinney No. 2 Mine is no exception. ~~CR~~ CEG3 has taken special care and precaution to ensure that all of the pillars within the permit application area are sized with dimensions to provide sufficient stiffness to withstand post mining vertical stresses and deterioration for the prescribed duty intended to so that they will stand for the long-term full life of the mine with a high degree of integrity and confidence in safety against mining bumps.

Based on comparison with the empirical data from mine maps of historic production at this location and based on experience at other mines in the area[1], ~~CR~~ CEG3 has selected a conservative rate of extraction and pillar configuration for the given the depth of cover[2], geotechnical considerations of the coal and overburden, and other conditions[3] present.

Planimetric extraction rates are limited to less than 45% with-in the permit application area by design with a view toward long term stability, safety and utility service for the Kinney No. 2 Mine.

Pillars dimensions in the mains are set at 65 ft wide by 100 ft long (i.e. 75 by 120 ft entry and cross centers with 20 ft. wide openings). This will ensure a stable opening and permit productive place change mining operations with mining and bolting.

Pillars in the 2 adjacent panels are 55 ft wide by 100 ft long (i.e. 65 ft by 120 ft entry and crosscut centers respectively). W/h ratio for mains pillars is 65/8 = 8.125. Pillars of this shape are stronger than the "intermediate range" of the empirical pillar classification and, considering that it is not adjacent to any active retreat pillaring or caving activity and that it is under relatively shallow cover it is expected to provide ample support serve the duty intended for the five entries throughout the duration of the life of the mine.

W/h ratio for pillars in the two designated backfill panels is 65/8 = 6.88. This ratio is well within the "Intermediate range" of empirical classification. The 60 degree chevron called for in the back-fill panels is not expected to result in failure of the pillar corners at the intersections until after backfill has taken place. However, if failure should occur, secondary support will be installed to decrease the effective roof span and support the pillar where it is needed.

Adequate and ample barrier pillars will be left between new workings and mined-out workings as shown and as otherwise needed.

Approach of Old Workings

~~CR~~ CEG3 has obtained the maps of old mine workings in the Hiawatha Seam in the Permit application area. However, these maps may or may not be accurate and reliable and the workings are abandoned and sealed and so can not be accessed to verify their reliability.
In areas where new mining activities are likely to approach within 500 ft of abandoned, sealed or unventilated mined out workings MSHA rules CFR 30 Part 75 will be strictly followed concerning the approach of old workings.

~~CR~~ CEG3 will work with MSHA and the state of Utah to devise plans to precisely locate old mine workings prior to approaching them that will safeguard all persons. This may involve drilling ahead with an in-mine drill, possibly injecting concrete into old workings to pre-stabilize them and other

[1] RE: Columbine Mine and Skyline Mine maps; See also Empirical Methods for Coal Pillar Design – Christopher Mark PhD.

[2] The maximum depth of cover in the permit application area above the Hiawatha Seam is 1000 ft. The average depth of cover is about 700 ft for most of the workings and for the mains. The minimum depth is zero at the outcrop portal location.

[3] Other conditions include dynamic conditions present with the structural complexities of the area (i.e. faulting).

measures to prevent inundation and/or the introduction of gob gas to the active mine atmosphere should the drilling reveal the old mine workings will be unavoidably encountered in the planned mains.

Underground development waste backfill will be placed into designated panel areas and will further serve to encapsulate pillars. This will passively stabilize pillars in those areas with some confinement. Underground development waste backfill areas will be ventilated until they are filled and have been monitored for products of combustion for a period of 1 year after backfill operations are complete. If no
significant products of combustion have been found the area will be sealed and monitored according to an approved ventilation plan.

If products of combustion are found in the area, the area will be promptly sealed and injected with an inert heavy gas such as Carbon Dioxide CO2 specific gravity = 1.53. Once sealed and injected with CO2 , no mining will be planned down dip that may breach into these sealed areas. Monitoring of gas in the area will be a continuing part of an approved ventilation plan.

Finally, ~~CR~~ CEG3 will commit the professional resources necessary to actively examine actual pillar and rib conditions in areas adjacent to old workings and evaluate the need for additional roof or pillar support and other geo-mechanical needs on a periodic and as needed basis. ~~Carbon Resources~~Coal Energy Group 3 is dedicated to effectively addressing any need for design changes in pillar size or changes required for the safe operation of the Kinney No. 2Mine.

Maintenance of mine openings will involve regular inspections of the openings and surrounding surface areas, removal of any material or debris from the immediate area of the openings, and repair or replacement of ground control, protective structures, or other structures associated with the mine openings. Mine openings and the immediate surrounding areas will be kept clear of equipment, materials, and supplies, and no coal, mine waste, or potentially flammable materials will be placed or stored in the immediate vicinity.

R645-301-524 Blasting and Explosives

Due to the potential explosion hazards related to both methane and coal dust blasting, any underground blasting activities will be limited and will be conducted in full compliance with applicable MSHA requirements. Limited surface blasting will be necessary in conjunction with the proposed construction activities and on an occasional basis during operations. Construction related blasting requirements may include the drilling and blasting activities necessary to construct the various pads, and for the proposed surface conveyor system, and limited blasting to fragment resistant rock in order to establish the design facilities area configuration, and small-scale blasting to fracture any large rocks so that they can be moved during the construction/development phase. Occasional operational blasting requirements may include small-scale surface blasting to fracture large rocks that may fall or roll from the adjacent steep slopes into operating areas or onto roads, clear clogged chutes, or address potentially hazardous rock or slope conditions. Because of the nature of the required blasting, construction related blasting activities will not require the use of more than 5 pounds of explosive,

Any surface blasting required in conjunction with the underground mining operation will be conducted in compliance with applicable provisions of Rule R645-301-524. All blasting will be conducted by a certified blaster and the responsible blaster will either carry documentation of blaster certification or the appropriate certificates will be retained on file at the mine or construction office. The responsible blaster and at least one other person will be present for all

blasts and the responsible blaster or an individual under his direct supervision will load, connect, and initiate all blasts The proposed Kinney No. 2 Mine surface facilities, where any required surface blasting would occur, are located within 1,000 feet of State Highway 96, and within 500 feet of abandoned coal mines in the areas., An example of a general blasting plan is included in this permit application (Exhibit 15, Kinney No. 2 Mine Blasting Plan). Given the general nature of the blasting plan, it provides a framework for all anticipated blasting activities, , ~~CR~~ CEG3 will submit specific blast design information to UDOGM prior to any blast. Persons responsible for blasting operations will be familiar with site conditions and the explosive handling and blasting procedures as outlined by Exhibit 15, Kinney No. 2 Mine Blasting Plan.

Explosives and detonating caps will be stored separately in secure locked structures and explosive storage and handling will be conducted in accordance with all applicable State and Federal standards under current valid Bureau of Alcohol, Tobacco, and Firearms permits. It is anticipated that portable skid-mounted explosive magazines will be utilized and that any required explosives may be supplied and handled by an independent explosives contractor. Given this consideration and very limited anticipated operational blasting requirements, explosives may not be maintained on site at all times. For construction related blasting operations and any temporary or long term explosive storage during the operations phase, the designated explosive storage area will be located as shown on Map 13, Surface Facilities Map providing adequate distances from surface structures. Blasting during initial mine facilities construction will be the responsibility of the construction contractor, but will be conducted in compliance with all DOGM regulations; the contractor will have certified blasters, or will sub-contract with certified blasters.

R645-301-525 Subsidence Control Plan

525.100 & 200 Pre-Subsidence Survey

Map 1A, Facilities Area Vegetation, Map 7, Regional Hydrology, Map 8, Works-Wells-Springs-Faults Map 10, Regional Water Quality, Map 13, Surface Facilities, Map28, Surface Water Monitoring Sites, Map 31, Surface Water Rights, and the Cultural Resource Survey, found in Exhibit 3 show the location and type of structures and renewable resource lands that subsidence may materially damage or for which the value or reasonably foreseeable use may be diminished by subsidence, and showing the location and type of State-appropriated water that could be contaminated, diminished, or interrupted by subsidence.

As a result of the work completed during the Cultural Resource Survey and the work completed to prepare the maps mentioned above, no structures were found above planned underground mining areas. There are no aquifers or water bodies that serve as a significant water source for any public water supply system above or below planned mining at the Kinney No. 2 Mine. Renewable resource lands do exist above planned mining and therefore a subsidence control and monitoring plan are presented below.

525.120 and 300 Subsidence Control

Coal extraction by underground mining typically results in a void where the coal has been removed, and possibly partial collapse of the immediate overlying units, deformation of the units above the mined area, and potential deformation or settlement of the overlying ground surface, termed subsidence. Subsidence typically only occurs at the surface where pillars are extracted, or where longwall mining methods remove substantial blocks of coal. No second mining, or pillar extraction, or longwall mining that would result in subsidence is planned for the Kinney No. 2 Mine, therefore no subsidence is anticipated that could cause material damage to the renewable resource lands above mining. Methods to control subsidence may include backfilling voids,

leaving support pillars of coal, and leaving areas where no coal is extracted. Areas where these controls may be used include the outcrop, or where there are sensitive features on the surface above mining. Portals have been designed to be stable indefinitely, with a combination of steel, wood, and concrete support structures that will prevent subsidence of the shallow cover over the mine entries near the surface.

Subsidence Monitoring Plan

To document whether subsidence occurs or not, ~~CR~~ CEG3 will conduct a subsidence monitoring program including installation of monitoring points above mining as shown on Figure 40, Subsidence Monitoring Plan. Monuments will be installed prior to mining consisting of ¾ inch rebar driven a minimum of 3 feet into the ground, topped with plastic caps. High precision GPS survey shots will be made on each monument prior to mining, and once each year for the first 5 years. After the first 5 years, the monuments will be surveyed every other year. Control monuments similar to those mentioned above will be established outside of the subsidence zone to use as baseline control for the subsidence monuments. These control monuments will be calibrated to the Scofield Cemetery U.S. Geodetic Survey control point to insure accuracy and consistency. The surveys will be conducted under the direction of a Utah Registered Professional Surveyor. The results of each survey will be provided to the UDOGM yearly. Any significant subsidence will be fully investigated and reported promptly to the UDOGM. Visual inspections of the surface above mining will be conducted during each subsidence survey and the results will be included in the annual report.

R645-301-525.500 Repair of Damage

~~CR~~ CEG3 will correct any material damage resulting from subsidence caused to surface lands, to the extent technologically and economically feasible by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses that it was capable of supporting before subsidence damage, and, to the extent required under applicable provisions of State law , either correct material damage resulting from subsidence caused to any structures or facilities by repairing damage or compensating the owner of such structures or facilities in the full amount of the diminution in value resulting from the subsidence.

R645-301-525-700 Public Notice of Mining

~~CR~~ CEG3 will mail written notice of mining to occupants and owners of surface property and structures above the underground workings at least six months prior to mining, except in the case of initial mining startup, where six months may not exist prior to mining. In the case of initial mining, notice to the surface owners will be made when the mine permit is issued. Since no second mining will be conducted , and since a small area will be mined during the first six months of operation no subsidence can cause damage to the surface or structures. The written notice will include identification of specific areas in which mining will take place, dates that specific areas will be undermined and the location where the subsidence control plan can be examined.

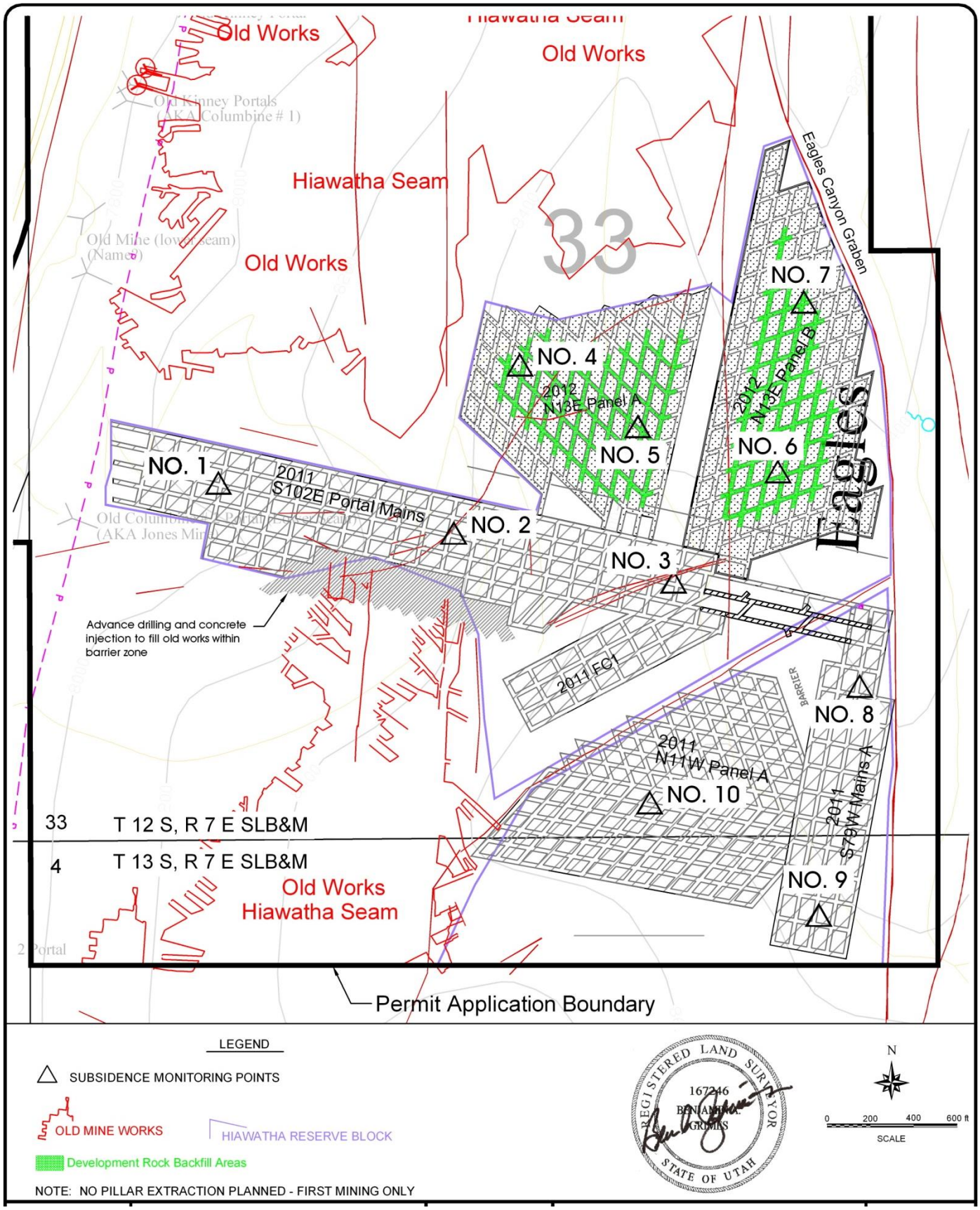


Figure 40, Subsidence Monitoring Plan

R645-301-526 Mine Facilities

The proposed underground mining and related activities will require limited surface support facilities. The facilities to be utilized in conjunction with the proposed operations will include new facilities to be constructed in the proposed Kinney No. 2 Mine surface facilities area. These facilities will provide the necessary infrastructure for effective management and handling of personnel, equipment, materials and supplies, and both coal and mine underground development waste materials, and will include a number of structures specifically designed to control or mitigate potential mining related impacts.
Construction of required surface structures and facilities has previously been discussed in R645-301-522, General Description of Mine Plans, Mining Methods, and Related Design Requirements. The surface structures and facilities will be operated, maintained, and ultimately reclaimed in a manner that prevents or controls erosion and siltation, water pollution, and damage to public or private property; and to the extent possible using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values, and minimizes additional contributions of suspended solids to streamflow or runoff outside the permit area. Any contributions of suspended solids from mine disturbance areas will not exceed applicable effluent limitations under Utah or Federal law.

Required surface facilities are shown and identified on Map 13, Surface Facilities Map, and include the following:

- Conveyor SB-1
- Conveyor Transfer Tower
- Conveyor SB-2
- Non-Spec Coal Pile & Stacking Tube
- Conveyor SB-3
- Spec Coal Pile & Stacking Tube
- Conveyor SB-4
- Screening & Crushing Building
- Sediment Pond Road – Primary P6
- Truck Loadout Building
- Lodout Road – Primary P5
- Storage Sheds – 5 each
- Shop – Warehouse
- Fueling Facility
- Main Access Road – Primary P1
- Office Road – Primary P2
- Portal Access Road Primary P3
- Storage Area Access Road P4
- Mine Office – Bathhouse
- Topsoil Stockpile
- Water Tank
- Electrical Substation
- Sedimentation Pond
- North Access Road – Primary P7
- Explosives Magazine
- Explosives Cap Magazine
- Coal Processing Waste Temporary Storage Area
- Access Private Property on top of mountain and for post mining land use - Primary P9

The following sections describe design and construction details and operation and maintenance plans for the identified structures.

Soil Stockpiles

Soil stockpiles will be utilized for temporary storage of those materials which will be used as vegetative growth media in reclaiming mining related disturbance. Stockpile location and construction will, to the extent operationally feasible, minimize exposure to wind and water erosion and protect the soil resource from loss, contamination, or further disturbance prior to final use for site reclamation. Two new soil/substitute stockpiles will be constructed using available material from the proposed Kinney No. 2 Mine surface facilities area. The large soil stockpile will be located at the southwest corner of the mine permit area adjacent to Highway 96 as shown on Map 13, Mine Surface Facilities Map. Detailed discussions of the topsoil stockpiles and topsoil recovery, storage, protection and redistribution are included in Chapter 2.

Basic soil handling and stockpile construction practices are described in R645-301-231.100, Topsoil Removal and Storage. The stockpiled material will be protected from erosion, contamination, and loss by placement in a controlled manner with side slopes at 2H:1V or less, seeding with a temporary vegetative cover, posting with durable signs reading "Soil Stockpile - Keep Off", and the use of appropriate drainage control measures as discussed previously.

Excavated Slopes

Site grading and excavation for the mine facilities and road construction activities will require some slope excavation work. Slope excavation areas stand out on Map 13, Surface Facilities Map due to the closely spaced contours. In some areas, required slope excavations will occur in weathered rock or other competent material where the potential for any consequent upslope stability problems is minimal. Cut slopes have been designed at gradients varying from 2H:1V to 0.8H:1V, dependent on rock type and construction requirements. Slope excavation will involve removal of material using tracked dozers, tractor scrapers, or backhoes to achieve the design slope configuration. In most cases, it is anticipated that required excavation can be accomplished without the need for blasting to loosen the material, however if blasting is required, any blasting operations will be conducted in accordance with the blasting plans previously described in R645-301-522, General Description of Mine Plans, Mining Methods, and Related Design Requirements.

During progressive excavation activities, the excavated slopes will be graded or scaled to establish a stable configuration and remove any loose material which could pose a potential hazard. Where slope excavation occurs in material which can be revegetated, the finished slopes will be seeded with the temporary seed mixture as outlined in R645-301-340, Revegetation and Habitat Restoration Plans, to stabilize the graded surface and minimize runoff and potential erosion. In the portal face-up area, where a potential rock fall hazard exists, wire mesh, or chain link fencing material may be anchored to the steep rock wall with roof bolts and concrete-steel portal structures will provide additional protection for both personnel and equipment. Maintenance of excavated slope will include periodic inspection of slope areas and removal of loose rocks or other potential hazards.

Excess Spoil Material

As an underground mining operation, the proposed mining and related activities will not result in generation of spoil materials. In addition, all related surface disturbance required for construction of the necessary surface support facilities has been carefully planned to balance material cuts and fills so that no excess material is generated. Since no excess spoil will be generated as a result of the proposed construction or operations activities, regulatory provisions relating to handling and disposal of excess spoil are not applicable.

Mine Openings

The proposed underground mining operations will require several mine openings which will provide underground access for personnel, equipment, and supplies; be utilized for conveyor haulage of both coal and limited quantities of underground development waste; and will serve as mine intake and return airways for ventilation of the underground mine workings. Mine openings
required in conjunction with the currently proposed and anticipated future operations will include a 5 entry system.

Because the mine openings will provide long-term access for the proposed operations, they have been located and designed to facilitate effective access and assure long-term stability. As described in R645-301-520, General Description of Mine Construction and Development Activities, the mine portals will be developed in the Hiawatha Coal Seam using continuous miners and conventional room development (first mining) methods. The portal entries will be approximately 20 to 25 feet wide and 6 to 10 feet high. Appropriate sizing of the support pillars along with supplemental roof control, including roof bolts and other roof support systems, will
provide for effective ground control and long-term stability of mine entries in the portal area.

The portal entries will be protected from potential rock fall hazards by steel portal structures on concrete foundations which will provide a full protective canopy on the manway and belt entry portals.

Maintenance of mine openings will involve regular inspections of the openings and surrounding surface areas, removal of any material or debris from the immediate area of the openings, and repair or replacement of ground control, protective structures, or other structures associated with the mine openings. Mine openings and the immediate surrounding areas will be kept clear of equipment, materials, and supplies, and no coal, mine waste, or potentially flammable materials will be placed or stored in the immediate vicinity.

Underground Development Waste (Mine Development Rock)

Mine development, ongoing mining operations, and ancillary operations such as development of overcasts for mine ventilation and coal haulage will result in production of underground development waste including carbonaceous shale, weathered coal, floor clay, and parting material. Where it is operationally feasible to separate these material from the coal during development and mining, the underground development waste will be removed and handled separately from the coal. Where separation is not operationally feasible, underground development waste will be handled with the coal and will be removed in the surface facilities, separated from the coal product and thereby becoming coal processing waste and will be temporarily stockpiled until it can be sold as distressed coal and hauled off site..
. . The area designated as temporary coal processing waste stockpile as shown on Map 13, Surface Facilities Map, is capable of containing approximately 3,900 tons of material. This material will be sold as a low quality coal product, distressed coal, to local coal preparation facilities, or will be deposited in other facilities permitted by the UDOGM.

Generally, the same mining equipment and haulage systems used for coal production will be used to remove and handle underground development waste, and coal processing waste as shown on Figure 41, Coal Waste Handling Scheme. Continuous miners, electric shuttle cars, and LHD scoops may be used to load and haul mine waste to the mine conveyor system. Normally underground development waste haulage will occur on a scheduled rock handling shift when the conveyor belt system will be cleared of coal. Typically, any development rock produced

during periods other than on a scheduled development rock handling shift will be temporarily stockpiled in an inactive area underground for later handling and haulage either to a permanent underground development waste storage area of the mine or hauled from the mine. Once the mine rock is placed on a belt at the loading point, it will be transferred to the main haulage belt running from the mine. From the main haulage belt, the mine rock will transfer to the surface coal haulage system which will carry the rock to either the off spec coal pile or through a flop gate in the crushing and screening building and loaded onto a dump truck and transferred either to the temporary coal processing waste pile of back to the off-spec coal stacking tube as shown on Figure 41..

The surface coal haulage system has been designed to facilitate underground development waste handling in two ways:

One; The stacking tube at the off-spec coal stockpile can be emptied by a direct feed chute in its base allowing rock to bypass the coal stockpile and feed directly to Conveyor SB-3. In the primary crusher building a flop-gate and diversion chute will allow underground development waste to bypass the primary crusher and feed directly to the truck loadout where it can be transported to a segregated location on the off-speck coal pile prior to returning the rock to the mine.

Two; Coal mine development waste may simply be dumped onto the off-spec coal pile, via the flop gate atop the stacking tube, if circumstances are favorable. That is, if there is sufficient rock volume to warrant temporarily converting the entire off-spec coal pile to a temporary coal mine development waste storage pile prior to returning the rock to the mine.

Mine Ventilation

The primary mine ventilation fan will be large diameter blowing axial vane, or larger diameter blowing propeller fan capable of delivering over 600,000 cubic feet per minute of fresh air to the underground mine workings. From mine working areas, exhaust airflow will be carried by bleeder, sub-main, and main entry exhaust airways discharging from the mine portals. The mine ventilation system has been designed using accepted mine ventilation design and engineering practices to meet all applicable MSHA requirements and provide for continuous effective ventilation of the active mine workings. Based on the planned extent of the mine workings, anticipated methane liberation and dust generation rates, and probable mining conditions the primary ventilation fan should provide adequate ventilation capacity for at least the first five years of mine development and production. Subsequent mine advance and expansion may require development of additional ventilation facilities to assure continued effective airflow and ventilation of the underground workings.

Mine ventilation facilities will include steel fan doors, the primary ventilation fan and electric drives, fan control and monitoring systems, fan shroud structure with pressure relief panels, dual propane-fired fan heaters, the mine fan electrical substation, and propane storage tanks. The location and configuration of these structures are shown on Map 13, Surface Facilities Map. Operation and maintenance of the mine ventilation system will involve regular inspection and monitoring of the ventilation fans and associated systems and structures to assure that they continue to operate at all times as designed and in compliance with applicable MSHA requirements. The mine fans will be controlled and monitored by automated systems which will provide a warning of any fan malfunctions.

Mine Drainage Control and Dewatering

As described in both R645-301-724, Ground Water Information, and R645-301-522, General Description of Mine Plans, Mining Methods, and Related Design Requirements, potential mine inflows are expected to be minimal and there will be sufficient storage capacity in both the existing abandoned underground mine workings and in inactive working areas that transfer of mine drainage to the surface water system is unlikely.

526.100 Existing Mine Structures and Facilities

The only existing mine structures consist of a small stone, concrete and railroad tie mine fan building, a small concrete building used as a powder magazine, and several foundation structures. None of these structures will be used by the Kinney No. 2 Mine. These structures can be seen on Map 14, Mine Surface Facilities, Pre-Mining Topography Map.

526.116.1 Public Roads

One public road passes through the permit boundary. Utah Highway SR 96 passes through the northwest corner of the permit boundary and is adjacent to the operations area as can be seen on Map 13, Surface Facilities Map. This highway is within 100 feet of operations and public notice was offered during two public notice and comment periods. No comments were received regarding the highway and Kinney No. 2 Mine operations.

Discussions with the Utah Department of Transportation (UDOT) have been held and a preliminary plan for access to the mine has been presented and approved by UDOT. UDOT requires a standard intersection design that provides turn lanes into the mine site from both directions as well as through lanes and acceleration and deceleration lanes. The "Intersection Design Approval" is found in Exhibit 4, Other Permits. Final modification of plans will be approved by UDOT prior to any work on the intersection. Before any highway work is done, DOGM will be presented with the UDOT approval.

526.210 Utility Installation and Support Facilities

The proposed mining and related operations will utilize new utility installations including electrical distribution, telephone, potable and raw water, and sewer systems. The proposed underground mining and related surface disturbance activities have been planned, designed, and will be conducted in a manner which minimizes the potential for damage or destruction of utility installations, or disruption of services provided by those utilities existing within the permit area unless otherwise approved by the owner of the utility.

Heat for the buildings will initially be provided by propane, and may be converted to more cost efficient natural gas if it becomes available.

All existing and proposed utility installations are shown on Map 13, Surface Facilities Map. It should be noted that all utilities either are or will be owned, constructed, operated, and maintained by the respective utility companies up to the actual point of service which in the case of electricity will be the main mine substation and in the case of telephone, potable water, and sewer service will be to the metering point which will be located at the mine permit boundary line.

Electrical Systems

Electrical power for the mining operation will come from an existing power line running north-south immediately east of the portal area; this power line is shown on Map 11, Regional Surface Ownership Map, and on Map 4, Regional Land Use Map. Electrical voltage will be reduced from the existing power line at a substation located at the Portal Pad as shown on Map 13, Surface Facilities Map. The new substation to be owned, constructed, and operated by PacifiCorp. The mine substation will, in turn, feed the mine fan, the surface coal handling system, the underground mine electrical system, and the other surface facilities.

All proposed electrical components have been designed and will be constructed and operated in accordance with accepted engineering practice and in full compliance with all applicable regulatory provisions. Any new powerlines will be constructed with "raptor-proof" power poles as shown by Figure 22, Typical Raptor-Proof Power Pole Configuration, to minimize the potential for electrocution of raptors and other large birds. All substations, electrical transformers, switchgear, and electrical control components will either be located so that it is not readily accessible to either wildlife or the public or appropriate fences with locked gates or other enclosures will be utilized to limit access to authorized personnel. Where appropriate, signage identifying and warning of electrical hazards will be posted and maintained.

Telephone Lines - Buried or overhead telephone lines will be extended by US West from Highway 96 to provide telephone service for the mine facilities.

Water and Sewer Systems - Potable water, raw water, and sewer connections will be provided by Scofield Town. The connection points for water and sewer to the mine site are shown on Map 13, Surface Facilities Map, and are located at the south side of the permit boundary just south of the Mine Office building.

Mine water and a reserve water storage supply for emergency fire-fighting purposes will be stored in a 50,000 gallon mine water storage tank located near the north end of the Portal pad. Water supply, use levels, and water rights consideration are addressed in greater detail in R645-301-730, General Description of Hydrologic Protection Plans.

Water requirements for the Kinney # 2 Mine is calculated to be a maximum of 4.7 acre feet per year potable water for bathhouse and shop, and 61 acre feet per year non-potable water for dust suppression at full production. The full water requirement will not be realized the first year of operation but will ramp up over an estimated three year period.

Scofield Town has signed a letter of intent to provide sewer and water services to ~~Carbon Resources~~Coal Energy Group 3. Scofield town is anticipating that providing these services to the Kinney #2 mine will generate revenue to support town public works. Scofield Town constructed the municipal sewer system large enough to serve the Valley Camp Mine, now closed, and has that excess capacity to offer to the Kinney # 2 Mine. The Scofield sewer system has excess sewer system capacity also according to the agreement.

526.300 Water Pollution Control Facilities

Drainage and Sediment Control Structures

The drainage and sediment control structures which will be constructed and utilized in conjunction with the proposed mining and related activities will effectively route natural drainage through the mine surface disturbance area, intercept and route undisturbed drainage from upslope areas around surface disturbance areas, and collect and route disturbed area drainage to sedimentation structures to allow settlement of suspended solids prior to discharge to the natural

drainages. Drainage and sediment control structures required under the proposed plans will include Sedimentation Pond 1, a number of undisturbed drainage diversion ditches, disturbed area collection ditches, drainage culverts, containment berms, and various alternative drainage and sediment control measures including small sediment basins, silt fences, straw bales, and other localized control measures as appropriate. The proposed drainage and sediment control structures are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas Map, and design information and calculations are discussed R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details.

Design - The design and location of all required drainage and sediment control structures is based on maximum anticipated storm runoff flows, site topographic conditions, and standard hydrologic design practices and addresses full compliance with all applicable regulatory provisions. Recognizing that the area is subject to relatively high-intensity, short-duration storm events and that due to the rugged terrain and limited vegetation runoff is frequently rapid and concentrated, essentially all structures have been over-designed to provide an additional margin of safety.

The applicable UDOGM regulatory provisions specify that all impoundments must be designed to contain or treat the runoff resulting from the 10-year, 24-hour storm event and that spillways for MSHA ponds must be capable of discharging runoff flows from the 100-year, 6-hour event and non-MSHA ponds must have designed principal and emergency spillways with a combined capability of discharging the 25-year, 6-hour storm event. However these spillways were designed to safely discharge the 100-year, 6-hour event to provide additional safety due to the close proximity of the sedimentation pond to the highway. The applicable regulations also specify that temporary and permanent diversions of miscellaneous flows be designed for the 2-year and 10-year, 6-hour events, respectively and that temporary and permanent diversions of perennial and intermittent streams be designed for the 10-year and 100-year, 6-hour storm events, respectively.

Hansen Allen and Luce, Engineers (HAL) completed a runoff evaluation for representative watershed areas using the Army Corps of Engineers Hydrologic Modeling System (HEC-HMS) Version 3.1.0 computer modeling software to determine conditions for design of the proposed Kinney No. 2 Mine drainage and sediment control structures. Sedimentation Pond 1 has been designed to contain or treat the runoff from the 10-year, 24-hour storm event and total design capacity includes storage for at least five years accumulation of sediment. The pond spillway structures have been designed to safely pass the runoff from the 100-year, 6-hour storm event.

Temporary diversion ditches in disturbed areas are designed to safely pass the peak discharge from the 10-year, 6-hour storm event. All diversions have been designed and will be constructed to remain stable under design flow conditions. The two permanent collection ditches conveying runoff from undisturbed upslope areas (including UDD-1 and UDD-2) have been sized to carry peak runoff flows from the 100-year, 6-hour storm event. The 100-year storm has been used for these two ditches since they will remain as permanent post mining land use roads upon mine reclamation. In order to assure effective collection and routing of disturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety and culvert inlets, outlets, diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required.

In all cases, ditch designs also included an evaluation of the need for channel protection to prevent or minimize erosion. The general criteria for channel protection was any flows greater than or equal to 4 feet per second would require channel protection in the form of riprap or

grouted riprap to maintain adequate safety factors. Appropriate riprap sizing was determined using riprap design calculation spreadsheet prepared by HAL. Designs for all required ponds and ditches include adequate freeboard to provide a reasonable margin of safety. Designs for the permanent Kinney No. 2 Mine drainage structures and facilities have been prepared by or under the direction of and certified by a qualified Registered Professional Engineer in accordance with Rules R645-301-742.324. Culvert sizing is consistent with the ditch design basis (i.e., 10-year, 6-hour and 100-year, 6-hour storm flows, respectively for temporary and permanent diversions), the minimum culvert size to be used is 18 inch diameter due to potential clogging and maintenance considerations, however all have been over-designed to provide an additional measure of safety, and culvert installations will include a pre-fabricated inlet structure and riprap protection at both the headwall and discharge points.

In order to assure effective conveyance of undisturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety and culvert inlets, outlets, diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required. Specific information on culvert design and erosion protection measures is also provided in Exhibit 16, Runoff Control Design Details.

Sedimentation Pond 1 has been designed and will be constructed to meet the following regulatory design criteria:

- Located as close as possible to the disturbed area and out of perennial streams unless approved by the Division
- Provide adequate sediment storage
- Provide adequate detention time to meet applicable effluent standards
- Provide a non-clogging dewatering device
- Minimize short circuiting
- Facilitate periodic sediment removal
- Foundation structures will be stable under all conditions of construction and operation

In addition, Sedimentation Pond 1 design has been prepared by or under the direction of and certified by a qualified Registered Professional Engineer in accordance with Rules R645-301-512.200 and 240.

In all cases, the design basis for the proposed drainage and sediment control structures meets or exceeds the applicable regulatory design requirements. Designs for drainage and sediment control structures, along with a discussion of design assumptions, methodology, and design calculations are presented in R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details.

Construction - As previously noted in R645-301-521, General Description of Mine Construction and Development Activities, the required drainage and sediment control structures will be constructed prior to any other significant site disturbance, and as soon as possible in the overall site construction plan. As a first step to construction, a silt fence will be placed at the extreme western edge of all site construction running from the southwest corner of the site adjacent to the highway and adjacent to the old railroad bed from the pre-existing access road into the site running northward to the northwest corner of the site. Construction of required undisturbed runoff diversion ditches and disturbed area collection ditches will involve removal and placement in stockpile of soil or clean soils materials, excavation of the design ditch configuration, placement of riprap and bedding material or geotextile where required, and seeding of ditch side slopes with the temporary revegetation seed mix. The constructed ditch configuration is illustrated by the typical design configuration figures included on Map 27, Runoff Control Details. Culvert installation

will involve excavation and grading of the culvert foundation area, placement and compaction of gravel or similar bedding materials, placement and adjustment of the culvert and inlet structure to the design grade and alignment, placement and compaction of suitable fill materials around and over the culvert, placement of rock protection in the culvert headwall and discharge areas, and installation of debris fences up gradient of culverts where required. Culvert installation practices are illustrated by the typical design configuration figures included on Map 27, Runoff Control Details.

Construction of sedimentation pond impoundments will involve recovery and placement in stockpile of soil or substitute materials, preparation of embankment foundation areas, excavation of impoundment basin areas and construction of embankment structures, installation of principal and emergency discharge structures; grading of embankment outslopes, and seeding of outslopes with the temporary revegetation seed mix to minimize erosion. Impoundments will be inspected at regular intervals during construction and on completion of construction by a professional engineer or specialist experienced in impoundment construction. An impoundment inspection report certified by a Registered Professional Engineer will be provided to UDOGM promptly following each inspection. The report will verify construction in accordance with design plans and will note and discuss any apparent instability, structural weakness, or other hazardous conditions. A copy of the report will be retained on file at the mine site for inspection by authorized agency representatives.

Required foundation preparation will include removal of any vegetative material, coal, potentially acid-forming coal waste, frozen material, or other deleterious materials from embankment foundation areas and excavation of any keyways specified in the design. Embankment construction will involve controlled placement and compaction in horizontally continuous lifts no greater than 12 inches in thickness of suitable embankment fill material. Fill material will not contain any significant quantities of coal, vegetative material, frozen material, or other deleterious materials. Fill will be placed and spread using either tractor scrapers or rear dump trucks and tracked dozers and design compaction of 95 percent of maximum dry density will be achieved by compacting each successive lift with a sheepsfoot or vibratory roller. Compaction will be periodically checked during construction using standard compaction testing procedures and if testing reveals inadequate compaction, the lift or lifts in question will be ripped and reworked until adequate compaction is achieved. During compaction, water trucks may be utilized as necessary to achieve optimal moisture content for effective compaction. The actual construction height for all pond embankments will be 5 percent greater than the design height to provide for long-term consolidation and settling of the embankment.

Installation of principal and emergency discharge structures will occur at appropriate stages in the embankment construction process. Installation of vertical riser structures will include compaction of an adequate base area for the foot of the riser and installation, alignment, and placement and compaction of fill material around the lower portion of the riser structure. Installation of horizontal discharge structures will involve basically the same construction procedures previously described for culvert installations, including preparation of a base area, placement and compaction of bedding material, placement and alignment of the discharge pipe, and placement and compaction of fill material around the pipe.

Operation and Maintenance - Operation and maintenance of drainage and sedimentation control structures will involve periodic inspection of all ditches and culverts, quarterly inspection and annual certification of impoundments and related structures, ongoing discharge monitoring for all impoundments, and any necessary maintenance or repair of problems noted during the inspections.

Ditches have been designed and will be constructed to provide an adequate cross-sectional flow area to pass runoff flows from the design storm event. During active operations, normal siltation

and minor erosion may result in changes in ditch configuration. As discussed previously, all temporary ditches have been designed for the 10-year event. Ditches will be maintained to ensure that minor siltation does not affect the capacity of the ditches to perform as designed. ~~CR's~~ CEG3's ditch inspection and maintenance procedures will focus on identification and repair of any significant ditch erosion, removal of any trash or debris from ditches, and maintenance of an adequate cross-sectional flow area, regardless of actual ditch configuration, to pass the design flows. In practice this will mean that ~~CR~~ CEG3 will not modify, recut, or clean out a ditch simply because the physical ditch dimensions are not the same as the original design or originally constructed configuration so long as the actual ditch configuration is adequate to pass the design flow. Culvert maintenance will involve removal of trash or debris from culvert inlets and any up gradient debris fences, repair of any significant erosion at culvert inlets, outlets, or of the cover material, and repair or replacement of any damaged culverts.

Sedimentation pond maintenance and operation procedures will include ongoing sampling and discharge monitoring under applicable provisions of a UDWQ permit; quarterly inspections of pond embankments, impoundment areas, discharge structures, and inlet/outlet structures and areas and reporting; notification of any hazardous conditions and development of emergency remedial control measures; maintenance or repair of any problems noted during the inspections; and periodic removal of accumulated sediment. The sedimentation pond has been designed and will be operated and maintained to effectively retain storm runoff to allow settlement of suspended solids prior to discharge. Control of potential water quality impacts from pond discharge is monitored through compliance with applicable effluent standards under a UDWQ discharge permit. Effluent sampling and reporting will occur as outlined in R645-301-730, Hydrologic Resource Protection and PHC, and under the provisions of the UPDES permit ~~which will be included in Exhibit 4, Other Permits when it is received.~~

The sedimentation pond will be inspected quarterly by a qualified person for any indication of structural weakness or other hazardous condition, instability, and any erosion or other problems; the depth and elevation of any impounded water will be measured; based on the depth measurements storage capacity will be estimated; and any required structural monitoring will be performed. Copies of the quarterly inspection reports discussing each of the noted inspection categories and verifying that the pond has been constructed and maintained as designed will be prepared, certified by a qualified Registered Professional Engineer, and submitted promptly to UDOGM. Copies of the inspection reports will also be maintained on file at the mine site. Any minor problems noted during the inspection will be addressed in a timely manner. This may involve repair of any minor localized erosion, clean-out or minor repair of discharge structures, reseeding of embankment slopes, mowing weeds which may interfere with pond inspection, or other minor maintenance and repair as necessary. If the inspection identifies any structural weakness or other conditions which could pose a hazard to the public, the person who conducted the inspection will notify UDOGM promptly of the hazardous condition and any emergency procedures which may be appropriate to protect the public and address the hazardous condition. In consultation with and with approval from UDOGM, appropriate remedial measures will be implemented as soon as is reasonably practicable to address any hazardous condition.

The pond has been designed to provide adequate capacity for at least five years accumulation of sediments, however, the pond will periodically need to be cleaned out to removed the accumulated sediment in order to maintain adequate stormwater storage capacity consistent with design requirements. A fixed staff gauge in the pond will be used to monitor sediment accumulation. Generally, it is anticipated that the sedimentation pond will be essentially dry during late summer or early fall each year and the gauges will be checked during the corresponding pond inspections. In the unlikely event that the staff gauges cannot be checked during a dry period, an alternative means of monitoring sediment accumulation levels will be utilized.

Before sediment accumulations reach the point where they would encroach on stormwater storage capacity, ~~CR~~ CEG3 will schedule and implement measures to remove the accumulated sediments. The pond has been designed to facilitate access for pond clean-out with a concrete ramp for equipment access to the pond bottom. The pond will have a reinforced concrete bottom to facilitate cleaning by equipment without damaging the pond integrity. Generally, clean-out would be scheduled during a relatively dry period when any pond water levels would be low. Any water remaining in the pond would be pumped into water trucks for use in mine site dust control. The sediments would be allowed to dry so that they could be readily removed and they would then be removed and transported to a temporary storage area located on one of the mine pad areas until dry, then would be transported into the mine and placed in the areas designated for underground development waste as discussed in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements.
Description of Individual Structures - The following sections provide more detailed information for specific drainage and sediment control structures:

Sedimentation Pond 1 - Sedimentation Pond 1, which will be located at the northern end of the mine site, as shown on both Map 24, Drainage and Sediment Control Plan Map, and Map 13, Surface Facilities Map, will be the only sedimentation pond for the proposed mine surface facilities area. The vast majority of disturbed area runoff and minor amounts of undisturbed area runoff from those facilities and areas up gradient from the pond location will be routed to Pond 1. The total contributing drainage area for Pond 1 is approximately 28 acres. The pond has been designed to provide adequate total retention capacity at an elevation of 7686.90 feet of 3.15 acre-feet which includes a 5.3 year accumulation of sediment (1.12 acre-feet) based on sediment discharge modeling for the contributing drainage areas and the 10-year, 24-hour storm runoff (2.06 acre-feet) from the contributing drainage areas.

Pond 1 is designed with vertical risers (primary spillway and emergency spillway) connected to a horizontal discharge culvert running through the pond embankment and discharging to a culvert crossing beneath Highway 96 and thus to the area west of the highway. As shown on Map 25 the designs of both the Principal and Emergency spillways are the same as can be seen on the cross-section and as noted in Detail 1. One orifice in the primary spillway vertical riser at an elevation of 7683.80 feet, will be used to dewater the pond and discharge stormwater inflows. The top of the riser will be at an elevation of 7686.90 feet, at the invert of the emergency spillway. The orifice outlet will be fitted with gooseneck pipe extension to act as oil skimmer to prevent discharge of any minor amounts of oil or other petroleum products which may enter the pond and the top of the riser will be fitted with a trash rack. The Pond 1 emergency spillway will be a 24 inch diameter pipe, with a crest elevation of 7686.90 feet. The invert elevation of the emergency spillway and pond embankment are designed to provide a minimum freeboard of 2.0 feet. In order to provide access for clean-out and haulage of accumulated pond sediments a primary road (P6) will be constructed from the Loadout Pad to the pond.

Map 25, Sedimentation Pond 1 Sections & Details shows the proposed Pond 1 layout and provides specific pond design information including the primary discharge, sediment storage volume, 10-yr 24-hr runoff volume, 100-tr 6-hr runoff volume, primary and emergency spillways, and pond embankment, and design details for the discharge structures. Figure 35, Pond 1 Stage-Volume Curve shows the stage storage curve; storage capacity information; design elevations for the pond bottom, sediment storage elevation. A detailed description of pond design assumptions and methodology, actual pond design calculations, and additional design information are provided in R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details. Pond construction, operation, and maintenance practices will be consistent with the previous descriptions presented in this section. Sedimentation Pond 1 will be a new pond and
pond construction will involve both excavation of a portion of the pond basin and construction of a compacted fill embankment.

Alternative Drainage and Sediment Control Measures - Alternative drainage and sediment control measures will be utilized for initial construction activities as discussed in R645-301-520, General Description of Mine Construction and Development Activities, and in areas where the isolated nature of the area or specific site conditions would result in excessive disturbance for full scale drainage and sediment control or where full-scale controls are infeasible. Alternative drainage and sediment controls will be utilized in the following specific areas:

- Initial Construction Areas
- The Topsoil Stockpile area
- south of the Main Access Road along Highway 96
- The small areas adjacent to Highway 96 on both sides of the main access road to the mine site
- Small topsoil stockpile areas west of Highway 96 adjacent to highway culvert CP-2

Detailed descriptions of these areas, discussion of the alternative sediment control measures to be implemented, and requests for individual small area exemptions, as appropriate, are included below. It should be noted that alternative sediment controls for road fill and embankment outslope areas will consist of silt fencing and will only be required as a interim control measure until temporary vegetative cover is established.

Initial Construction Areas – Initial construction will be done before runoff controls are possible, therefore alternative controls will be used to control sedimentation off of the site. Controls to be used may include one or more of the controls discussed in R645-301-730, including, silt fencing, straw bales, berms, sediment traps, vegetative filters, mulch, and other effective appropriate drainage controls. Before construction begins, a silt fence will be placed at the extreme western edge of the site running parallel to the old railroad grade and including the area from the existing access road to the site and then running south to the southwest corner of the mine permit area adjacent to Highway 96.

Topsoil Alternative Materials Stockpile – The main topsoil/alternative materials stockpile is located adjacent to Highway 96 at the south end of the mine site (see Map 24), where the runoff from the site cannot be routed to the sedimentation pond. Since the stockpile will be vegetated with interim vegetation and should stabilize within a two to three year period, there should be little sediment loss. Runoff from the stockpile will be controlled by a berm at it's western edge as can be seen on Map 24, Drainage and Sediment Control Plan. This berm will catch runoff and sediment from the face of the stockpile and direct it to the silt fence outlet as shown. The silt fence outlet from the lowest point of the berm near the highway culvert will filter any runoff from the pile prior to leaving the site and entering the highway culvert.

The other stockpile areas near Culvert CP-2 will be small and will use silt fencing to control erosion (see Map 24). A single silt fence is planned for the entire perimeter of each stockpile. If installed silt fencing is shown to be inadequate to contain erosion, then additional silt fencing will be installed at even contours up the slope of the stockpile.

Main Access Road - Primary Road P1 – The short section of the access road approximately 115 feet long from it's intersection with Highway 96 eastward to a cattle guard cannot be routed to

the Sedimentation Pond 1. Runoff from this small road section will be controlled through small ditches and sediment traps located on each side of the road as shown on Map 24. Drainage and Sediment Control Plan. A silt fence, or straw bale outlet from the sediment trap will catch any overflow from the trap prior to discharge into the highway side ditches.

526.400 Air Pollution Control Facilities

N/A – Applies to Surface Coal Mining Only

R645-201-527 Transportation Facilities

Roads

In conjunction with the proposed mining and related operations ~~CR~~ CEG3 will construct, operate and maintain a number of new roads and will operate and maintain several existing roads. Both new and existing roads will be utilized to access existing and proposed facilities and for transportation of personnel, equipment, and supplies. All roads are classified as primary roads. The primary road classification includes any road used for transporting coal or spoil, roads which are used frequently for periods exceeding 6 months, and roads which will be retained to support the post mining land use. All roads will be utilized on a frequent, long-term basis to support the proposed mining and related operations. Proposed roads which will be used in conjunction with the proposed mining and related operations include the following:

Proposed Roads in Kinney No. 2 Mine Facilities Area

P-1 Primary mine access road for the proposed surface facilities area
P-2 Primary mine access road to Mine Office Pad
P-3 Primary mine access road to the Portal Pad
P-4 Primary mine access road to the Storage Area Pad
P-5 Primary mine access road to the Loadout Pad
P-6 Primary mine access road to Sedimentation Pond No. 1
P-7 Primary mine access road to the North Access Road
P-8 Primary access road through site for post mining land use only, will replace P-7
P-9 Primary access road to private property on top of mountain and for post mining land use

Proposed roads are shown on, Map 13, Mine Surface Facilities Map, and Map 29A, Post Mining Topography. Road profiles can be seen on Maps 20 through 22, Mine Road Profiles.

Design and Construction - All roads have been or will be located and constructed to the extent operationally feasible in the most stable areas available and outside of the channel of intermittent or perennial streams. Road design and construction plans will prevent damage to public or private property; minimize the potential for downstream flooding or sedimentation; reflect consideration of the size of vehicles which will be using the road, traffic volume, and normal speeds; and to the extent possible, using the best technology currently available, minimize adverse impacts on fish, wildlife and related environmental values.

All roads have been designed to provide for effective drainage, long-term stability, and safe vehicle operations under varying weather conditions. Design and construction of all primary roads will be certified by a qualified Registered Professional Engineer as meeting these criteria. All roads except Primary Roads P8 and P9 will meet MSHA safety requirements including either a berm or guard rail on the outside edges where the slope is downward.

Design and construction practices for specific roads will be dependent primarily on site conditions and the nature and frequency of anticipated use. The primary mine access road (P-1) will provide access to the mine surface facilities and will be utilized for transportation of personnel, equipment, coal, and supplies. Because it will handle a relatively heavy traffic volume and must provide safe

operating conditions year-round, Road P-1 will be a paved asphalt road with all-weather travel surface from Highway 96 to the Shop-warehouse building. Primary Road P2 will also be paved to the Mine Office building; in addition, the Mine Office Pad will be paved. The other primary roads except roads P8 and P9 will also be utilized on a year-round basis but the associated traffic levels will be significantly lower so these roads have been designed and will be constructed with an adequate compacted road base and gravel or similar durable granular surfacing. Primary Road P9 is required for private property access, with no daily mining activity use, only occasional use for water monitoring and subsidence monitoring during the summer and fall by light vehicles and will have surfacing equal to the existing access road being replaced (R645-301-534.320). Road P8 is only a post mining land use road to provide access to private property north and east of the mine site, it too will have surfacing equal to the pre-mining access road being replaced (R645-301-534.320).

Road construction will involve cut and fill earthwork operations using tractor sappers, tracked dozers, and motor graders. No potential acid or toxic-forming materials will be utilized in road construction or as road surfacing materials. Cut and fill slopes will be established at maximum grades up to 0.8H:1V, with the steepest grades in rock dependent on the characteristics of the rock in conjunction with the geotechnical recommendations found in Exhibit 14, Geotechnical Investigations. Typical road construction practices, road configuration, and dimensions are illustrated by Figure 25, Typical Primary Road Configuration and Figure 25A, Primary Roads P8 & P9 Configuration.. Road gradients will vary from flat to a maximum of approximately 14.5% percent for the main roads and any required road embankments will be constructed and compacted in a controlled manner to provide a minimum static factor of safety of 1.3. Only one road (P6), which accesses Sediment Pond 1 has a gradient above 14.5%, at 18.8%. This road will be used on a limited basis to access and clean out the sediment pone. All road cut and fill slopes will be revegetated as soon as reasonably practical following construction using the temporary revegetation seed mixture to stabilize the slopes and minimize erosion potential. Road surfaces will be graded or owned to prevent accumulations of water on the road surface and adequately sized ditches and culverts will be installed and maintained to effectively carry road and other disturbed area drainage. Adequate cover will be provided over all culvert crossings to prevent damage or collapse of the culverts and culverts have been designed and will be installed to prevent plugging, erosion at the culvert inlet or outlet, and any drainage over the road surface. The locations of all proposed ditches are shown on Map 24, Drainage and Sediment Control Plan Map, and ditch designs are included in R645-301-730, and in Exhibit 16, Runoff Control Design Details.

Operation and Maintenance - Operation and maintenance procedures for all mine roads are designed to provide a smooth operating surface, assure safety, and minimize dust emissions. Road maintenance will involve periodic grading to provide a smooth surface, remove rocks or debris, and maintain effective drainage; repair and resurfacing as necessary; inspection, clean-out, and repair of ditches and drainage structures; and watering or application of surfactants to control dust during dry periods. Generally, speeds on roads and in active operating areas will be limited to 15 miles per hour by posted speed limits both as a safety consideration and to minimize dust emissions from unpaved roads. In the unlikely event that any road is damaged by a catastrophic event such as an earthquake or flood, ~~CR~~ CEG3 will make appropriate repairs as soon as reasonably practicable and will limit the use of the road or provide an alternate access if unsafe conditions exist.

Description of Individual Structures - The following sections provide more detailed information for specific roads and associated structures:

Primary Road P1 will receive the most traffic, therefore it will be paved. From Highway 96 to the cattle guard as shown on Map 13, Surface Facilities Map, and on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas, the road will be crowned in the center with

drainage flowing to the sides in both directions. The purpose of the cattle guard is not to control cattle, but to provide a drainage trench to catch runoff containing fines from the road, preventing them from being washed downgradient on the road and bypassing Sedimentation Pond 1. Below the cattle guard, drainage from the road will flow to sediment traps on both sides of the road as shown on Map 24, Drainage and Sediment Control Plan – disturbed Drainage Areas. For the remainder of Primary Road P1, the design will be as shown on Figure 25, Typical Primary Road Configurations for sloping terrain and level terrain.

All other roads will be constructed as shown on Figure 25, Typical Primary Road Configurations, and Figure 25A, Primary Roads P8 & P9 Configuration for sloping terrain and level terrain.

R645-301-528 Handling and Disposal of Coal, Overburden Excess Spoil, and Coal Mine Waste

528.100 Coal Removal, Handling, Storage, Cleaning and Transportation Areas and Structures

The proposed underground mining and related activities will require limited surface support facilities. The facilities to be utilized in conjunction with the proposed operations will include new facilities to be constructed in the proposed Kinney No. 2 Mine surface facilities area. These facilities will provide the necessary infrastructure for effective management and handling of personnel, equipment, materials and supplies, and both coal and mine development waste rock materials, and will include a number of structures specifically designed to control or mitigate potential mining related impacts.

Construction of required surface structures and facilities has previously been discussed in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements. The surface structures and facilities will be operated, maintained, and ultimately reclaimed in a manner that prevents or controls erosion and siltation, water pollution, and damage to public or private property; and to the extent possible using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values, and minimizes additional contributions of suspended solids to streamflow or runoff outside the permit area. Any contributions of suspended solids from mine disturbance areas will not exceed applicable effluent limitations under Utah or Federal law.

Required surface facilities are shown and identified on Map 13, Surface Facilities Map, and include the following:

- Conveyor SB-1
- Conveyor Transfer Tower
- Conveyor SB-2
- Non-Spec Coal Pile & Stacking Tube
- Conveyor SB-3
- Spec Coal Pile & Stacking Tube
- Conveyor SB-4
- Screening & Crushing Building
- Sediment Pond Road – Primary P6
- Truck Loadout Building
- Lodout Road – Primary P5
- Storage Sheds – 5 each
- Shop – Warehouse
- Fueling Facility
- Main Access Road – Primary P1
- Office Road – Primary P2

- Portal Access Road Primary P3
- Storage Area Access Road P4
- Mine Office – Bathhouse
- Topsoil Stockpile
- Water Tank
- Electrical Substation
- Sedimentation Pond
- North Access Road – Primary P7
- Explosives Magazine
- Explosives Cap Magazine
- Development Waste Temporary Storage Area
- North Access Road through site for post mining land use only P8, will replace P7
- Access Road to private property East of mine site and for post mining land use P9

The following sections describe design and construction details and operation and maintenance plans for the identified structures.

Coal Handling Systems and Facilities

The coal handling system will consist of both the underground coal haulage system and the surface coal handling components which will transfer the coal from the mine to the truck loadout. Components of the surface portion of the coal handling system are shown on Map 13, Surface Facilities Map and include the following:

- Conveyor SB-1
- Conveyor Transfer Tower
- Conveyor SB-2
- Off-Spec Coal Pile & Stacking Tube
- Conveyor SB-3
- Spec Coal Pile & Stacking Tube
- Conveyor SB-4
- Screening & crushing Building
- Sediment Pond Road – Primary P6
- Truck Loadout Building
- Coal Processing Waste Temporary Storage Area

Design - The coal handling system has been designed using the best current technology and accepted engineering practices to provide the coal and underground development waste carrying capacity to readily handle the maximum projected mine production volumes with sufficient excess carrying capacity to handle potential surges in system feed rates. System design also provides the storage capacity to address any normal fluctuations in coal production, shipping schedules, or market demand and reflects the design and construction considerations necessary to minimize potential adverse environmental impacts, including but not limited to minimizing erosion and additional contributions of sediment to surface runoff.

The Surface Coal Haulage System which consists of:

The MB-1 conveyor discharge onto the tail loading section of SB-1 located in the transfer tower. MB-1 will be elevated to accommodate mine vehicle and equipment traffic to pass beneath it where MB-1 it exits the mine and will be enclosed to mitigate airborne dust and spillage onto the roadway. From MB-1 coal will be transferred to a series of 42" overland surface conveyors beginning with SB-1. At the transfer building, a coal sampling system will be installed between the head pulley of MB-1 coming from the mine and the tail pulley of SB-1 that will transfer coal overland to conveyor SB-2 located in the enclosed Conveyor Gallery atop the two stacking tubes.

Depending on whether ROM product is determined to be spec coal or non-spec coal Overland Conveyor SB-1 will divert discharge ROM coal through a flop-gate to direct the segregation to the appropriate stockpile stacking tube (i.e., spec or off-spec).

ROM Coal will be reclaimed using programmable vibrating apron pan feeders via Reclaim Conveyor SB-3. The design capacity of the non-spec coal stockpile is 17,000 tons and is separated from the spec coal pile with a 10 ft high concrete wall. Similarly, design capacity for the spec coal stockpile is also 17,000 tons total capacity with a practical 12,000 tons live capacity with equipment. The off-spec pile will accommodate classification and sorting 6000 tons on either side of a dividing wall using a front end loader or dozer to sort coal from rock into the feed area for either of the two apron feeders that reclaim from the off-spec pile.

The off-spec pile will be managed and reclaimed so that rock and coal is kept segregated by size and type in the pile as much as practicable for product blending through ratio feeding at the apron feeder and/or rock disposal using dozers, front end loaders, grizzlies for classification and sorting, with common surface coal handling equipment.

Coal will feed to Reclaim Conveyor SB-3 from vibrating pan feeders located in a reclaim tunnel beneath the ROM stockpiles. Spec coal and non-spec coal will be delivered by conveyor SB-3 to a primary double deck vibrating screen that will screen oversize material of 8" – 2" to a primary crusher that will reduce coal to a nominal 2" minus size. Coal from the crusher will pass to conveyor SB-4. Coal that passes the screen at 2" minus will be diverted from the crusher by a chute to conveyor SB-4. Conveyor SB-4 will transport 2" minus coal to the truck load out structure.

Construction - Construction of the coal handling system will involve excavation and grading to establish the conveyor alignment; excavation and grading of the spec coal, and non-spec stockpile area; construction of conveyor support structure, stacking tubes, and reclaim tunnel foundations; erection and installation of modular conveyor support structures, idler support frames, feeders and chutes, and transfer points; and installation of conveyor drives, take-ups, idlers, belting, covers, control systems, and dust control equipment. The conveyor alignment , and other facilities will be as shown on Map 13, Surface Facilities Map.

The conveyor components including support structures, idlers, take-ups, drives, belting, covers, transfer points, and dust control components will be standard off-the-shelf components supplied by major conveyor manufacturers. Support structures, take-ups, drives, and transfer points will be mounted on either poured concrete footing or spread footings as appropriate based on the nature of the installation and site conditions. Conveyor covers will be conventional half-shell covers which bolt onto the conveyor framework and are removable for maintenance access and all transfer points will be partially or fully enclosed and will incorporate water sprays or surfactant applicators to control fugitive dust emissions. All conveyors have been designed and will be installed to provide adequate clearance for passage of big game animals under the conveyor support structures.

Operation - The underground coal handling system will transport the coal from the working sections to the coal stacking tubes. The underground coal haulage system will consist of 42 inch section and panel conveyors with a capacity of 1,200 tons per hour. The main haulage conveyor will carry the coal to the surface where it makes one transfer to Conveyor SB-1 which will then transfer the coal to the coal stacking tubes. Depending on if the ROM product is spec coal or non-spec coal Overland Conveyor SB-2 will discharge ROM coal through a flop gate directly to the non-spec coal stockpile stacking tube or onto conveyor SB-3 that will discharge spec coal into the spec coal stockpile stacking tube. The coal stacking tubes will be pre-fabricated structural steel or reinforced concrete mounted on reinforced concrete foundations directly adjacent to the reclaim tunnel. Openings in the sides of the stacking tubes will have flexible covers and discharge coal to create a conical ROM coal stockpile surrounding the stacking tubes. The ROM

coal reclaim tunnel will be constructed of cast in place reinforced concrete with a 48" diameter buried culvert which daylights from the rear of the tunnel for emergency egress to the outside and as well as for ventilation to the reclaim tunnel. The reclaim tunnel will be equipped with vibrating apron-type pan feeders to discharge ROM coal from the stockpiles to the reclaim conveyor belt SB-3. A coal sampling system between MB-1 and SB-1 will
be provided at the transfer structure to verify spec and non-spec coal. Spec and non-spec coal will be stored in separate stockpiles.

Four vibrating apron feeders in the reclaim tunnel directly under the coal stockpiles will serve as the blending mechanism for the mine whereby spec coal and non-spec coal will be drawn from the spec coal stockpile and the non-spec stockpile in proportioned quantities as specified by a Programmable Logic Control System (PLC) designed for this operation. At times ROM coal blending will not be utilized whereas the vibrating pan feeders under the non-spec coal stockpile will not be operated. With the versatility of feed rates from these feeders coupled with the PLC any combination of spec and non-spec coal can be delivered to screening, crushing and truck load out.

At times underground development waste from the mine will be hauled from the mine workings using the conveying system. Underground development Waste rock material will be directed to a portion of the non-spec coal stockpile using the coal conveying system where it will be culled from the stockpile into haul trucks using a front end loader. The coal haulage system will direct ROM coal to the spec coal and off-spec coal stockpiles where it will be reclaimed using programmable vibrating pan feeders and Reclaim Conveyor SB-4. The design capacity of the off-spec coal stockpile will be 17,000 tons. Design capacity for the spec coal stockpile will be 17,000 tons.

The surface coal handling system will transport the coal from the stacking tubes to the crushing and screening building using conveyor belt SB-3 where the coal will be sized to product size, generally ¾" minus. This system will also provide for the handling of underground development waste material resulting from ongoing mine development and production operations. Coal will feed to Conveyor SB-4 from vibrating feeders located in a reclaim tunnel beneath the coal stockpiles. Conveyor SB-4 will carry the coal to the truck loadout, which will in turn load the coal into trucks.

All surface coal handling conveyors will be 36 inch conveyors with a capacity of 1,000 tons per hour. Operation of the surface coal handling system is graphically illustrated by Figure 26, Coal Handling Flow Sheet.

Maintenance - Maintenance of the coal handling system will include regular inspect and repair of conveyor belts, support structures, transfer points, drive components, and dust control systems; lubrication of idlers and drive components; adjustment of belt take-ups to maintain proper belt tensions; periodic replacement of critical conveyor components under a regular preventative maintenance program; and periodic cleanup of any coal or waste spillage at feed points, transfer points, and under the conveyors.

Coal Stockpiles - Two separate coal stockpiles will be utilized in conjunction with the proposed mining and related operations; the 17,000 ton spec coal stockpile , and the off-spec coal pile which is designed to be 17,000 tons. The coal stockpiles have been designed to provide storage and surge capacity to accommodate anticipated normal fluctuations in coal production, coal blending, shipment schedules, minor market fluctuations, and any unanticipated temporary shutdowns of components of the coal production, handling, and processing systems. The coal stockpiles have been located and designed to minimize potential adverse environmental impacts including but not limited to fugitive dust emissions, and sedimentation due to drainage from the piles or pile areas. Both coal stockpiles reflect similar design with the coal delivered to the pile by

Conveyor SB-1 and SB-2.

The adjacent cut slope east of the spec coal, and off-spec coal stockpiles will not be vegetated so that coal can be pushed back against the slope to provide additional storage capacity when necessary. The coal stacking tubes will be pre-fabricated concrete or reinforced steel tube mounted on a reinforced concrete foundation with a direct discharge chute in its base. Openings in the sides of the stacking tubes with flexible covers will create conical coal stockpiles surrounding the tubes. The coal reclaim tunnel under the stacking tubes will be a sub-grade reinforced concrete structure supporting vibratory feeders which will draw coal from the base of the piles and feed it through gagged feed chutes to Conveyor SB-3.

Operation and maintenance of the coal stockpiles will involve controlled discharge to the piles and movement of coal within the pile using tracked dozers or wheel loaders to keep the coal within the defined pile limits, maximize storage capacity when necessary, and provide for effective feed to the reclaim points. Coal piles will be periodically inspected for any excessive oxidation or burning coal and if any is found it will be separated from the main stockpile and extinguished either by burying the coal with dirt or by using a mine water truck to spray the coal with water.

Coal Crushing - Spec coal and off-spec coal will be delivered by conveyor SB-3 to a primary double deck vibrating seen in the crushing and screening building that will seen oversize material of 8" – 2" to a primary usher that will reduce coal to a nominal 2" minus size. Coal from the usher will pass to conveyor SB-4. Coal that passes the screen at 2" minus will be diverted from the usher by a chute to conveyor SB-4. Conveyor SB-4 will transport 2" minus coal to the truck load out structure. Planned operation of the surface coal handling system from the mine portal to the truck load out is graphically shown on Figure 26, Coal Handling Flowsheet, and Figure 27, Schematic Elevation Looking East.

Maintenance - The coal crushing and screening process is controlled and monitored by an automated process system which adjusts and maintains flow rates and monitors each component of the system to assure maximum coal recovery and identify any system malfunctions in a timely manner. In addition to the automated control and monitoring system, ~~CR~~ CEG3 will have a regular inspection and preventative maintenance program for the crushing and screening facilities and equipment which will include regular inspection, clean-up, lubrication, repair, and periodic replacement of critical operating components. Potential fugitive dust emissions from crushing, stockpiling, and conveying will be controlled by partial or full enclosures on all transfer points and at the usher, by baghouses, or water sprays or surfactant applicators, sub-grade coal reclaim systems, and the use of stacking tubes in stockpile areas.

Loadout Facilities

The coal product from the coal crushing and screening building will be transferred to the truck loadout facility which will weigh the coal and load it into trucks for delivery to utility, industrial, and other coal users. The truck loadout facility is designed to load on road coal trucks for transport to market. Conveyor SB-4 transfers 2" minus coal from the screening and crushing building where it is discharged through a flop gate chute to (2) 50 ton coal silos. The truck loading facility is designed to allow the loading of double tandem coal trailers. Coal will be discharged directly to the trailers. Operation of the coal loading facility will be connected to the surface facilities Control Instrumentation and PLC that will include load cells at the coal silos to regulate surge capacities at the loading facility. Discharge and loading of the coal will be provided by the drivers of the coal haul trucks. Coal will discharge from the silos to the trucks through a regulated discharge telescoping chute that will extend to the top of the truck trailer to provide controlled loading and contain fugitive dust. The truck loading facility will allow for truck traffic to pass around and under

the load out silos for loading.

Support Structures and Facilities

A number of structures and facilities will be required to support the proposed mining and related operations. These structures and facilities will generally be used to provide storage, maintenance, and support services for mine personnel, equipment, and materials and supplies and will specifically include the following:

- Storage Sheds – 5 each
- Shop – Warehouse
- Fueling Facility
- Mine Office – Bathhouse
- Water Tank
- Electrical Substation
- Explosives Magazine
- Explosives Cap Magazine

These structures and facilities are shown on Map 13, Surface Facilities Map, and are described in the following sections.

Design and Construction - All support facilit1ies are located within or in close proximity to the associate operations areas. Mine support buildings are steel frame buildings with concrete footers, spread footings, or slab foundations and metal exterior walls. These buildings have been designed for ease of erection, long-term structural integrity, and minimal maintenance. To the extent possible, building locations, configuration, and exterior colors have been selected to minimize visual contrasts with surrounding natural areas.

Building construction will generally involve grading and preparation of foundation areas, excavation and installation of foundations, building erection, interior and exterior finish work, and connection of utilities. Storage areas will generally be open graded areas providing outside storage for miscellaneous large parts and supplies. Both building sites and storage areas will be graded to assure effective drainage, with drainage from these areas flowing to the designed disturbed area collection ditches previously described in the sub-section titled Drainage and Sediment Control Structures. Due to the anticipated level and frequency of use, employee parking areas adjacent to the Administration/Bathhouse building will be surfaced with asphalt paving materials and other frequent use areas including the area around the maintenance shop and warehouse facilities will be surface with gravel or similar durable granular material.

Operation and Maintenance - General operation and maintenance of support structures and facilities will involve regular grading of facility areas and inspection, cleaning, and repairs as required. In addition to the equipment required for mine production operations the following equipment will be utilized for surface support, maintenance and general utility use:

- Tracked dozers
- Wheel loaders
- Rear dump trucks
- Motor grader
- Water truck
- Street Sweeper
- Fork lifts

- Skid steer loaders
- Mobile cranes
- Bucket truck
- Fuel/Lube truck
- Air compressors
- Welders
- Generators

Specific operation and maintenance requirements for individual facilities are described in the following descriptions of individual facilities.

Description of Individual Structures - The following sections provide more detailed information for specific support structures and facilities:

Office-Bathhouse Building - The Office-Bathhouse building will provide office space for mine management, accounting/payroll, engineering, environmental, production, and safety staff; meeting and training rooms; and shower and changing facilities for mine employees. The Office-Bathhouse facility will be a two-story steel frame building approximately 60 feet wide by 160 feet long and 30 feet high at the peak of the roof with concrete slab floor and steel siding and roof. An asphalt paved parking area will be provided on the pad for the building. The configuration and layout of the Office-Bathhouse facility is illustrated by Figures 28 through 31, Office-Bathhouse Building.

Maintenance Shop Facility - The Maintenance Shop facility will be located immediately adjacent to the mine portals in the portal area and will provide cleaning and repair facilities for both underground production and surface support equipment. The Maintenance Shop will be a steel frame building with reinforced spread footing foundation and heavy reinforced slab floor, and steel siding and roof. The main shop building will be approximately 75 feet wide by 175 feet long and 32 to 42 feet high at the roof peak. The configuration and layout of the Maintenance Shop is illustrated by Figures 32 through 34, Warehouse & Shop Facility. The Maintenance Shop will include the following service and support areas:

- Drive-in equipment wash bay and clean-out sump
- A split bay for light vehicle and small equipment maintenance
- Welding bay
- Electrical repair bay
- Belt repair bay
- Machine shop
- Battery charging area
- Maintenance office, computer area, and restrooms
- Waste oil heating boiler
- Compressor room
- Storage area for waste oil, fuel oil, and mixing tanks
- Bulk oil and lubricant storage area
- Metal storage area
- Equipment fueling station

Equipment coming into the shop for periodic preventative maintenance, repair, or rebuild will first be washed in the wash bay. The wash bay may have both fixed spray heads and flexible high pressure hoses to clean coal, dirt, grease and oil from the equipment prior to equipment inspection, maintenance, and repair. Drainage from the wash bay will go to collection sump which has been designed to collect oil and grease. A float operated pump will transfer water from the decant sump to the portal area collection sump which will also be equipped with an oil skimmer.

Figure 26 Coal Handling Flow Sheet

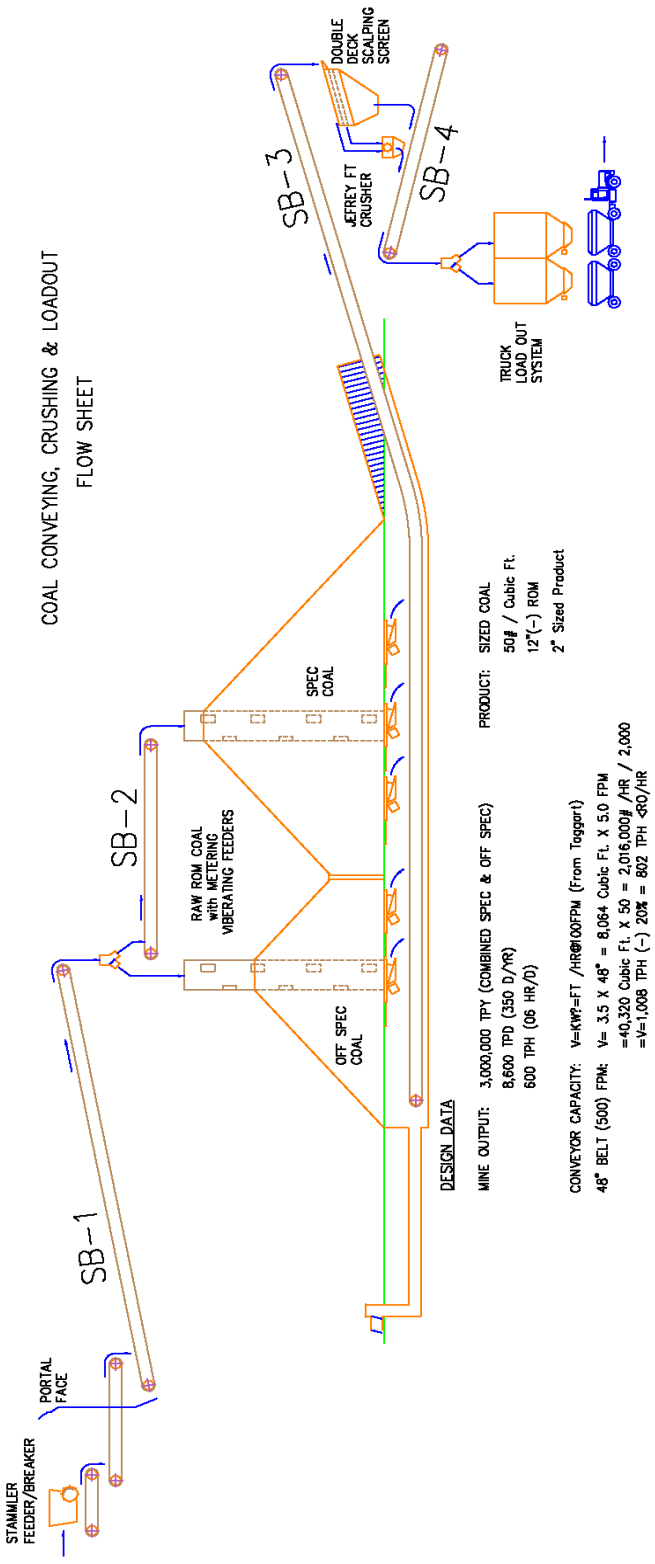
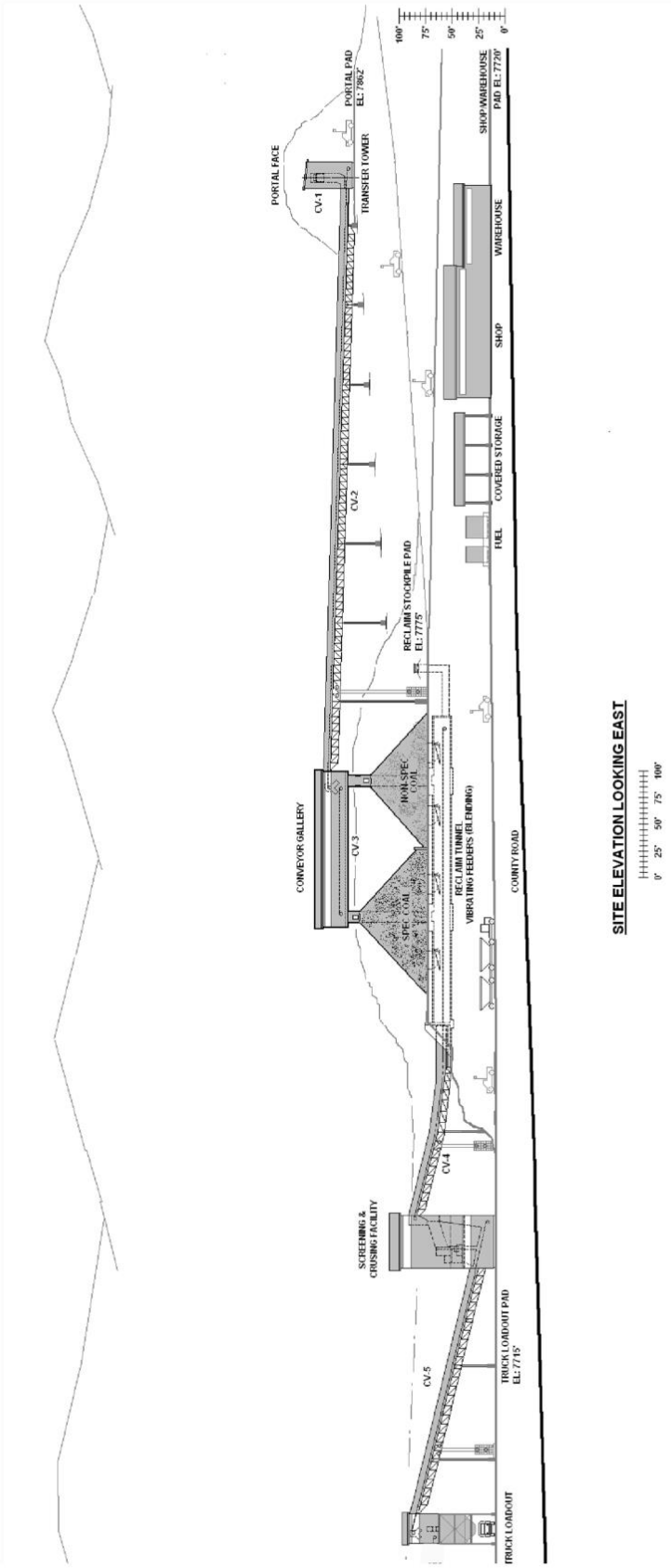


Figure 27 Schematic Elevation Looking East



Within the Maintenance Shop, all petroleum products including oil, hydraulic fluid, grease and other lubricants, and used oil will be handled by a pressurized collection/distribution system running through the shop facility. Oil, hydraulic fluid, and lubricants will be stored in bulk in large tanks within storage containment areas and will be distributed to hose reel systems in each repair/maintenance bay area. Any parts washing stations will use non-toxic citrus-based solvents and uses only propylene glycol based anti-freeze so handling and disposal of these materials is not a concern. Used oil will also be collected in each bay by a negative pressure hose system with the used oil being transferred to used oil storage tanks in a storage containment area and then handled and disposed of according to Utah and EPA requirements.
There will be two separate used oil storage and feed tanks with all used oil from the shop going to one designated tank. Once the storage tank reaches capacity it will be sampled and tested for compliance with applicable EPA standards for waste oil. Any used oil which does not meet used oil specifications will be collected by a license contract disposal firm and hauled off-site for recycling or proper disposal. All petroleum storage tanks will be located within curbed concrete containment areas providing sufficient containment capacity for the entire contents of the largest storage tank within the containment area. Storage tanks, associated piping, and containment areas will be inspected on a regular schedule for any deterioration, damage, leakage, spills, or water accumulations. Any problems will be promptly addressed with repairs, replacement, recovery of spilled product, and removal of any accumulated water. Any water accumulations which contain petroleum residues will either be recovered and transferred to the wash bay sump or will be recovered by a licensed disposal contractor.

Warehouse Facility - The Warehouse facility will provide storage for small equipment parts and operating supplies. The warehouse will be in conjunction with the Shop building. The configuration and layout of the Warehouse is illustrated by Figure 32 through 34, Warehouse & Shop Facility. Larger equipment parts and supplies such as mine timbers, cable, culvert, and roof bolts will be stored in the equipment storage areas and drum lubricants and tires will be stored in a covered storage area near the Maintenance Shop.

Utilities

The proposed mining and related operations will utilize new utility installations including electrical distribution, telephone, potable and raw water, and sewer systems. The proposed underground mining and related surface disturbance activities have been planned, designed, and will be conducted in a manner which minimizes the potential for damage or destruction of utility installations, or disruption of services provided by those utilities existing within the permit area unless otherwise approved by the owner of the utility.

Heat for the buildings will initially be provided by propane, and may be converted to more cost efficient natural gas if it becomes available.

All existing and proposed utility installations are shown on Map 13, Surface Facilities Map. It should be noted that all utilities either are or will be owned, constructed, operated, and maintained by the respective utility companies up to the actual point of service which in the case of electricity will be the main mine substation and in the case of telephone, potable water, and sewer service will be to the metering point which will be located at the mine permit boundary line.

Figure 28 Office - Bathhouse Configuration

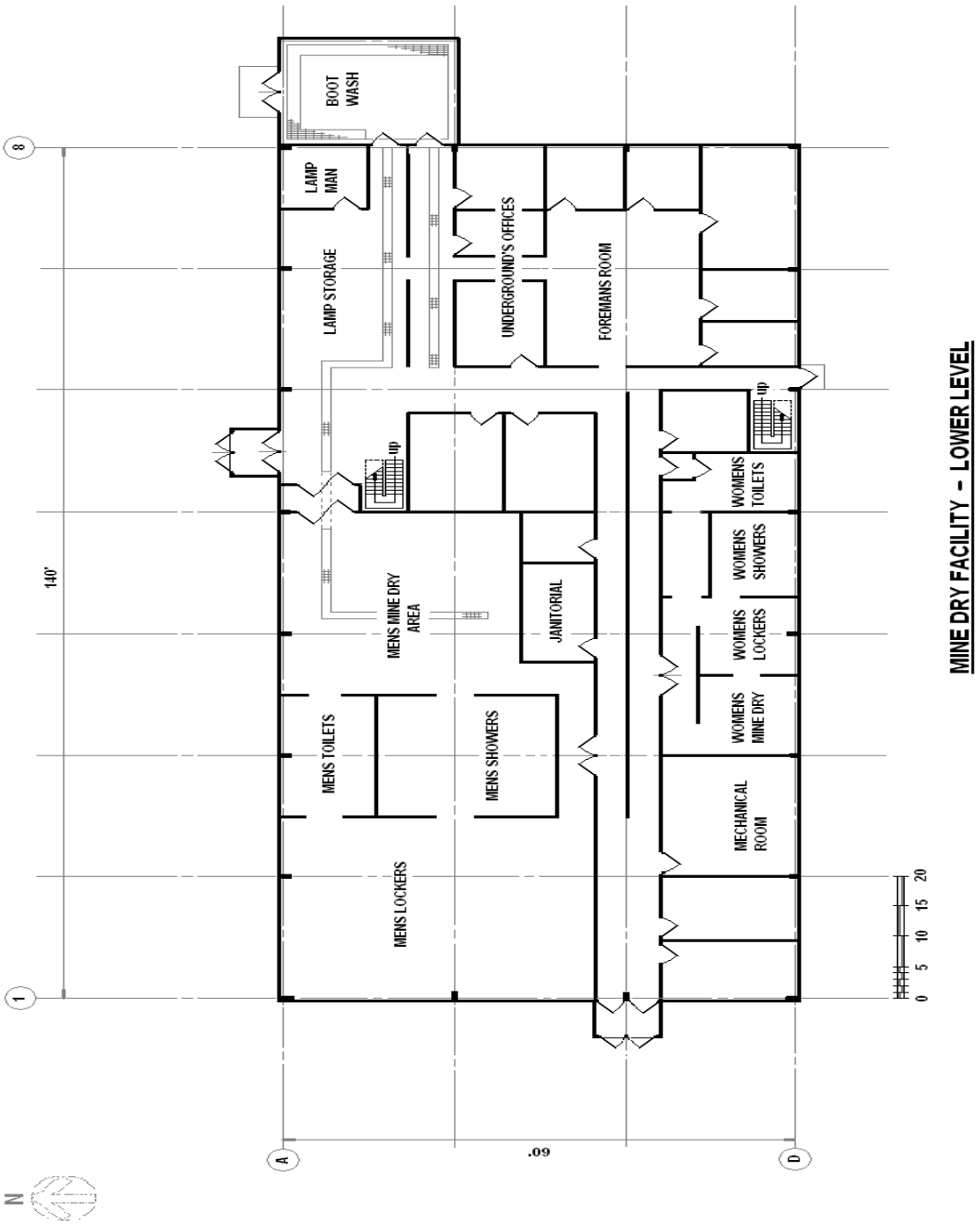


Figure 29 Office - Bathhouse Configuration

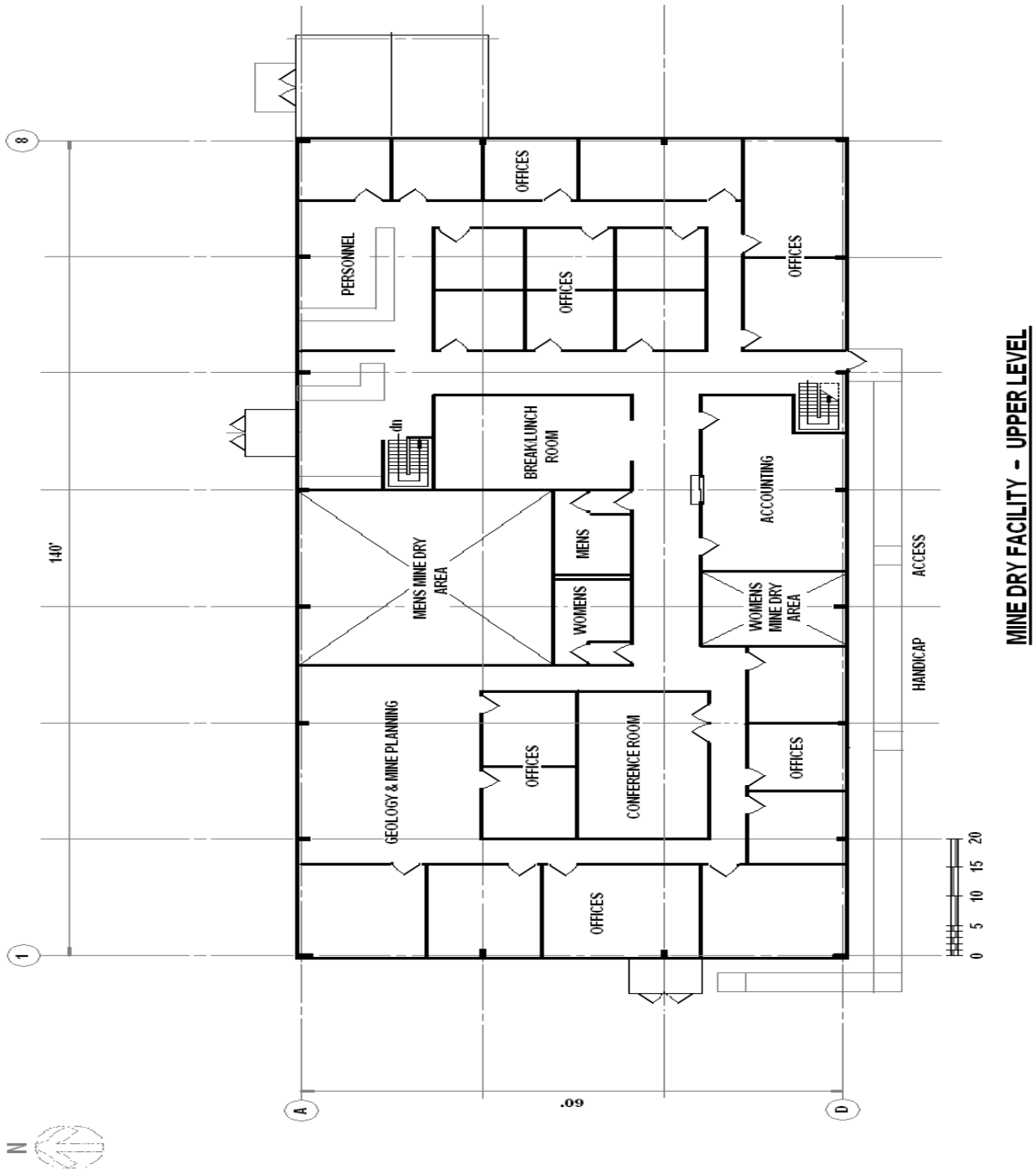
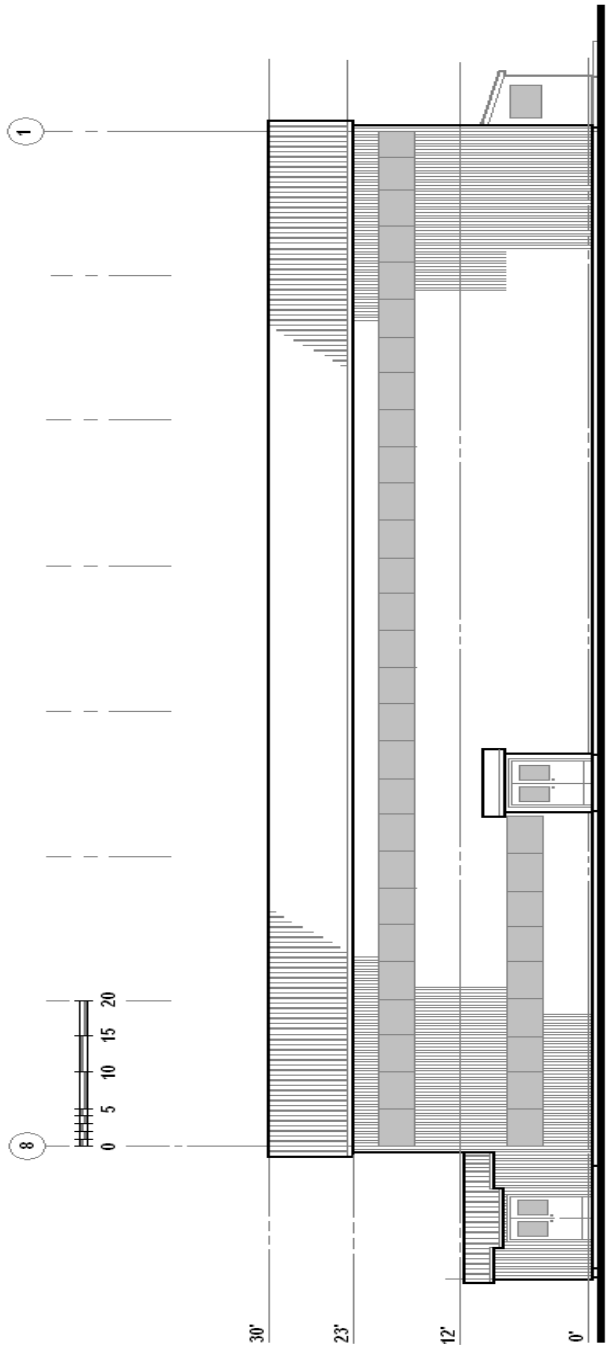
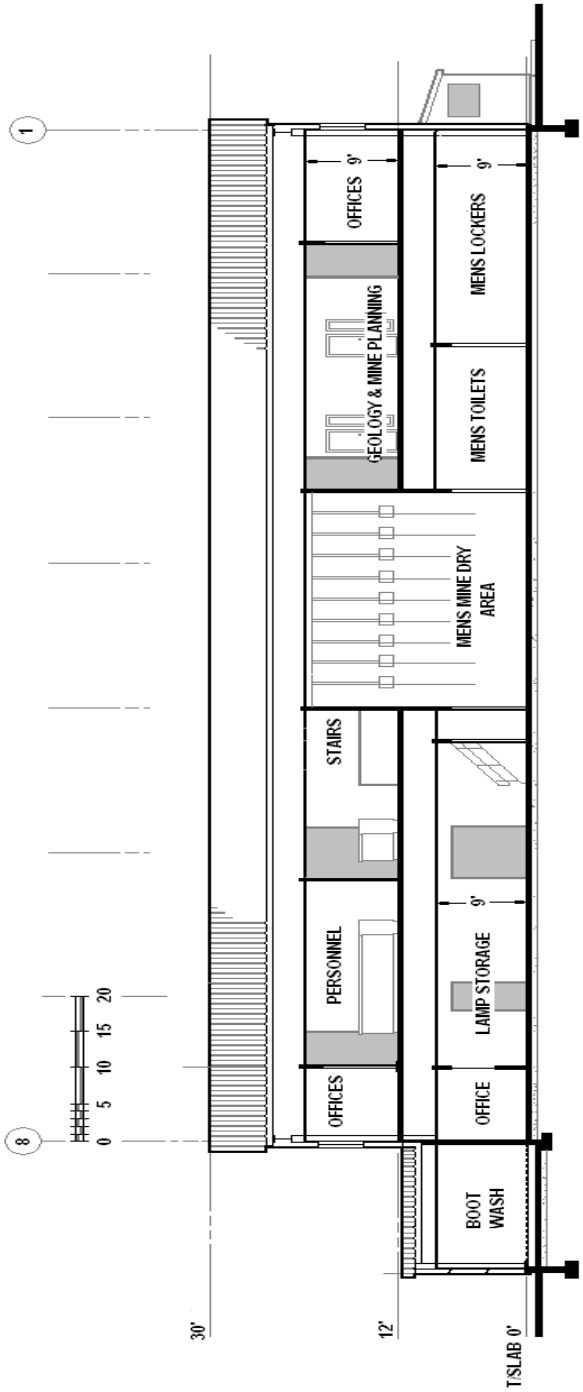


Figure 30 Office - Bathhouse Configuration



MINE DRY FACILITY – NORTH EXTERIOR ELEVATION

Figure 31 Office - Bathhouse Configuration



MINE DRY FACILITY – BUILDING SECTION

Electrical Systems – Electrical power for the mining operation will come from an existing power line running north-south immediately east of the portal area; this power line is shown on Map 11, Regional Surface Ownership Map, and on Map 4, Regional Land Use Map. Electrical voltage will be reduced from the existing power line at a substation located at the Portal Pad as shown on Map 13, Surface Facilities Map. The new substation to be owned, constructed, and operated by PacifiCorp. The mine substation will, in turn, feed the mine fan, the surface coal handling system, the underground mine electrical system, and the other surface facilities.

All proposed electrical components have been designed and will be constructed and operated in accordance with accepted engineering practice and in full compliance with all applicable regulatory provisions. Any new powerlines will be constructed with "raptor-proof" power poles as shown by Figure 22, Typical Raptor-Proof Power Pole Configuration, to minimize the potential for electrocution of raptors and other large birds. All substations, electrical transformers, switchgear, and electrical control components will either be located so that it is not readily accessible to either wildlife or the public or appropriate fences with locked gates or other enclosures will be utilized to limit access to authorized personnel. Where appropriate, signage identifying and warning of electrical hazards will be posted and maintained.

Telephone Lines - Buried or overhead telephone lines will be extended by US West from Highway 96 to provide telephone service for the mine facilities.

Water and Sewer Systems - Potable water, raw water, and sewer connections will be provided by Scofield Town. The connection points for water and sewer to the mine site are shown on Map 13, Surface Facilities Map, and are located at the south side of the permit boundary just south of the Mine Office building.

Mine water and a reserve water storage supply for emergency fire-fighting purposes will be stored in a 50,000 gallon mine water storage tank located near the north end of the Portal pad. This tank and the associated water system will be supplied by Scofield Town. Water supply, use levels, and water rights consideration are addressed in greater detail in R645-301-730, General Description of Hydrologic Protection Plans.

Signs and Markers

~~CR~~ CEG3 will post and maintain all required signs and markers in compliance with applicable regulatory provisions of Rule R645-301-521.200. Signs and markers will be constructed of durable materials and will be posted so as to be clearly visible. Mine identification signs listing the name, business address, and telephone number of the permittee and the permit number for the permanent program permit authorizing mining and reclamation operations will be posted at each point of access to the permit area from a public road. Perimeter markers will be posted outlining all areas affected by surface operations or facilities prior to initiation of mining, and soil/substitute stockpiles will be clearly marked for identification and to limit access and potential disturbance. Signs reading "Blasting Area" will be posted along the edge of any blasting area which comes within 100 feet of any public road right-of-way and at the point where any other road(s) provides access to the blasting area. All required signs and markers will be maintained or replaced during the period of active operations, site reclamation, and until final bond release is approved for all areas within the permit boundaries.

Figure 32 Warehouse & Shop Configuration

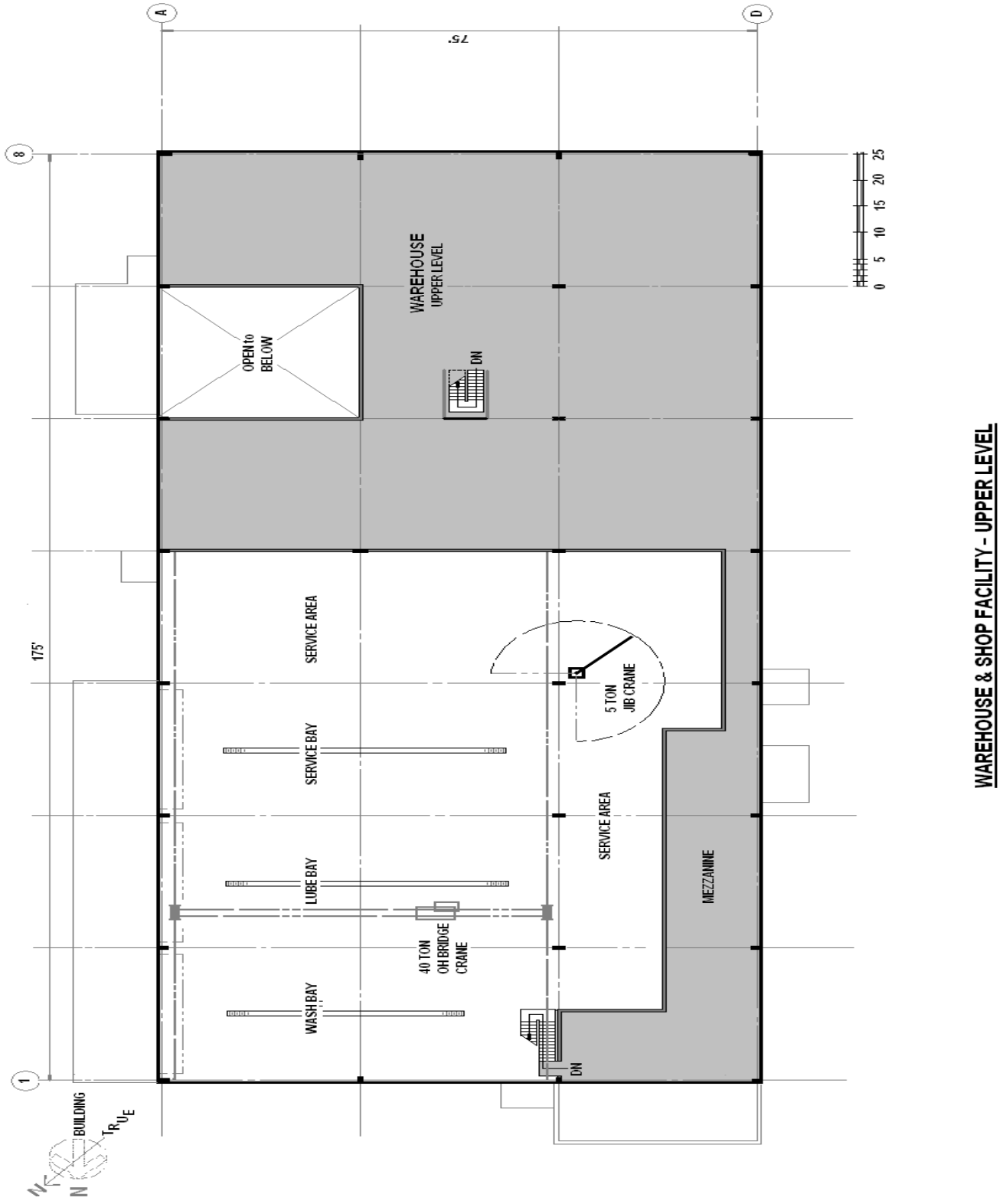


Figure 33 Warehouse & Shop Configuration

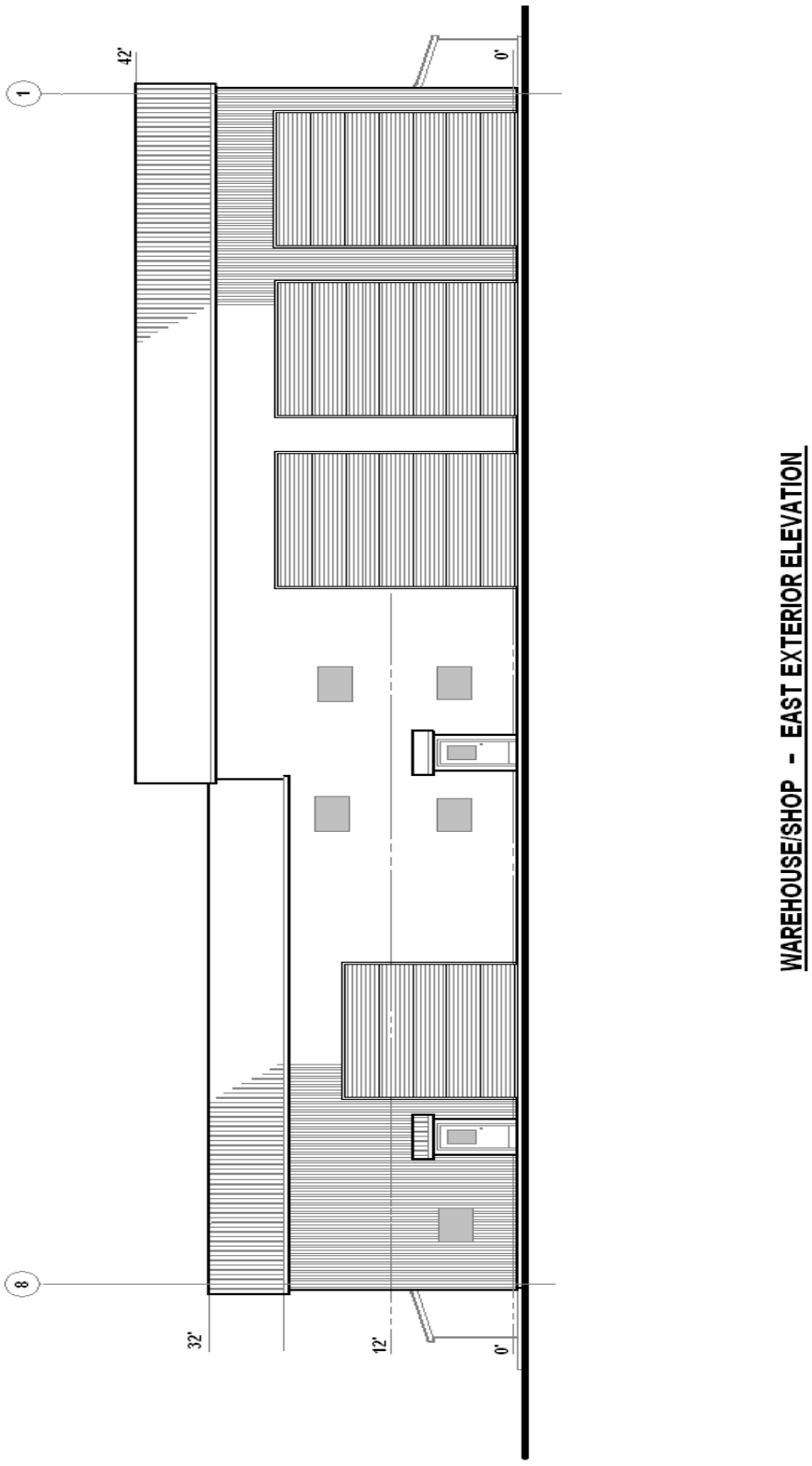
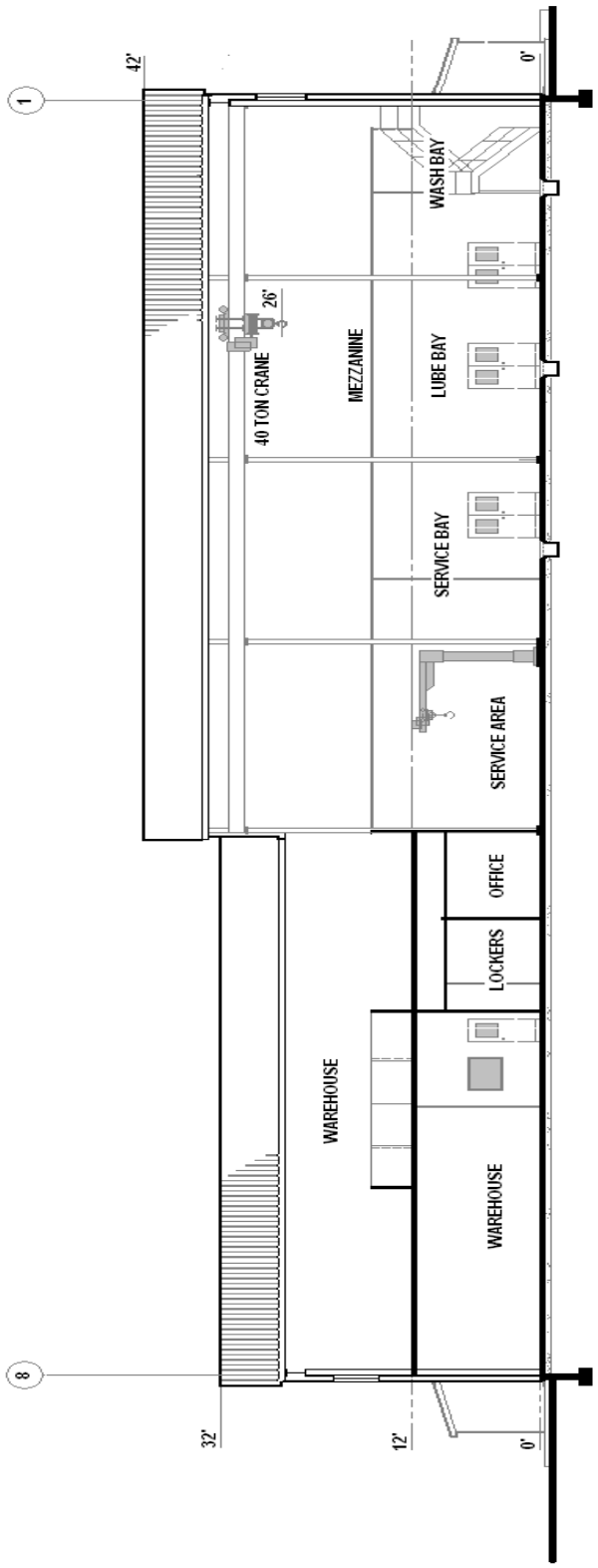


Figure 34 Warehouse & Shop Configuration



WAREHOUSE/SHOP - BUILDING SECTION

528.200 Overburden

See discussion below under 528.321.

528.301 Excess Spoil

See discussion below under 528.321.

528.320 Coal Mine Waste

Three classes or categories of material will be brought out of the mine either on beltline or with buggy that could end up being classified as a form of coal mine waste. One; rock with no coal (from overcast construction and fault crossings), two; a mixture of coal and rock (from out of seam dilution, or similar), three; dirty coal (high ash, or high sulfur coal from parts of the deposit that may be inherently dirty). These three categories of material will generally be handled differently, depending on the volume of coal mine waste (material) at a given time and volume of coal mine waste relative to clean coal production.

No coal preparation plant (washing plant) is planned for the Kinney No. 2 Mine, and therefore there will be only incidental "coal processing waste" generated. This is due to a specific interpretation of the Utah Coal Mining Rules (R645-100) where stacking, crushing, screening, and general mechanical separation by handling of coal may intentionally or inadvertently produce coal processing waste. All materials falling into this category (which will generally be from class two or three from the paragraph above which includes coal contaminated with out of seam dilution, and low quality coal) will be first stacked on the off-spec coal pile. Material from this pile will then, either be blended into the saleable coal product stream, or if the volume of coal processing waste or low quality coal is too great to blend into the salable coal product, will then be hauled to the 3,900 ton coal processing waste temporary storage pile shown as no. 38 on Map 13 and on Figure 41. When sufficient volume of coal processing waste is accumulated on this temporary pad it will then be sold, as "distressed coal," to the Arch Coal Washing Facility on Ridge Road south of Price, UT Per the Distressed Coal Letter of Intent Exhibit 3 Confidential Information. In either scenario coal processing waste will be sold and removed from the property with it's final fate being either burned at a power plant or deposited in an approved refuse facility after being washed at a coal preparation plant.

In the case of "underground development waste" (generally material from class one in the paragraph above) that cannot immediately be deposited in one of the designated permanent underground development waste storage areas within the mine, all or a portion of the off-spec coal pile will be cleaned off and the underground development waste will be stored on the off-spec coal pile until it can be returned to the mine and placed in one of the permanent underground development waste storage areas. Cleaning off the off-spec coal pile prior to placing the underground development waste on it, eliminates the necessity for any type of physical separation, cleaning, and or sorting, thus maintaining the status of this material as underground development waste instead of transforming it into coal processing waste.

In the unlikely event that Arch Coal, or other washing facility, will not purchase said coal processing waste, ~~Carbon Resources~~Coal Energy Group 3 will provide UDOGM with the name of the facility and that facilities permit allowing it to receive coal processing waste from ~~Carbon Resources~~Coal Energy Group 3.

The surface coal haulage system has been designed to facilitate development waste handling in two ways, shown as part of the routes shown on Figure 41:

One; The stacking tube at the off-spec coal stockpile can be emptied by a direct feed chute in its base allowing rock to bypass the coal stockpile and feed directly to Conveyor SB-3. In the primary crusher building, there a flop-gate and diversion chute will allow mine development waste to bypass the primary crusher and feed directly to the truck loadout where it can be transported to a segregated location on the off-spec coal pile prior to returning the material to the mine.

Two; Underground development waste may simply be dumped onto the off-spec coal pile, via the flop gate atop the stacking tube, if circumstances are favorable. That is, if there is sufficient rock volume to warrant temporarily converting the entire off-spec coal pile to a temporary underground development waste storage pile prior to returning the rock to the mine.

A third method theoretically could involve diesel powered buggies hauling mine development waste directly from the mine and depositing it on the off-speck coal pile until it is returned to the mine or designated as coal development waste and hauled to the temporary coal processing waste pile.

Underground Development Waste Temporary Storage Area

Underground development waste consisting of rock with small amounts of coaly materials will be temporarily stored at the off-spec coal pile as shown (no.38) on Map 13, Surface Facilities Map, and Figure 41. This material is not coal processing waste; it will not be sorted, crushed, or processed in any way, but simply stacked in a pile for a limited amount of time, maximum of two years, until it can be returned to the mine for permanent underground storage. The use of the off-spec coal pile for temporary storage of underground development waste will be the exception and require special handling. That is, coaly material will be cleaned off the off-speck coal pile prior to receiving any underground development waste. This underground development waste will be returned to the mine and placed into designated panel areas that will also serve to encapsulate pillars. This will passively stabilize pillars in those areas with some confinement. Underground development waste backfill areas will be ventilated until they are filled and have been monitored for products of combustion for a period of 1 year after backfill operations are complete. If no significant products of combustion have been found the area will be sealed and monitored according to an approved ventilation plan.

Underground Development waste Handling - Several mining and related activities may result in production of significant quantities of underground development waste materials potentially including rock, carbonaceous shale, floor clay, and parting material. Operations which may result in generation of underground development waste will include general mine development, slope/raise development, room development mining operations, and development of overcasts for ventilation or coal haulage. Where underground development waste materials are encountered in mining operations or where the rock materials are integral to the coal seam in development areas or room development mining sections they will be recovered and handled with the coal during mining and coal haulage and will later be removed in the coal handling process. Where
it is operationally feasible to separate these materials they will be removed and handled separately using the same equipment and haulage systems that will be utilized for conventional room development operations.
Disposal of Coal Mine Underground Development Waste in Designated Areas Underground - Two special areas have been designated underground as underground development waste disposal sites for the emplacement of mining generated rock (see Map 15, Mine Plan Layout & Production Schedule Map,). Both areas are within practical operating proximity of the rock slope development area and also close to the Surface portal area where Underground Development waste may be temporarily stored as "off-spec" product coal. Disposal Area 1 is the area known as "N13E Panel A" and it is located on the North side of the Portal Mains. It is separated from the

adjacent Disposal Area "N13E Panel B" with a 140 ft wide Barrier Pillar which adds to the long-term integrity of the backfill area stability. Both of these disposal areas are strategically located, life of mine fill emplacement areas designed for the emplacement of all types of underground development rock containing or not containing coal. Both areas will be ventilated before, during and after backfill emplacement operations and at all times according to MSHA standards and according to MSHA approved ventilation and roof control plans for the mine.

As discussed above, underground development waste consisting of a mixture of rock and coal materials will be temporarily stored as off-spec coal pile as shown on Map 13, Surface Facilities Map. This material may or may not be classified as coal processing waste , however this material may not be directly saleable as regular coal product due to a high content of rock but may be blended into the coal product stream and sold. As described above, should there be too much volume to be blended with the coal product at a given time this material will be transported to the temporary coal processing waste storage area capable of containing approximately 3,900 tons of material. This material will be sold as a low quality coal product to local coal preparation facilities, or will be deposited in other facilities permitted by the UDOGM.

Mine development, ongoing mining operations, and ancillary operations such as development of overcasts for mine ventilation and coal haulage will result in production of underground development waste rock including carbonaceous shale, weathered coal, floor clay, and parting material. Where it is operationally feasible to separate these material from the coal during development and mining, the underground development waste rock will be removed and handled separately from the coal. Where separation is not operationally feasible, underground development waste rock will be handled with the coal and will be removed in the surface facilities, separated from the coal product and temporarily stockpiled until it can be returned to the mine as discussed previously.

Generally, the same mining equipment and haulage systems used for coal production will be used to remove and handle underground development waste rock. Continuous miners, electric shuttle cars, and LHD scoops may be used to load and haul underground development waste to the mine conveyor system. Normally underground development waste haulage will occur on a scheduled rock handling shift when the conveyor belt system will be cleared of coal. Typically, any underground development waste produced during periods other than on a scheduled development rock (underground development waste) handling shift will be temporarily stockpiled in an inactive area underground for later handling and haulage from the mine. Once the underground development waste is placed on a belt at the loading point, it will be transferred to the main haulage belt running from the mine. From the main haulage belt, the underground development waste will transfer to the surface coal haulage system which will carry the rock to as described above to the either the off-spec coal pile where the material may become classified as coal processing waste, or through the primary crushing building directly into a truck that may transport the material to the temporary coal processing waste pile, or directly off property to the Arch Coal Processing Facility.

See discussion below under 528.321.

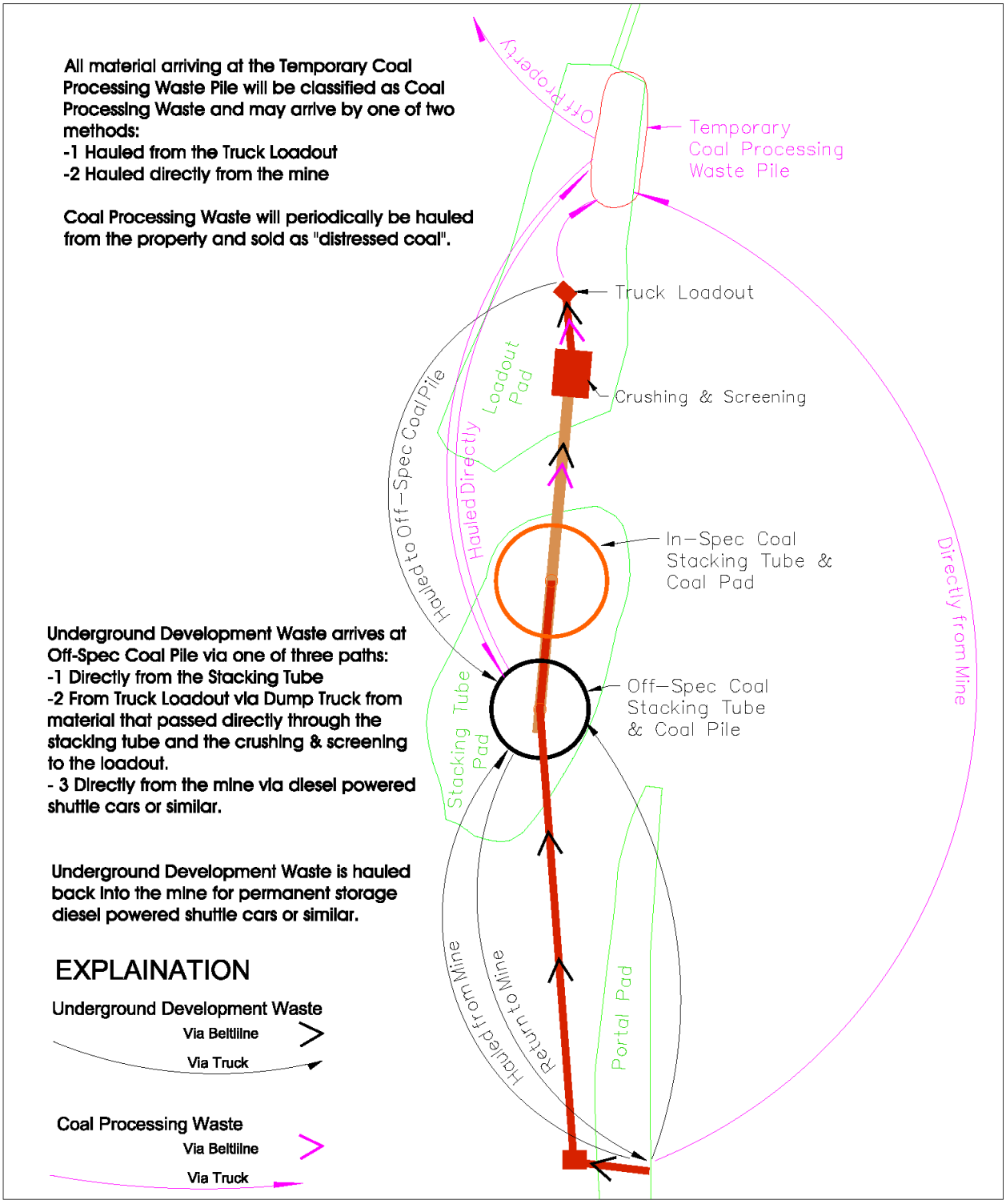


Figure 41. Coal Waste Handling Schematic

528.321 Return of Coal Processing Waste to Abandoned Underground Mines

Coal processing waste will not be returned to abandoned underground mine areas. Only

underground development waste will be returned to abandoned underground mine areas.

528.322 Refuse Piles

No refuse pile is planned for the Kinney No. 2 Mine since no coal preparation (washing) plant is planned, however, a 3,900 ton coal processing waste pile, described above, will be utilized for temporary storage of coal processing waste.

528.323 Burning and Burned Coal Mine Waste

No burned coal is planned to be encountered, however, if any is encountered, a plan for removal will be prepared and approved by the UDOGM and MSHA prior to removal. A plan for extinguishing mine fires will also be approved by the UDOGM and MSHA prior to conducting any mine fire fighting. Only those persons authorized by ~~CR~~CEG3, who have an understanding of the procedures to be used, and are properly trained will be involved in the extinguishing operations.

528.330 Non Coal Mine Waste

Non-coal wastes generated in conjunction with mining and related activities will including but not limited to used oil and lubricants, garbage, paper waste, machinery parts, tires, cable, wood waste, and other miscellaneous debris. All smaller non-coal solid wastes will be collected and stored in dumpsters or similar closed containers. Larger solid waste materials including such items as used equipment, machinery parts, tires, and cable will be temporarily stored in designated sap yards located in areas as shown on Map 13, Surface Facilities Map. Dumpsters will be located primarily near buildings during mine operations, however, during construction they may be located throughout the disturbed area. Used oil will be handled according to Utah State and EPA requirements. Any waste other used oil and lubricants and any used oil not meeting the applicable EPA requirements will be collected and stored in either closed drums or in the waste oil storage tank located in the maintenance shop building. Temporary storage areas for used oil and lubricants will provide full containment to prevent accidental release of petroleum products to the surface drainage system.

~~CR~~ CEG3 does not currently plan or anticipate that any materials classified as "hazardous waste" will be utilized or generated in conjunction with the proposed mining and related operations. In the unlikely event that hazardous materials storage or disposal become necessary, ~~CR~~ CEG3 will comply with all applicable storage, labeling, and documentation requirements, and disposal will occur off-site at a licensed hazardous waste disposal facility.

A contract disposal service will regularly collect and haul the non-coal solid wastes from the dumpsters to the permitted Carbon County municipal landfill, or to the East Carbon Development Corporation (ECDC) facility. Dependent on the market for sap materials, the larger non-coal solid waste and sap will be collected periodically either by a salvage contractor for salvage and recycling or by a contract disposal firm which will haul these material off-site and dispose of it in a suitable disposal site. Any used oil, lubricants, or other potentially combustible materials will be collected and either recycled or disposed of by a licensed disposal contractor in accordance with all applicable Utah and EPA regulations. No non-coal wastes will be disposed of on site during active operations.

528.340 Underground Development Waste

See discussion above under 528.320.

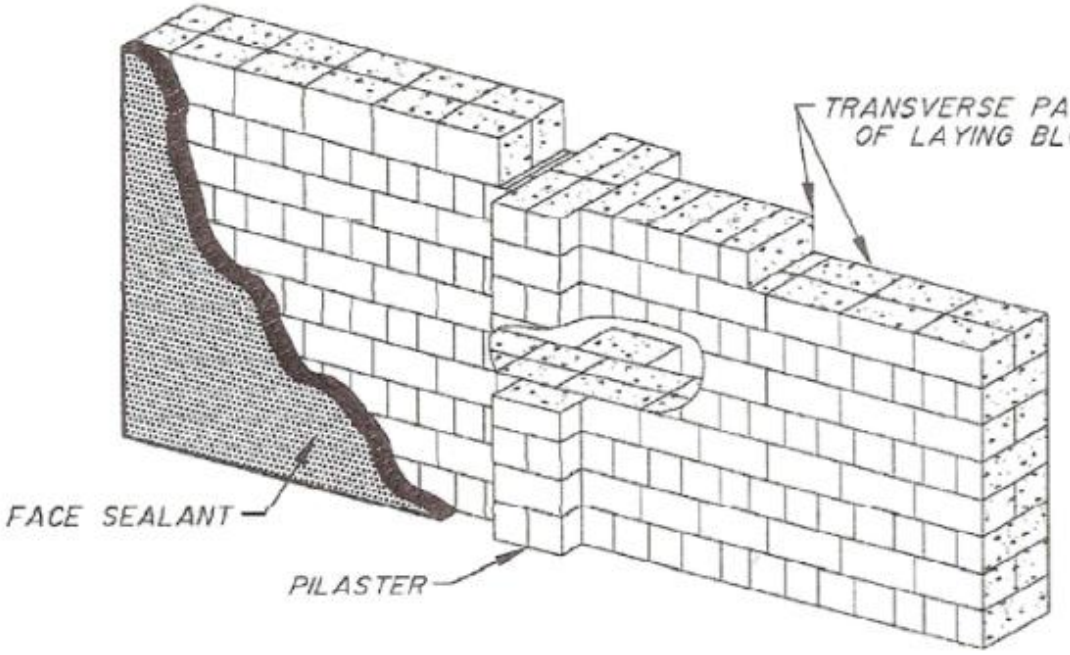
Development Waste Temporary Storage Area (Underground Development Waste)

See discussion below under 528.321.

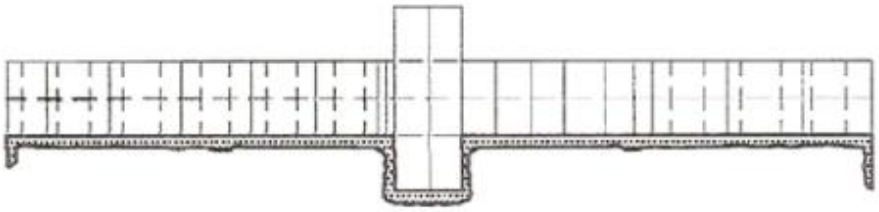
R645-301-529 Management of Mine Openings

On completion of mining and related activities, all mine openings including portals, shafts, raises, boreholes, and wells will be stabilized if required and sealed unless they are to be utilized for ongoing monitoring or in conjunction with the post mining land use. Methods and requirements for sealing wells and boreholes are presented and described in R645-301-630, Geologic Protection Plans.

Current plans call for five underground mine openings (the five main portals). These openings will be permanently sealed on completion of mining to prevent access to the underground workings and, in the case of the mine openings, to provide an effective hydraulic seal to prevent surface drainage and infiltration through the backfill from entering the underground mine workings. Portals will be sealed and stabilized by constructing a concrete block wall 25 feet in by the portal openings. The two layer thick solid block wall, which will be constructed as illustrated by Figure 37, Typical Portal Seal, will be keyed into the mine



SECTIONAL ELEVATION VIEW



TOP VIEW

NOTES:
1 - 16" X 8" X 8" CONCRETE BLOCKS TO BE USED IN CONSTRUCTION.
2 - PILASTER TO BE USED IF NECESSARY FOR SOLID CONSTRUCTION.

Kinney #2 Mine	
Figure 37	
TYPICAL PORTAL SEAL	
DRAWN BY: KN	DATE: 10/23/2018
CHECKED BY: AC	DATE: 10/23/2018
CEG	6602 Ilex Circle Naples, FL 34109

FIGURE 37

entry at least 6 inches on all sides and, for the mine portals, an MSHA approved sealant will be applied to the outer surface of the barrier to provide a positive water seal.

In order to assure the long-term integrity of the mine portal seals, ~~CR~~CEG3, as part of the MSHA roof control plan, will maintain adequate barrier pillars and will utilize appropriate roof support including timber or concrete cribs, posts, roof bolts, trusses, or other supports to minimize subsidence and collapse or caving of the mine workings in the vicinity of the portal seals. Once the portals seals are in place, the remaining void space between the seals and the portal opening will be backfilled for a minimum of 25 feet from the portal seal to the portal face up as shown on Map 17, using a LHD or small backhoe to assure proper backfill placement.

Any old mine portals encountered during construction of the Kinney No. 2 Mine facilities will be sealed using the same plan as discussed above. If any of the portals interfere with planned facilities for the Kinney No. 2 Mine, they will be mitigated using the best technology available. If they interfere to a degree that planned facilities must be modified or relocated, ~~CR~~ CEG3 will contact the Division and MSHA and develop a mitigation plan, or modify the planned facilities to prevent any hazards, or problems based on approved plans with both agencies as required.

R645-301-530 Operation Design Criteria and Plans for Surface Runoff Controls

531 General

In developing the engineering designs and operating plans for the mining and related operations, ~~CR~~ CEG3 has reviewed and evaluated all existing available information on site geology, coal occurrence and characteristics, and environmental resource values. This information along with sound engineering principals has been combined to develop designs and plans which will provide for safe, efficient, and effective mining operations while minimizing potential related environmental impacts and effecting full compliance with all applicable regulatory requirements. The following sections describe the specific design methods, operating measures, and associated control and mitigation practices which will be utilized to accomplish these objectives.

532 Sediment Control

Due to the importance of effective water quality protection, required drainage and sediment control structures will be constructed prior to any other significant site disturbance. Drainage construction will be a phased process with construction of the sedimentation pond, and principal undisturbed drainage diversion ditches and disturbed area collection ditches occurring as the first activities in the construction phase. Temporary sediment controls to be utilized during initial construction will include the use of silt fence, straw bales, berms, temporary ditches and sediment traps. Temporary controls will be utilized to effectively control runoff and sedimentation until designated structures can be completed. As progressive construction activities are extended to other areas, the associated drainage structures will be developed and connected to the existing drainage system prior to other area disturbance.

Detailed descriptions of drainage design and construction procedures are presented in R645-301-526, Mine Structures and Facilities, and the proposed drainage control system is shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. These structures have been designed and will be constructed, operated, and maintained to provide effective drainage and sediment control during both construction/development activities and subsequent mining and related operations. Construction of all drainage and sediment control structures will be monitored by qualified individuals under the supervision of a Registered Professional Engineer and specific designed structures including the sedimentation pond will be inspected according to design plans

certified as required by applicable regulatory provisions.

Drainage and Sediment Control Structures

The drainage and sediment control structures which will be constructed and utilized in conjunction with the proposed mining and related activities will effectively route natural drainage through the mine surface disturbance area, intercept and route undisturbed drainage from upslope areas around surface disturbance areas, and collect and route disturbed area drainage to sedimentation structures to allow settlement of suspended solids prior to discharge to the natural drainages. Drainage and sediment control structures required under the proposed plans will include Sedimentation Pond 1, a number of undisturbed drainage diversion ditches, disturbed area collection ditches, drainage culverts, containment berms, and various alternative drainage and sediment control measures including small sediment basins, silt fences, straw bales, and other localized control measures as appropriate. The proposed drainage and sediment control structures are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Areas Map, and design information and calculations are discussed in R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details.

Design - The design and location of all required drainage and sediment control structures is based on maximum anticipated storm runoff flows, site topographic conditions, and standard hydrologic design practices and addresses full compliance with all applicable regulatory provisions. Recognizing that the area is subject to relatively high-intensity, short-duration storm events and that due to the rugged terrain and limited vegetation runoff is frequently rapid and concentrated, essentially all structures have been over-designed to provide an additional margin of safety.

The applicable UDOGM regulatory provisions specify that all impoundments must be designed to contain or treat the runoff resulting from the 10-year, 24-hour storm event and that spillways for MSHA ponds must be capable of discharging runoff flows from the 100-year, 6-hour event and non-MSHA ponds must have designed principal and emergency spillways with a combined capability of discharging the 25-year, 6-hour storm event. However these spillways were designed to safely discharge the 100-year, 6-hour event to provide additional safety due to the close proximity of the sedimentation pond to the highway. The applicable regulations also specify that temporary and permanent diversions of miscellaneous flows be designed for the 2-year and 10-year, 6-hour events, respectively and that temporary and permanent diversions of perennial and intermittent streams be designed for the 10-year and 100-year, 6-hour storm events, respectively.

Hansen Allen and Luce, Engineers (HAL) completed a runoff evaluation for representative watershed areas using the Army Corps of Engineers Hydrologic Modeling System (HEC-HMS) Version 3.1.0 computer modeling software to determine conditions for design of the proposed Kinney No. 2 Mine drainage and sediment control structures. Sedimentation Pond 1 has been designed to contain or treat the runoff from the 10-year, 24-hour storm event and total design capacity includes storage for at least five years accumulation of sediment. The pond spillway structures have been designed to safely pass the runoff from the 100-year, 6-hour storm event. Temporary diversion ditches in disturbed areas are designed to safely pass the peak discharge from the 10-year, 6-hour storm event. All diversions have been designed and will be constructed to remain stable under design flow conditions. All collection ditches have been conservatively sized to carry the peak runoff flows from the 25-year, 24-hour storm event in order to provide a significant margin of safety and accommodate the brief, high-intensity storms common to this area. In order to assure effective collection and routing of disturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety and culvert inlets, outlets,

diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required. In all cases, ditch designs also included an evaluation of the need for channel protection to prevent or minimize erosion. The general criteria for channel protection was any flows greater than or equal to 4 feet per second would require channel protection in the form of riprap or grouted riprap to maintain adequate safety factors. Appropriate riprap sizing was determined using riprap design calculation spreadsheet prepared by HAL. Designs for all required ponds and ditches include adequate freeboard to provide a reasonable margin of safety. Designs for the permanent Kinney No. 2 Mine drainage structures and facilities have been prepared by or under the direction of and certified by a qualified Registered Professional Engineer in accordance with Rules R645-301-742.324. Culvert sizing is consistent with the ditch design basis (i.e., 10-year, 6-hour and 100-year, 6-hour storm flows, respectively for temporary and permanent diversions), the minimum culvert size to be used is 18 inch diameter due to potential clogging and maintenance considerations, however all have been over-designed to provide an additional measure of safety, and culvert installations will include a pre-fabricated inlet structure and riprap protection at both the headwall and discharge points.

In order to assure effective conveyance of undisturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety and culvert inlets, outlets, diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required. Specific information on culvert design and erosion protection measures is also provided in Exhibit 16, Runoff Control Design Details.

Sedimentation Pond 1 has been designed and will be constructed to meet the following regulatory design criteria:

- Located as close as possible to the disturbed area and out of perennial streams unless approved by the Division
- Provide adequate sediment storage
- Provide adequate detention time to meet applicable effluent standards
- Provide a non-clogging dewatering device
- Minimize short circuiting
- Facilitate periodic sediment removal
- Foundation structures will be stable under all conditions of construction and operation

In addition, Sedimentation Pond 1 design has been prepared by or under the direction of and certified by a qualified Registered Professional Engineer in accordance with Rules R645-301-512.200 and 240.

In all cases, the design basis for the proposed drainage and sediment control structures meets or exceeds the applicable regulatory design requirements. Designs for drainage and sediment control structures, along with a discussion of design assumptions, methodology, and design calculations are presented in R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details.

Construction - As previously noted in R645-301-520, General Description of Mine Construction and Development Activities, the required drainage and sediment control structures will be constructed prior to any other significant site disturbance, and as soon as possible in the overall site construction plan. As a first step to construction, a silt fence will be placed at the extreme western edge of all site construction running from the southwest corner of the site adjacent to the highway and adjacent to the old railroad bed from the pre-existing access road into the site running northward to the northwest corner of the site. Construction of required undisturbed runoff

diversion ditches and disturbed area collection ditches will involve removal and placement in stockpile of soil or clean soils materials, excavation of the design ditch configuration, placement of riprap and bedding material or geotextile slope stabilization where required, and seeding of ditch side slopes with the temporary revegetation seed mix. The constructed ditch configuration is illustrated by the typical design configuration figures included on Map 27, Runoff Control Details. Culvert installation will involve excavation and grading of the culvert foundation area, placement and compaction of gravel or similar bedding materials, placement and adjustment of the culvert and inlet structure to the design grade and alignment, placement and compaction of suitable fill materials around and over the culvert, placement of rock protection in the culvert headwall and discharge areas, and installation of debris fences up gradient of culverts where required. Culvert installation practices are illustrated by the typical design configuration figures included in Exhibit 16, Runoff Control Details.

Construction of sedimentation pond impoundments will involve recovery and placement in stockpile of soil or substitute materials, preparation of embankment foundation areas, excavation of impoundment basin areas and construction of embankment structures, installation of principal and emergency discharge structures; grading of embankment outslopes, and seeding of outslopes with the temporary revegetation seed mix to minimize erosion. Impoundments will be inspected at regular intervals during construction and on completion of construction by a professional engineer or specialist experienced in impoundment construction. An impoundment inspection report certified by a Registered Professional Engineer will be provided to UDOGM promptly following each inspection. The report will verify construction in accordance with design plans and will note and discuss any apparent instability, structural weakness, or other hazardous conditions. A copy of the report will be retained on file at the mine site for inspection by authorized agency representatives.

Required foundation preparation will include removal of any vegetative material, coal, potentially acid-forming coal waste, frozen material, or other deleterious materials from embankment foundation areas and excavation of any keyways specified in the design. Embankment construction will involve controlled placement and compaction in horizontally continuous lifts no greater than 12 inches in thickness of suitable embankment fill material. Fill material will not contain any significant quantities of coal, vegetative material, frozen material, or other deleterious materials. Fill will be placed and spread using either tractor scrapers or rear dump trucks and tracked dozers and design compaction of 95 percent of maximum dry density will be achieved by compacting each successive lift with a sheepsfoot or vibratory roller. Compaction will be periodically checked during construction using standard compaction testing procedures and if testing reveals inadequate compaction, the lift or lifts in question will be ripped and reworked until adequate compaction is achieved. During compaction, water trucks may be utilized as necessary to achieve optimal moisture content for effective compaction. The actual construction height for all pond embankments will be 5 percent greater than the design height to provide for long-term consolidation and settling of the embankment.

Installation of principal and emergency discharge structures will occur at appropriate stages in the embankment construction process. Installation of vertical riser structures will include compaction of an adequate base area for the foot of the riser and installation, alignment, and placement and compaction of fill material around the lower portion of the riser structure. Installation of horizontal discharge structures will involve basically the same construction procedures previously described for culvert installations, including preparation of a base area, placement and compaction of bedding material, placement and alignment of the discharge pipe, and placement and compaction of fill material around the pipe.

Operation and Maintenance - Operation and maintenance of drainage and sedimentation control structures will involve periodic inspection of all ditches and culverts, quarterly inspection and annual certification of impoundments and related structures, ongoing discharge monitoring

for all impoundments, and any necessary maintenance or repair of problems noted during the inspections.

Ditches have been designed and will be constructed to provide an adequate cross-sectional flow area to pass runoff flows from the design storm event. During active operations, normal siltation and minor erosion may result in changes in ditch configuration. As discussed previously, however, all ditches have been designed for the 25-year, 24-hour storm event rather than the 2-year or 10-year, 6-hour event as required, therefore, minor siltation will not affect the capacity of the ditches to perform as designed. ~~CR's~~ CEG3's ditch inspection and maintenance procedures will focus on identification and repair of any significant ditch erosion, removal of any trash or debris from ditches, and maintenance of an adequate cross-sectional flow area, regardless of actual ditch configuration, to pass the design flows. In practice this will mean that ~~CR~~ CEG3 will not modify, recut, or clean out a ditch simply because the physical ditch dimensions are not the same as the original design or originally constructed configuration so long as the actual ditch configuration is adequate to pass the design flow. Culvert maintenance will involve removal of trash or debris from culvert inlets and any up gradient debris fences, repair of any significant erosion at culvert inlets, outlets, or of the cover material, and repair or replacement of any damaged culverts.

Sedimentation pond maintenance and operation procedures will include ongoing sampling and discharge monitoring under applicable provisions of a UDWQ permit; quarterly inspections of pond embankments, impoundment areas, discharge structures, and inlet/outlet structures and areas and reporting; notification of any hazardous conditions and development of emergency remedial control measures; maintenance or repair of any problems noted during the inspections; and periodic removal of accumulated sediment. The sedimentation pond has been designed and will be operated and maintained to effectively retain storm runoff to allow settlement of suspended solids prior to discharge. Control of potential water quality impacts from pond discharge is monitored through compliance with applicable effluent standards under a UDWQ discharge permit. Effluent sampling and reporting will occur as outlined in R645-301-730, Hydrologic Resource Protection and PHC, and under the provisions of the UPDES permit~~, a copy of which is included in Exhibit 4, Other Permits~~.
The sedimentation pond will be inspected quarterly by a qualified person for any indication of structural weakness or other hazardous condition, instability, and any erosion or other problems; the depth and elevation of any impounded water will be measured; based on the depth measurements storage capacity will be estimated; and any required structural monitoring will be performed. Copies of the quarterly inspection reports discussing each of the noted inspection categories and verifying that the pond has been constructed and maintained as designed will be prepared, certified by a qualified Registered Professional Engineer, and submitted promptly to UDOGM. Copies of the inspection reports will also be maintained on file at the mine site. Any minor problems noted during the inspection will be addressed in a timely manner. This may involve repair of any minor localized erosion, clean-out or minor repair of discharge structures, reseeding of embankment slopes, mowing weeds which may interfere with pond inspection, or other minor maintenance and repair as necessary. If the inspection identifies any structural weakness or other conditions which could pose a hazard to the public, the person who conducted the inspection will notify UDOGM promptly of the hazardous condition and any emergency procedures which may be appropriate to protect the public and address the hazardous condition. In consultation with and with approval from UDOGM, appropriate remedial measures will be implemented as soon as is reasonably practicable to address any hazardous condition.

The pond has been designed to provide adequate capacity for at least three years accumulation of sediments, however, the pond will periodically need to be cleaned out to removed the accumulated sediment in order to maintain adequate stormwater storage capacity consistent with design requirements. A fixed staff gauge in the pond will be used to monitor sediment accumulation. Generally, it is anticipated that the sedimentation pond will be essentially dry during late summer or early fall each year and the gauges will be checked during the

corresponding pond inspections. In the unlikely event that the staff gauges cannot be checked during a dry period, an alternative means of monitoring sediment accumulation levels will be utilized.

Before sediment accumulations reach the point where they would encroach on stormwater storage capacity, ~~CR~~ CEG3 will schedule and implement measures to remove the accumulated sediments. The pond has been designed to facilitate access for pond clean-out with a concrete ramp for equipment access to the pond bottom. The pond will have a reinforced concrete bottom to facilitate cleaning by equipment without damaging the pond integrity. Generally, clean-out would be scheduled during a relatively dry period when any pond water levels would be low. Any water remaining in the pond would be pumped into water trucks for use in mine site dust control. The sediments would be allowed to dry so that they could be readily removed and they would then be removed and transported to a temporary storage area located on one of the mine pad areas until dry, then would be transported into the mine and placed in the areas designated for underground development waste as discussed in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements.

Description of Individual Structures - The following sections provide more detailed information for specific drainage and sediment control structures:

Sedimentation Pond 1 - Sedimentation Pond 1, which will be located at the northern end of the mine site, as shown on both Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas, and Map 13, Mine Surface Facilities Map, will be the only sedimentation pond for the proposed mine surface facilities area. The vast majority of disturbed area runoff and minor amounts of undisturbed area runoff from those facilities and areas up gradient from the pond location will be routed to Pond 1. The total contributing drainage area for Pond 1 is approximately 28 acres. The pond has been designed to provide adequate total retention capacity at an elevation of 7686.90 feet of 3.15 acre-feet which includes a 5.3 year accumulation of sediment (1.12 acre-feet) based on sediment discharge modeling for the contributing drainage areas and the 10-year, 24-hour storm runoff (2.06 acre-feet) from the contributing drainage areas. The pond is totally incised and will have only a minimal fill on the west side to even out the surface and provide room for vehicular access around the pond.

Pond 1 is designed with vertical risers (primary spillway and emergency spillway) connected to a horizontal discharge culvert running through the pond embankment and discharging to a culvert crossing beneath Highway 96 and thus to the area west of the highway. One orifice in the primary spillway vertical riser at an elevation of 7683.80 feet, will be used to dewater the pond and discharge stormwater inflows. The top of the riser will be at an elevation of 7686.90 feet, at the invert of the emergency spillway. The orifice outlet will be fitted with gooseneck pipe extension to act as oil skimmer to prevent discharge of any minor amounts of oil or other petroleum products which may enter the pond and the top of the riser will be fitted with a trash rack. The Pond 1 emergency spillway will be a 24 inch diameter pipe, with a crest elevation of 7686.90 feet. The invert elevation of the emergency spillway and pond embankment are designed to provide a minimum freeboard of 2.0 feet. In order to provide access for clean-out and haulage of accumulated pond sediments a primary road (P6) will be constructed from the Loadout Pad to the pond.

Map 25, Sedimentation Pond 1 Sections & Details shows the proposed Pond 1 layout and provides specific pond design information including the primary discharge, sediment storage volume, 10-yr 24-hr runoff volume, 100-tr 6-hr runoff volume, primary and emergency spillways, and pond embankment, and design details for the discharge structures. Figure 35, Pond 1 Stage-Volume Curve shows the stage storage curve; storage capacity information; design elevations for the pond bottom, sediment storage elevation. A detailed description of pond design assumptions and methodology, actual pond design calculations, and additional design information are

provided in R645-301-730 Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details. Pond construction, operation, and maintenance practices will be consistent with the previous descriptions presented in this section. Sedimentation Pond 1 will be a new pond and pond construction will involve both excavation of a portion of the pond basin and construction of a very small compacted fill embankment along the west side to provide vehicular access around the pond.

Alternative Drainage and Sediment Control Measures - Alternative drainage and sediment control measures will be utilized for initial construction activities as discussed in R645-301-520, General Description of Mine Construction and Development Activities, and in areas where the isolated nature of the area or specific site conditions would result in excessive disturbance for full scale drainage and sediment control or where full-scale controls are infeasible. Alternative drainage and sediment controls will be utilized in the following specific areas:

- Initial Construction Areas
- Topsoil Stockpile
- Main Access Road (Primary Road P1), a short section at the entrance from Highway 96

Detailed descriptions of these areas, discussion of the alternative sediment control measures to be implemented, and requests for individual small area exemptions, as appropriate, are included below. It should be noted that alternative sediment controls for road fill and embankment outslope areas will consist of silt fencing and will only be required as a interim control measure until temporary vegetative cover is established.

Initial Construction Areas – Initial construction will be done before runoff controls are possible, therefore alternative controls will be used to control sedimentation off of the site. Controls to be used may include one or more of the controls discussed in R645-301-730, including, silt fencing, straw bales, berms, sediment traps, vegetative filters, mulch, and other effective appropriate drainage controls. Before construction begins, a silt fence will be placed at the extreme western edge of the site running parallel to the old railroad grade and including the area from the existing access road to the site and then running south to the southwest corner of the mine permit area adjacent to Highway 96.

Topsoil Alternative Materials Stockpile - The topsoil/alternative materials stockpile is located adjacent to Highway 96 at the south end of the mine site, where the runoff from the site cannot be routed to the sedimentation pond. Since the stockpile will be vegetated with interim vegetation and should stabilize within a two to three year period, there should be little sediment loss. Runoff from the stockpile will be controlled by a berm and ditch at it's western edge as can be seen on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. This ditch and berm will catch runoff and sediment from the face of the stockpile. A sediment trap, with silt fence, or straw bale outlet from the lowest point of the berm near the highway culvert will filter any runoff from the pile prior to flowing into the end of the highway culvert.

Main Access Road - Primary Road P1 – A short section of the access road approximately 115 feet long from it's intersection with Highway 96 eastward to a cattle guard cannot be routed to the Sedimentation Pond 1. Runoff from this small road section will be controlled by ditches and sediment traps on each side of the road as shown on Map 24. Drainage and Sediment Control Plan – Disturbed Drainage Areas. A silt fence, or straw bale outlet from the sediment traps will catch any overflow from the traps prior to discharge into the highway side ditches.

533 Impoundments

As discussed above Sediment Pond 1 will contain all runoff from the mine site. It has been designed to meet a minimum 1.3 static safety factor and all other provisions of this regulation. Since the pond is totally incised, with no dam, or embankment, it does not meet either the NRCS TR-60, or the MSHA 30 CFR criteria of being a major dam or impoundment. The small water storage capacity of the pond also disqualifies it from meeting both criteria.

533.110 Static Safety Factor

RB&G Engineering, Inc conducted a safety factor analysis of the sediment pond. The following is included in Addendum No. 1 to the Geotechnical Investigation dated November 26, 2007:

"Stability analyses were performed for the proposed Detention Pond for both Steady State and Sudden Drawdown conditions. The below ground pond was modeled with cut slopes of 3 horizontal to 1 vertical, extending 15 feet below the existing ground surface. It was assumed that the foundation soils will consist of native lean sandy clay. If fill is encountered in the excavation, it has been assumed that the cut will be over-excavated a distance of at least 10 feet into the side slope, and that this zone will be replaced with engineered fill as recommended in Section V.I. – Detention Pond. For the sudden drawdown condition, the phreatic surface was modeled to be within one foot of the slope surface 10 feet down-slope of the crest, exiting at the toe of the slope after full drawdown."

"A factor of safety of 3.37 was obtained for the Steady State condition. For the Sudden Drawdown condition, the factor of safety reduces to 2.3."

Refer to Exhibit 14, Geotechnical Investigations for a complete copy of the Geotechnical Investigation and Addendum No. 1 dated September 28, 2010.

534 Roads

In conjunction with the proposed mining and related operations ~~CR~~ CEG3 will construct, operate and maintain a number of new roads and will operate and maintain several existing roads. Both new and existing roads will be utilized to access existing and proposed facilities and for transportation of personnel, equipment, and supplies. All roads are classified as primary roads. The primary road classification includes any road used for transporting coal or spoil, roads which are used frequently for periods exceeding 6 months, and roads which will be retained to support the post mining land use. All roads will be utilized on a frequent, long-term basis to support the proposed mining and related operations. Proposed roads which will be used in conjunction with the proposed mining and related operations include the following:

Proposed Roads in Kinney No. 2 Mine Facilities Area

P-1 Primary mine access road for the proposed surface facilities area
P-2 Primary mine access road to Mine Office Pad
P-3 Primary mine access road to the Portal Pad
P-4 Primary mine access road to the Storage Area Pad
P-5 Primary mine access road to the Loadout Pad
P-6 Primary mine access road to Sedimentation Pond No. 1
P-7 Primary mine access road to the North Access Road
P8 Primary access road through site for post mining land use only, will replace P-7
P9 Primary access road east to private property on mountain and for post mining land use

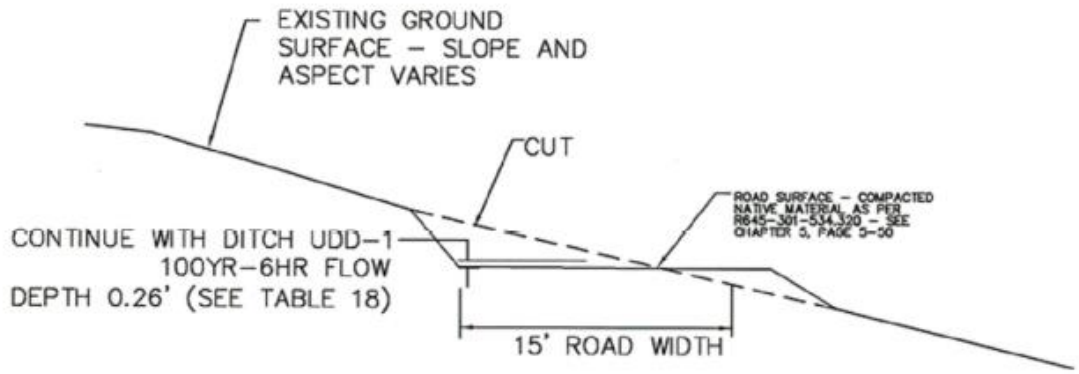
All proposed roads are shown on, Map 13, Surface Facilities Map and Map 29A for post mining land use roads P8 and P9. Road profiles can be seen on Maps 20 through 22, Mine Surface Facilities Road Profiles.

Design and Construction - All roads have been or will be located and constructed to the extent operationally feasible in the most stable areas available and outside of the channel of intermittent or perennial streams. Road design and construction plans will prevent damage to public or private property; minimize the potential for downstream flooding or sedimentation; reflect consideration of the size of vehicles which will be using the road, traffic volume, and normal speeds; and to the extent possible, using the best technology currently available, minimize adverse impacts on fish, wildlife and related environmental values.

All roads have been designed to provide for effective drainage, long-term stability, and safe vehicle operations under varying weather conditions. Design and construction of all primary roads will be certified by a qualified Registered Professional Engineer as meeting these criteria. All roads will meet MSHA safety requirements except roads P8 and P9 as discussed previously including either a berm or guard rail on the outside edges where the slope is downward. Roads P8 and P9 will not be used by mining equipment therefore they are not required to meet MSHA standards.

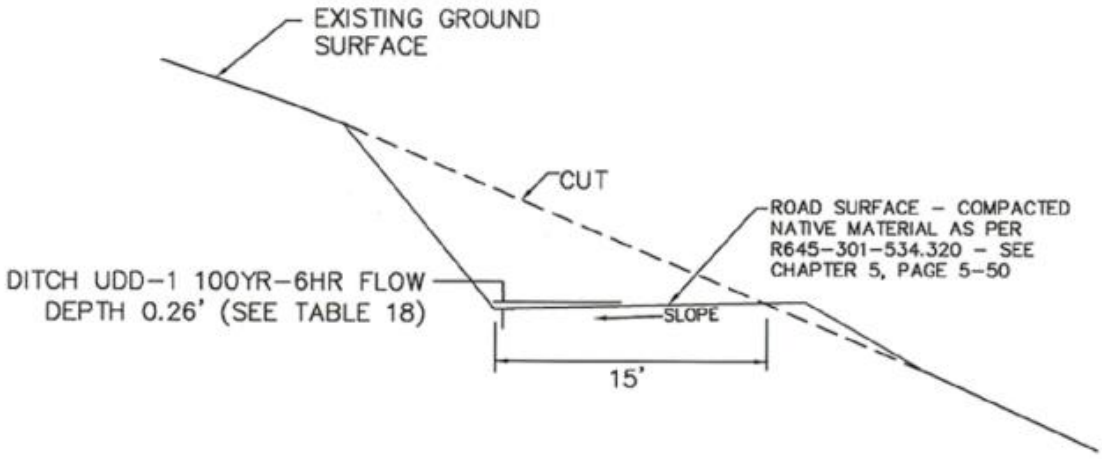
Design and construction practices for specific roads will be dependent primarily on site conditions and the nature and frequency of anticipated use. The primary mine access road (P-1) will provide access to the mine surface facilities and will be utilized for transportation of personnel, equipment, coal, and supplies. Because it will handle a relatively heavy traffic volume and must provide safe operating conditions year-round, Road P-1 will be a paved asphalt road with all-weather travel surface from Highway 96 to the Shop-warehouse building. Primary Road P2 will also be paved to the Mine Office building; in addition, the Mine Office Pad will be paved. The other primary roads except roads P8 and P9 will also be utilized on a year-round basis but the associated traffic levels will be significantly lower so these roads have been designed and will be constructed with an adequate compacted road base and gravel or similar durable granular surfacing. Roads P8 and P9 are required for private property access, with no mining equipment use. Road P9 will be used occasionally for water monitoring and subsidence monitoring during the summer and fall by light vehicles and will have surfacing equal to the existing access road being replaced (R645-301-534.320). Road P8 is a post mining land use road to provide access to private property north and east of the mine site, it too will have surfacing equal to the pre-mining access road being replaced (R645-301-534.320).

Road construction will involve cut and fill earthwork operations using tractor scrapers, trackhoes, tracked dozers, and motor graders. No potential acid or toxic-forming materials will be utilized in road construction or as road surfacing materials. Cut and fill slopes will be established at maximum grades up to 0.8H:1V, with the steepest grades in rock dependent on the characteristics of the rock in conjunction with the geotechnical recommendations found in Exhibit 14, Geotechnical Investigations. Typical road construction practices, road configuration, and dimensions are illustrated by Figure 25, Typical Primary Road Configuration, and Figure 25A, Primary roads P8 & P9 Configuration. Road gradients will vary from flat to a maximum of approximately 14.5% percent for the main roads and any required road embankments will be constructed and compacted in a controlled manner to provide a minimum static factor of safety of 1.3. Only one road (P6), which accesses Sediment Pond 1 has a gradient above 14.5%, at 18.8%. This road will be used on a limited basis to access and clean out the sediment pond.



NOTE: WATER BARS TO BE PLACED AT GRADE CHANGES AND/OR AT 300' SPACING OR PER US FOREST SERVICES STDS, WHICHEVER IS LESS

PRIMARY ROAD P8
NTS



PRIMARY ROAD P9
DITCH UDD-1
NTS

THESE ROAD CONFIGURATIONS ARE BASED ON THE GEOTECHNICAL INVESTIGATION RECOMMENDATIONS FOR CUT & FILL SLOPES, AND ON STANDARD ROAD DESIGN CRITERIA

Kinney #2 Mine

Figure 25 A
PRIMARY ROADS P8 & P9 CONFIGURATION

DRAWN BY: KN DATE: 10/23/2018
CHECKED BY: AC DATE: 10/23/2018

CEG
6602 Ilex Circle
Naples, FL 34109

All road cut and fill slopes will be revegetated as soon as reasonably practical following construction using the temporary revegetation seed mixture to stabilize the slopes and minimize erosion potential. Road surfaces will be graded or crowned to prevent accumulations of water on the road surface and adequately sized ditches and culverts will be installed and maintained to effectively carry road and other disturbed area drainage. Road P9 will be constructed similar to the road it replaces with an inward slope to provide for Ditch UDD-1 as shown in the ditch design Table 18, Ditch design Details and on figure 25A, Primary Roads P8 & P9 Configuration. Road P8 will be a post mining land use road with drainage controlled by extending ditch UDD-1 design sizing along it's length, and also by constructing water bars, or cross drains at a spacing of 300 feet, or as recommended by criteria set forth in the US Forest Service document, Water/Road Interaction: Introduction to Surface Cross Drains, publication No. 7700 – Transportation Systems, 2500 – Watershed and Ari Management, September 1998, 9877 1806 – SDTDC, found at http//www.stream.fs.fed.us/water-road/w-r-pdf/crossdrains.pdf. Water bars, or cross drains will be used for drainage control at short spaced intervals, therefore the roadside ditch sized to UDD-1 standards will be significantly over sized, however, it is felt that this is the best approach since the road will be for post mining land use. Adequate cover will be provided over all culvert crossings to prevent damage or collapse of the culverts and culverts have been designed and will be installed to prevent plugging, erosion at the culvert inlet or outlet, and any drainage over the road surface. The locations of all proposed ditches are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas Map, and ditch designs are included in R645-301-730, and in Exhibit 16, Runoff Control Design Details.

Operation and Maintenance - Operation and maintenance procedures for all mine roads are designed to provide a smooth operating surface, assure safety, and minimize dust emissions. Road maintenance will involve periodic grading to provide a smooth surface, remove rocks or debris, and maintain effective drainage; repair and resurfacing as necessary; inspection, clean-out, and repair of ditches and drainage structures; and watering or application of surfactants to control dust during dry periods. Generally, speeds on roads and in active operating areas will be limited to 15 miles per hour by posted speed limits both as a safety consideration and to minimize dust emissions from unpaved roads. In the unlikely event that any road is damaged by a catastrophic event such as an earthquake or flood, ~~CR~~ CEG3 will make appropriate repairs as soon as reasonably practicable and will limit the use of the road or provide an alternate access if unsafe conditions exist.

Description of Individual Structures - The following sections provide more detailed information for specific roads and associated structures:

Primary Road P1 will receive the most traffic, therefore it will be paved. The road will be crowned in the center with drainage flowing to the sides in both directions. The purpose of the cattle guard is not to control cattle, but to provide a drainage trench to catch runoff containing fines from the road, preventing them from being washed downgradient on the road and bypassing Sedimentation Pond 1. Below the cattle guard, drainage from the road will flow to ditches and sediment traps on both sides of the road as shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. For the remainder of Primary Road P1, the design will be as shown on Figure 25, Typical Primary Road Configurations for sloping terrain and level terrain.

All other roads will be constructed as shown on Figure 25, Typical Primary Road Configurations for sloping terrain and level terrain, and Figure 25A, Primary Roads P8 & P9 Configuration for roads P8 and P9.

534.130 Static Safety Factor for Roads

The Geotechnical Investigation, dated November 26, 2007 states on page 17 of 17,

"It is anticipated that fill slopes will be created with on-site materials. If this material is placed and compacted in accordance with recommendations provided in Section IV, fill slopes as steep as 1.5H:1V will have a factor of safety of at least 1.3 if constructed of the native clayey soils. Fill slopes shown on Sections A-A, B-B, and F-F will likely be constructed of this clayey on-site fill. Test pits in the vicinity of the fill areas shown on Sections C-C, D-D, and E-E encountered significant amounts of medium-dense silty sand. Fill slopes as steep as 1.8H:1V constructed of this silty sand material have a computed factor of safety of at least 1.3. Plots of stability analyses for typical fill slopes are included in the appendix."

In Addendum No. 1 to the Geotechnical Investigation, dated September 28, 2010, RB&G Engineers, Inc states,
"Note that the Direct Shear test on the sample of sandy lean clay which had a friction angle of 20 degrees also had cohesion of 15 psi. Two Triaxial Shear tests performed on samples of the lean clay had total stress friction angles of 29.6 and 32.5 degrees with 2 psi cohesion and effective stress friction angles of 36.0 and 36.7 degrees with 2 psi cohesion."

536 Coal Mine Waste

See discussion above under 528.320.

537 Regraded Slopes

Slopes have been designed according to the recommendations contained in Exhibit 14, Geotechnical Investigations.

537.100 Geotechnical Analysis

A geotechnical analysis was performed and the results are included in Exhibit 14, Geotechnical Investigations

537.200 Settled and Revegetated Fills

N/A – No spoil, or development waste will be used for fills.

R645-301-540 Reclamation Plan

R645-301-541 General

This section presents and describes reclamation plans and practices to be used to restore disturbed areas resulting from mining and related activities to productive self-sustaining use. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-500) for coal mine permitting in the State of Utah.

541.100 – 300 Reclamation of All Areas

Reclamation will be an integral part of the Kinney No. 2 Mine mining and related activities, however, because the mine will be an underground mine and the surface facilities and related surface disturbance areas will remain in place until the end of the mine life, mining and reclamation will not occur concurrently or, in the case of progressive mining activities, sequentially. Reclamation of surface disturbance areas will generally occur following the cessation of mining operations to complete the mining and reclamation cycle although ~~CR~~ CEG3 will implement temporary stabilization measures in certain areas following initial construction or during ongoing operations.

Objectives of the planned reclamation activities will be twofold; 1) For construction disturbance, temporary stabilization and contemporaneous reclamation will serve to stabilize disturbance areas, minimize erosion, and limit potential surface water impacts; 2) For long-term use areas, final reclamation is designed to restore disturbed areas to a safe, stable condition and to reestablish the productivity of the land consistent with the post mining land uses. The proposed post mining land uses of wildlife habitat, Carbon County Zone "Water Shed", and Commercial use on the Scofield Town portion reflects the predisturbance use of this and adjacent areas, existing land use plans and policies, the desires of affected surface landowners, and practical constraints relative to land use capability and condition. Specific land use considerations and constraints are discussed in R645-301-410, Land Use Information. The Kinney No. 2 Mine reclamation plan has been designed to successfully meet these objectives and will result in effective temporary stabilization, and a post mining configuration which blends with the surrounding terrain and provides environmental values consistent with or superior to those which existed prior to mining.

The Kinney No. 2 Mine reclamation plan has been developed utilizing available information on the existing environmental resources as described in R645-301-200, 300, 400, 600, and 700 Environmental Information. In addition, ~~CR~~ CEG3 has incorporated both available information on current successful reclamation technology and practices and their extensive operating experience in the area. While the plans presented in this permit represent what ~~CR~~ CEG3 feels to be the most effective reclamation practices for this site, it is important to note that successful reclamation must be a dynamic process, incorporating new information to optimize overall effectiveness. In order to meet the reclamation objectives these plans may be modified as appropriate to reflect changing conditions, revised regulatory requirements, advances in reclamation technology, and the results on ongoing research and experience relative to the long-term effectiveness of various reclamation practices. Any modification of the plan will be submitted to the UDOGM for approval and will be changed in the permit as required. Any future plan modifications will involve a logical sequence of activities designed to achieve the overall reclamation objectives in an organized progressive manner. The following represent the general steps for reclamation of any mine or mine related surface disturbance areas:

- Facility Demolition and Removal
- Stabilization and Sealing of Mine Openings
- Disposal of Non-Coal Wastes, and Mine Waste Materials
- Backfilling and Grading to Establish the Final Design Configuration
- Drainage Reestablishment
- Road Removal
- Removal and Reclamation of Sedimentation Ponds and Associated Structures
- Soil/Substitute Replacement
- Revegetation
- Soil and seed stabilization
- Post-Reclamation Management, Maintenance, and Monitoring
- These activities are discussed in detail in the following sections.

R645-301-542 Narrative, Maps, and Plans

This section describes the reclamation plans and maps.

The first phase of reclamation is shown on Map 29, Mine Surface Facilities Area, Post Mining Topography & Interim Drainage Control. This map shows the disturbed area reclaimed to interim post mining land use status, leaving in place Sediment Pond 1, Sediment Pond 1 access road, disturbed area ditches DE-3 and DE-4, which are necessary to carry runoff water from the reclaimed site to the pond during the first phase of reclamation liability, ditches UDD-1 and UDD-2, and culverts UDC-2 and CP-2, which are necessary to carry undisturbed area runoff from ditches UDD-1 and UDD-2. The area south of the post mining land use access road does not drain to the sediment pond, therefore, runoff from this limited area will be controlled with alternative sediment controls as discussed previously in this chapter, consisting of silt fencing, straw bales, sediment traps or berms. Map 29 will be the condition until the area is revegetated and stabilized adequately to warrant Phase II bond release.

Map 29 A, Mine Surface Facilities Area Post Mining Topography shows the final topography after reclamation, and establishment of vegetative cover and stabilization of the area warrants Phase III bond release. The map also shows that Sediment Pond 1, it's access road and ditches DE-3 and DE-4 have been reclaimed.

542.100 Timetable

The specific reclamation plans developed for the Kinney No. 2 Mine area and the proposed reclamation practices reflect the overall reclamation objectives, site specific conditions and constraints, and the best current reclamation techniques and methods. The following sections describe the timing and sequencing of reclamation activities, general reclamation requirements, and specific reclamation practices.

~~CR~~ CEG3 will reclaim mining related surface disturbance areas as soon as operationally practicable following completion of mining and related activities. For construction related disturbance, this commitment translates into regrading, establishment of effective drainage and sediment control, and temporary vegetation of the disturbed areas to stabilize these areas and prevent erosion or uncontrolled runoff.

With the exceptions of temporary stabilization of construction disturbance, other mining related disturbance areas are expected to remain in a disturbed condition until after the completion of mining and related activities. Reclamation of mine surface facilities areas following completion of mining will be initiated as soon as operationally feasible after mining ceases and no later than the next normal field season (typically May through October). It is anticipated that final reclamation would be completed within 24 months from the time the last coal is either produced or shipped from the property, whichever is later. Figure 36, Reclamation Timetable - Mine Facilities Area, outlines the specific sequence and anticipated timing of final site reclamation activities.

From a hydrologic standpoint reclamation must be completed in phases which include initial, interim and final reclamation. Initial reclamation will include the removal of all temporary surface runoff control facilities as illustrated on Map 24, with the exception of the following specific structures which will be utilized and or removed during interim and final reclamation.

Interim Reclamation

- Ditches UDD-1 & UDD-2 Remain
- Ditches DE-3 and DE-4 Remain
- Culvert UDC-2 Remains
- Culvert CP-2 Remains

- Sediment Pond 1 Remains
- Sediment Pond 1 Access Road Remains
- Road P9 adjacent to Ditch UDD-1 remains as it belongs to private property owner E.G Telonis ETAL
- Road P8 and Ditch UDD-1 remains as it belongs to the private property owners E.G. Telonis ETAL, and the Jones family property north of the mine site.
- Re-establish the irrigation ditch

Final Reclamation

- Remove Ditches DE-3 and DE-4
- Remove Sediment Pond 1
- Remove Sediment Pond 1 Access Road
- Ditch UDD-1 Remains
- Ditch UDD-2 Remains
- Culvert UDC-2 Remains
- Culvert CP-2 Remains
- Riprap Energy Dissipation Fan Remains
- Road P9 and Ditch UDD-1 remains as it belongs to private property owner E.G Telonis ETAL
- Road P8 and Ditch UDD-1 remains as it belongs to the private property owners E.G. Telonis ETAL, and to the Jones family property north of the mine site.

Final reclamation will involve removal of all mine related structures and facilities, closure and sealing of portals and mine openings, disposal of waste materials, backfilling and grading, drainage reestablishment, road removal, removal of Sediment Pond 1, placement of soil or substitute materials, revegetation, and soil stabilization. Roads P8 and Ditch UDD-1 will be constructed during reclamation to provide access to private property as discussed previously. Road P9 will remain as during mining to provide access to private property east of the mine site as discussed previously. Generally, soil/substitute replacement and revegetation efforts will be coordinated so that soil materials are revegetated as soon as practically possible following placement.

Following final reclamation of mine facilities areas, the facilities to remain for post mining land use include the roads P8 and P9, ditches and culverts shown on Map 29A, Postmining Topography. Interim drainage and sediment controls during the post-reclamation liability period will include alternative sediment control methods as the primary means of controlling erosion and sediment contributions. The Postmining Topography and Interim Drainage Control Map (Map 29), shows the drainage and sediment control features which will be retained during the reclamation liability period. Components of the interim drainage and sediment control plan are identified and discussed in detail in R645-301-730, Hydrologic Resource Protection and PHC. Upon receipt of a determination of final reclamation success and bond release from UDOGM for vegetation reestablishment and drainage restoration, the alternative controls will be removed. The alternative sediment controls will be installed prior to any reclamation activities and serve as a protective barrier at the lowest point of the disturbed area. The alternative sediment controls will remain in place during backfill/regrading operations, placement of soil material, reseeding, and re-establishment of vegetation as discussed above. Final site configuration for post mining land use is shown on Map 29A, Post Mining Topography.

542.200 Backfilling and Regrading

Information presented on the reclamation maps and cross-sections includes:

- Anticipated final surface configuration
- Postmining drainage features
- Location of any structures and facilities which will be retained as permanent structures following the completion of mining
- Any roads to be retained in conjunction with the post mining land use.

Additional discussions of the reclamation process and work is presented to follow:

542.300 Final Surface Configuration Maps & Cross Sections

542.400 Removal of Temporary Structures

542.500 Timetable for Removal of Water Impoundments

542.600 Roads

542.700 Final Abandonment of Mine Openings & 5-49 Disposal Areas

The above regulations, R645-542.300 through R645-542.700 are addressed as follows:

Beyond the general reclamation objectives of restoring disturbed areas to a safe, stable condition and reestablishing the productivity of the land consistent with the post mining land uses, this reclamation plan is designed to achieve the following specific operational and environmental objectives:

- Removal of Mining Related Structures and Facilities
- Eliminate Potential Hazards
- Establish a Stable Postmining Configuration
- Restore Effective Drainage
- Establish a Productive Self-Sustaining Vegetation Community

The following sections briefly describe important considerations and the rationale behind each of these specific objectives.

Establish a Stable Postmining Configuration

Following removal of mining related structures and facilities and closure and sealing of portals and mine openings the associated surface disturbance areas will be backfilled and regraded to establish a stable post mining configuration which blends with the surrounding terrain, provides for effective drainage, and is consistent with the post mining land use of wildlife habitat. Given that approximately 74% of the proposed disturbance area has been previously disturbed by pre-SMCRA mining, backfilling will be limited to the materials available consistent with applicable remaining provisions of the State of Utah Coal Mining Rules (R645-301-553.500 through 524). To the extent possible using all available material disturbed areas will be backfilled and regraded to blend with the surrounding terrain, and any exposed coal seams will be covered with a minimum of 4 feet of suitable cover material. The highwall remnant remaining at the pre-SMCRA Columbine Mine portal face-up area will be partially disturbed by the Kinney No. 2 Mine operations. This portal area was partially reclaimed by the UDOGM Abandoned Mine Reclamation Program in the 1980's. The south end of the old face-up area will be disturbed by Kinney No. 2 Mine operations

but this disturbance will only include a small portion of the old face-up disturbance and will not result in a new highwall. This new disturbance will be reclaimed to the approximate original contour as it exists at the beginning of the Kinney No. 2 Mine construction.

Restore Effective Drainage

In conjunction with final backfilling and regrading activities, permanent drainage features, designed to pass the peak flows from the 100-year, 6-hour event, will be established to effectively pass natural drainage through the reclaimed areas and provide for effective control of runoff from reclaimed areas while minimizing the potential for any significant erosion. The final configuration of the drainages will be essentially the same as the pre-mining condition as can be seen on Map 29A Mine Surface Facilities Area Post Mining Topography Map.

Establish a Productive Self-Sustaining Vegetation Community

Consistent with the post mining land use of wildlife habitat and Carbon County land use of Watershed, ~~CR~~ CEG3 will reestablish a self-sustaining vegetation community composed primarily of indigenous native species but also including adaptive introduced species as appropriate to provide for rapid reestablishment, productivity, and species diversity. Activities related to vegetative reestablishment will include replacement of available soil or substitute materials, addition of any necessary soil amendments, seedbed preparation, seeding with the appropriate revegetation seed mixture, and application of mulch or other erosion control materials to minimize erosion and provide an opportunity for initial vegetative establishment.

Hydrologic Monitoring

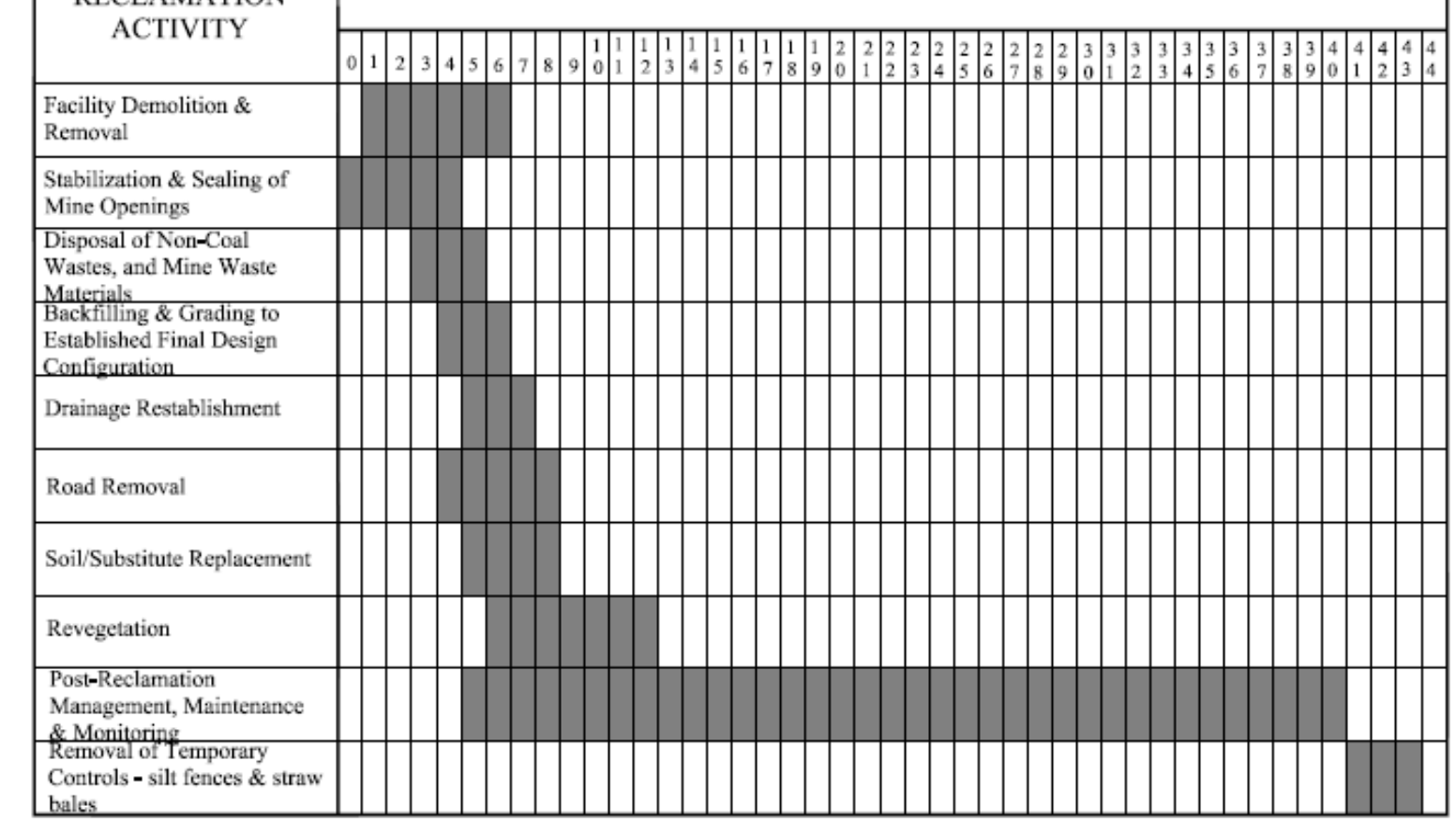
~~CR~~ CEG3 will continue its comprehensive program to monitor surface and groundwater quality and quantity over the duration of the proposed reclamation operations and through the extended liability period. Postmining hydrologic monitoring activities are outlined in R645-301-730, Hydrologic Resource Protection Plan and PHC. The reclamation phase monitoring compliance list is presented in Table 20, Hydrologic Monitoring Schedule.

~~CR~~ CEG3 currently maintains, and will continue, a program to monitor surface and groundwater quality and quantity for the duration of the proposed mining, processing, and reclamation operations. The Hydrologic Monitoring Plan consists of monitoring stations identified in Tables 6, Kinney No. 2 Mine Baseline Monitoring Stations, and 3.7-2, Kinney No. 2 Mine Operational Monitoring Stations, according to the parameter sampling schedule shown in Table 20, Hydrologic Monitoring Schedule. Baseline monitoring has been conducted as discussed in Chapter 7. Operational monitoring is planned to be conducted on a quarterly basis as follows.

Samples will be collected quarterly for parameters shown in Table 20, Hydrologic Monitoring Schedule, for all surface and ground water stations when the sites are accessible. At some sampling sites, winter conditions may create inaccessible or unsafe conditions. To help ensure as complete a data set as possible, first and fourth quarter samples will be collected during the time periods wherein there is the greatest likelihood of collecting a valid sample. This is believed to be in March and October respectively. Second and third quarter samples will be collected at a convenient time for the mine operator within the respective quarter.

RECLAMATION TIMETABLE

RECLAMATION ACTIVITY	QUARTER FOLLOWING COMPLETION OF MINING ACTIVITY
Facility Demolition & Removal	
Stabilization & Sealing of Mine Openings	
Disposal of Non-Coal Wastes, and Mine Waste Materials	
Backfilling & Grading to Established Final Design Configuration	
Drainage Restablishment	
Road Removal	
Soil/Substitute Replacement	
Revegetation	
Post-Reclamation Management, Maintenance & Monitoring	
Removal of Temporary Controls - silt fences & straw bales	



Kinney #2 Mine

Figure 36
RECLAMATION TIMETABLE
MINE FACILITIES AREA

DRAWN BY: KN DATE: 10/24/2018
CHECKED BY: AC DATE: 10/24/2018

CEG
6602 Ilex Circle
Naples, FL 34109

The monitoring program thus instated serves as an integral part of ~~CR's~~ CEG3's efforts to protect the hydrologic balance by providing an accurate and timely method of identifying and quantifying any possible concerns with respect to surface and ground water resources. The monitoring network is shown on Map 28, Surface and Ground Water Monitoring Sites. Table 6, Kinney No. 2 Mine Baseline Monitoring Stations, and Table 7, Kinney No.2 Mine Operational Monitoring Stations, when combined with Map 28, summarizes the type and location of monitoring sites. The frequency, density and accuracy of monitoring will allow ~~CR~~ CEG3 to evaluate and determine the success of mine plans, drainage and sediment control facilities, and reclamation for the purpose of minimizing disturbance to the hydrologic balance. The monitoring data and resulting evaluations will be used to identify any potential problems and develop necessary mitigation measures.

Facility Demolition and Removal

All existing structures and facilities and those structures and facilities constructed specifically to support the mining and related activities will be utilized and will remain in place until the mining and related activities which they support have been completed. At that time, all structures and facilities will be demolished or salvaged in order to reclaim the site and establish the post mining land uses.

At the current time the effective mine life is projected at 15 to 20 years, although mine life could be extended significantly with development of additional reserves to the east. Dependent on age and condition, much of the equipment which will be utilized for the mining and related operations, including conveyors and associated coal handling components, the primary crusher, process equipment, maintenance equipment, and some of the smaller prefabricated buildings or building components may be salvageable for continued beneficial use at the end of the mine life. Any equipment which is not salvageable will be dismantled and any buildings or other structures not salvaged will be demolished. Structures and facilities to be salvaged or demolished are identified in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements, under the subtitle of Mine Structures and Facilities.

Equipment and facilities to be salvaged will be dismantled and removed from the site by ~~CR~~CEG3, a buyer, or private salvage contractors. Disassembly and demolition of remaining equipment and structures will involve dismantling or cutting equipment, steel structures, and other large components into pieces which can be readily handled by mobile equipment; using heavy equipment, explosives; and cutting torches to break-up structural concrete members, exposed foundations, and masonry structures; ripping and removal of road surfacing materials; and removal of buried foundations and utilities to at least 2 feet below the design reclaimed surface. It is anticipated that all demolition debris except for concrete debris and road surfacing materials will be moved to one or more temporary storage areas from which the steel and other salvageable debris may be reclaimed for salvage and the remaining debris will be loaded into trucks for removal and off-site disposal in a permitted landfill facility.

Concrete debris resulting from facility demolition will be broken up into pieces small enough to be readily handled by mobile equipment and will be placed in deep fill area sites in the mine facilities area, at the toe of the deep cuts where it will be buried deep beneath the final surface, and where it will not be visible. These disposal sites have been selected to provide adequate disposal capacity for anticipated debris volumes at a level well above the normal water table. Proposed solid construction debris disposal sites include the following:

- Mine portal pad
- Office pad
- Operations pad
- Coal pile pad
- Loadout pad

The location of the designated disposal sites is shown on the Surface Facilities Map, (Map 13). Concrete and road surfacing materials will be placed in the designated disposal areas to minimize voids to the extent operationally practicable, a minimum of four feet of fill material will be placed over the disposal sites, and a tracked dozer or other heavy equipment will make multiple passes over the disposal area during cover placement to consolidate the debris.

Disposal of Mine Waste, and Non-Coal Waste

All non-coal wastes generated during the life of the mine will be collected and stored in appropriate containers and will be disposed of off-site by a licensed contract disposal firm as described in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements, under the subtitle of Non-Coal Waste Disposal. These disposal plans include any non-coal wastes remaining on completion of mining operations with the exception of concrete demolition debris as previously discussed.

Backfilling and Grading to Establish Final Configuration

Following completion of mining and related operations and subsequent facility removal and sealing of mine openings the associated surface disturbance areas will be backfilled and regraded. As previously noted in 540, Reclamation Plan, approximately 75% of the planned disturbance area has been disturbed by previous mining disturbance.

Backfilling and grading will involve selective placement of all reasonably available spoil material consistent with applicable regulatory provisions for backfilling and grading (R645-301-553 through 553.200), and previously mined areas (R645-301-553.500 through 524), and based on the following priorities:

1) Cover exposed coal seams, sealed mine openings, any coal mine materials, such as coal fines, or coaly materials and any solid waste disposal sites with a minimum of 4 feet of suitable material
2) Backfill and/or regrade disturbed slopes to establish a stable configuration which provides for effective drainage and minimizes erosion potential
3) Backfill and regrade steep cuts and highwall areas to eliminate cut or highwall exposures

The land configuration in the mine facilities area prior to development of the ~~CR~~ CEG3 Kinney No. 2 Mine operations is illustrated by the Mine Surface Facilities Area, Pre-Mining Topography Map, (Map 14). This map shows that the mine surface facilities area consists of a gently sloped area at the southwest portion of the area transitioning to a steep slope on the eastern and northern portions of the area. The area has an existing road running from the highway up the mountain on the south, and a road running northward through the area to the Smith property on the north. There is also an existing railroad grade along the west side adjacent to, and parallel to the highway. Portions of this railroad grade still has tracks remaining, and portions of the tracks and ties have been removed, but the general railroad grade remains. This railroad grade will not be impacted by Kinney No. 2 Mine operations and will be left as it exists in it's pre-mining configuration except for a short (approximately 100 feet) at the southern end of the tracks. As discussed previously approximately 75% of the area to be used by ~~CR~~ CEG3 has previously been disturbed by historic coal mining. Of this area a majority of the previously disturbed area was reclaimed by the UDOGM Abandoned Mine Reclamation program in the 1980's.

The designed post mining configuration for the facilities area is based on utilization of all available spoil material to achieve the stated reclamation objectives within the constraints of site topography, drainage considerations, and the noted backfilling and regrading priorities. The limits of available fill material were determined by identifying from the available mapping, topsoil pits, trenches, and the geotechnical boring logs. Final backfilling and grading of the mine surface facilities area will require the movement of a total of approximately 221,877 cubic yards of material. Comparison of the land configuration prior to site development with the designed post

mining topography based on the Mine Surface Facilities Area Pre-Mining Topography Map, (Map 14), the Postmining Topography Map, (Map 29A), and the Mine Surface Facilities Area Premining and Postmining Cross-Sections, (Map 16), indicates that the designed post mining topography will result in stable slopes, reduce cut exposures, provide for more effective drainage, and offer better blending of the area with the surrounding terrain. Reclamation Contours have been prepared to match as closely as possible those that existed prior to disturbance. A considerable volume of pre-SMCRA coal exists in the mine area from historic mining. These coal fines have primarily been removed from their operational locations by the UDOGM AML reclamation project and placed in low lying areas and covered by reclamation soils. Kinney No. 2 Mine soils investigations and geotechnical investigations have identified some of this pre-SMCRA coal material, but identifying all of this material is not possible. Based on calculations from the previously mentioned investigations, it is estimated there are approximately 12,000 tons of coal fines that will be encountered during construction of the mine facilities. This material will be removed and sold as discussed previously, and will not be used for final reclamation. This reduced volume will result in a slightly lower overall land surface upon final reclamation. The final reclamation land surface can be seen on Map 29A, Postmining Topography Map and on Map 16 through 19, Premining, Mining & Postmining Cross-Sections.

During final backfilling and grading operations, drainage and sediment will be controlled by the interim drainage system or by site-specific alternative sediment control practices.

Backfilling and grading will involve the use of tractor scrapers, tracked dozers, trackhoes, wheel loaders, trucks, and motor graders, as necessary to recover, move, place, grade, and compact backfill materials. Generally, backfill material will be placed in relatively uniform lifts and will be compacted by normal equipment traffic. Backfilled areas will be sloped and graded to promote effective drainage and to the extend operationally feasible long unbroken fill slopes will be avoided to minimize sheet flow and potential resultant erosion. Fill slopes will replicate the pre-mining slopes generally, and graded slopes in native material will vary dependent on material from less than 5H:1V to as much as 0.5H:1V in competent rock consistent with slope stability considerations as documented in Exhibit 14, Geotechnical Investigations. Recommended slope limitations for final cut and fill slopes will result in slope configurations having a static factor of safety of at least 1.3. The designed safety factor for any benched slopes is 1.5.

Graded areas will incorporate undulations consistent with the surrounding terrain and the post mining drainage configuration and the surface of graded areas will be left in a roughened condition to minimize runoff and erosion in the interim before soil/substitute replacement, improve bonding between the regraded surface and soil/substitute materials, and increase infiltration to maximize soil moisture levels and promote revegetation. Two different methods of backfill placement will be utilized based on the slope of the surface. Where slopes are steeper than 30% as shown on Map 33, Slope Analysis Map, soil materials will be placed with trackhoes, dozers, and similar equipment due to safety requirements. Areas where the slope is less than 30% as shown on Map 33, Slope Analysis Map, backfill materials will be placed with scrapers, dozers and similar equipment where safety requirements dictate. As noted in R645-301-500, Reclamation Practices, the regraded surface will be left in a roughened condition to control runoff, provide a good bond with the replaced topsoil/substitute material, and promote moisture infiltration. Prior to topsoil replacement, regraded surfaces will be deep ripped in the less than 30% slope areas to alleviate compaction and enhance soil bonding. In the areas where the slope is greater than 30% as shown on Map 33, Slope Analysis Map, the regraded surface will be roughened and loosened to provide a good bond with the replaced topsoil/substitute material and promote moisture infiltration.

Under the applicable regulatory provisions dealing with remining of previously mined areas (R645-301-553.500 through 524), the planned backfilling and grading operations will utilize all available spoil material to eliminate remaining highwall and cut slope exposures to the maximum extent technically practical. Fill material placed against highwall and cut slope areas will be placed and graded to assure long-term stability and final slopes will provide for effective drainage and be compatible with both natural slopes in the area and the post mining land use of

wildlife habitat, and watershed.

Drainage Reestablishment

In conjunction with final backfilling and grading activities, ~~CR~~ CEG3 will establish a post mining drainage configuration which is compatible with the natural drainage pattern of the surrounding terrain, will effectively route natural drainage from up gradient areas through the reclaimed area with minimal erosion or increase in sediment concentrations, and will effectively control drainage and erosion in the reclaimed areas. The designed post mining drainage configuration is shown by the Postmining Topography Map, (Map 29A). Permanent diversions carrying undisturbed drainage have been designed and will be constructed through the reclaimed area to route undisturbed flow to the west. Additional discussion of post mining drainage reestablishment is provided in R645-301-700, Hydrologic Restoration.

Road Removal

Certain roads within the mine facilities area will continue to provide access to specific areas during both reclamation and the extended liability period, although most roads will be removed and reclaimed during final site reclamation. Generally, the primary access roads will be removed and reclaimed in two phases. The first phase will involve ripping of these roads and removal of the associated road surfacing materials. This phase will occur in conjunction with facility demolition and removal and the surfacing materials removed will be placed in the designated solid waste disposal areas as previously discussed. The second phase of road removal for primary roads will be sequenced to coincide with backfilling and grading of the areas that the roads either provide access to or pass through. When roads are no longer needed, they will be removed and the associated disturbance areas will be regraded and reclaimed. The post mining roads to remain for post mining land use are shown on Map 29A, Mine Surface Facilities Area Post Mining Topography q Map. These roads provide access to private property in the mining area and the area east of the mining area, and to private property north of the mine area.

Road reclamation will generally involve the use of tracked dozers and trackhoes to rip the road surface and grade any surfacing material into piles which will normally be recovered by wheel loader and either hauled directly or loaded into trucks for haulage to one of the designated disposal areas. Road surfaces will then be ripped to alleviate any compaction and the road area will be graded to blend with surrounding reclaimed areas. Steep slope area roads (>30%) will generally be reclaimed with trackhoes. During final grading, any culverts will be removed and transported to a temporary steel debris storage site for either salvage or disposal off-site.

Cut/fill areas will be reclaimed by pulling the fill material upslope into the cut and grading any remaining cut slope, the fill material, and disturbed downslope areas to a stable configuration consistent with natural drainage patterns and blending with the surrounding terrain. Any major road cuts will be reclaimed by partially backfilling the cut and grading any remaining cut slope exposures so that they are stable as described in the backfilling and grading plan discussion. Any major road fills which would interfere with post mining drainage will be removed and the associated disturbance areas regraded in conjunction with overall site grading activities.

Soil/Substitute Replacement

Following completion of backfilling, grading, and drainage reestablishment, available topsoil material will be replaced on the regraded areas as a growth medium for subsequent revegetation. Soil will be replaced as soon as operationally practicable following completion of the other necessary activities in the reclamation sequence, however, the timing of soil placement will also reflect the need to reestablish vegetation as soon as possible to stabilize and prevent loss or erosion of the topsoil. Two different methods of topsoil placement will be utilized based on the slope of the surface. Where slopes are steeper than 30% as shown on Map 33, Slope Analysis Map, topsoil materials will be placed with trackhoes, dozers, and similar equipment due to safety requirements. Areas where the slope is less than 30% as shown on Map 33, Slope Analysis Map,

topsoil materials will be placed with scrapers, dozers and similar equipment where safety requirements dictate. As noted in R645-301-500, Reclamation Practices, the regraded surface will be left in a roughened condition to control runoff, provide a good bond with the replaced topsoil/substitute material, and promote moisture infiltration. Prior to topsoil replacement, regraded surfaces will be deep ripped in the less than 30% slope areas to alleviate compaction and enhance soil bonding. In the areas where the slope is greater than 30% as shown on Map 33, Slope Analysis Map, the regarded surface will be roughened and loosened to provide a good bond with the replaced topsoil/substitute material and promote moisture infiltration. For a complete discussion of topsoil and substitute topsoil removal and replacement refer to Chapter 3, Soils.

542.800 Reclamation Costs

Consistent with applicable regulatory provisions (R645-301-542.800 and R645-301-800) which require that reclamation bonding calculations be based on an approved reclamation plan, ~~CR~~ CEG3 has developed a detailed reclamation cost estimate based on the preliminary UDOGM determination that the reclamation plan is acceptable. The detailed estimate includes costs for all activities described in the approved plan with specific consideration of the areas to be reclaimed and the nature and difficulty of required reclamation efforts. Additional information on the reclamation cost estimate and related bonding considerations is provided in R645-301-820, Bonding Information, and the detailed bond reclamation cost estimate has been provided for insertion as Exhibit 18, Bonding and Insurance Information.

R645-301-550 Reclamation Design Criteria and Plans

R645-301-551 Casing and Sealing Underground Openings

On completion of mining and related activities, all mine openings including portals, shafts, raises, boreholes, and wells will be stabilized if required and sealed unless they are to be utilized for ongoing monitoring or in conjunction with the post mining land use. Currently, no mine openings are anticipated to be left for post mining use. If any mine openings are needed for post mine use, they will be permitted separately as needed in the future by revising the permit as required by the UDOGM regulations. Methods and requirements for sealing wells and boreholes are presented and described in R645-301-630, Geologic Protection Plans.

Current plans call for five underground mine openings (the five main portals). These openings will be permanently sealed on completion of mining to prevent access to the underground workings and, in the case of the mine openings, to provide an effective hydraulic seal to prevent surface drainage and infiltration through the backfill from entering the underground mine workings. Portals will be sealed and stabilized by constructing a concrete block wall a minimum of 25 feet in-by the portal openings. The two layer thick solid block wall, which will be constructed as illustrated by Figure 37, Typical Portal Seal, will be keyed into the mine entry at least 6 inches on all sides and, for the mine portals, an MSHA approved sealant will be applied to the outer surface of the barrier to provide a positive water seal. The location of the seals can be found on the Typical Portal Cross Section & Detail Looking South on Map 17, Mine Surface Facilities Area Pre-Mining, Mining and Post Mining Cross Sections for a typical detail. As required by 30 ~~CRF~~ CFR 75.1711, the portals will be backfilled with a minimum of 25 feet of backfill from the seals to the surface.

In order to assure the long-term integrity of the mine portal seals, CR, as part of the MSHA roof control plan, will maintain adequate barrier pillars and will utilize appropriate roof support

including timber or concrete cribs, posts, roof bolts, trusses, or other supports to minimize subsidence and collapse or caving of the mine workings in the vicinity of the portal seals. Once the portals seals are in place, the remaining void space between the seals and the portal opening will be backfilled using a LHD or small backhoe to assure proper backfill placement.

R645-301-552 Permanent Features

Removal of Mining Related Structures and Facilities

Given that the proposed mining and related surface structures are not generally compatible with the proposed post mining land uses of wildlife habitat and watershed, these structures and facilities will be removed following completion of mining. All, or portions of the surface facilities may be reclaimed at any given time dependent on the location and nature of potential future mining operations in this general area. When surface facilities are no longer required to support ongoing mining and related operations they will be removed and the associated surface disturbance areas reclaimed.

Mine structures will be removed and associated disturbance areas reclaimed, effectively eliminating any potential associated hazards. As part of the final reclamation activities, all portals and other mine openings will be stabilized, sealed, and the associated disturbance areas backfilled, graded, and reclaimed. Similarly, steep slopes and highwall areas will be partially or fully backfilled, regraded, and reclaimed eliminating or minimizing potential related hazards as discussed previously.

The reclamation practices described in this section reflect ~~CR's~~ CEG3's detailed review of information on the existing site configuration and environmental values, consideration of site reclamation potential and any important limitations, and application of the best current reclamation technology and both ~~CR's~~ CEG3's and other coal operators extensive operating experience in this area. The following sections provide a detailed description of the specific reclamation practices proposed for surface disturbance areas associated with the Kinney No. 2 Mine.

R645-301-553 Backfilling and Grading

Refer to discussion in previous sections.
A typical cross section of the portal area is included in on Map 17, Mine Surface Facilities Area, Pre-Mining, Mining & Post Mining Cross Sections B-B".

553.100 Disturbed Area

Refer to discussion in previous sections.

553.120 Elimination of Highwalls

The mine portals will be designed to be stable and to prevent runoff water from entering the mine. Refer to the Typical Portal Cross Section & Detail Looking South on Map 17, Mine Surface Facilities Area Pre-Mining, Mining and Post Mining Cross Sections for a typical detail. The portals will all be similar in design, except the portal used for the ventilation fan may be somewhat different to accommodate the temporary fan that will eventually by moved to a more remote location.

The structural geology "attitude" of the coal seam in the portal block is well established with

multiple drill hole intercepts. This is clearly shown on Figure 5, Hiawatha Top Structure and Figure 6, W-E X-Section A-A' (Chapter 6) which show the Hiawatha Seam within the Portal Block dipping East N-East at approximately 4 degrees which mirrors the "regional dip".

Interestingly, the attitude of the very near surface, outcrop, of the Hiawatha Seam and indeed all of the strata have experienced "creep" where the weathered material down to a depth of approximately 20 feet have slid down the hillside through time. That is, the coal outcrop that may be exposed with a shovel only one or two feet beneath the surface has been displaced by as much as ten feet down-hill. A profile cut by track hoe demonstrates that one has to excavate at least ten and in some cases twenty feet to find coal, and the other strata, in-place and demonstrating the attitude of the bedrock.

The fortuitous combination of East North-East bedrock "regional" dip and a near surface "creep" phenomenon causing the dip in that near surface material to reverse and dip west. This causes a "crest" in the profile of the coal seam. It is possible that excavation of the portal bench will cut deep enough into the outcrop to place the portal at the crest which would cause water to run east from the crest, down the regional dip slope and water west of the crest to drain westward. Even if we are not lucky enough to have the crest end up at the optimum location it will be easy to "grade the entry-ways up to the East to create a local crest in each entry that would prevent water from outside the mine draining into the mine and certainly water from inside the mine cannot drain to the outside due to the regional dip.

There are no old mine workings, or portals in the area of the proposed Kinney No. 2 Mine portals. If for any reason, old portals or mine openings are encountered they will be sealed according to the plan presented elsewhere in this permit, and in compliance with MSHA requirements. All cuts and highwalls at the portal area will be reclaimed and the post mining surface will be returned to the approximate original contour. Any exposed coal seam at the outcrop will be covered with a minimum of 4 feet of non-combustible backfill.

As shown on Map, 14, Mine Surface Facilities, Pre-Mining Topography Map, and on Map 33, Slope Analysis Map a remnant highwall remains at the old Columbine Mine portal face-up. This remnant highwall will be partially impacted (approximately 50%) by Kinney No. 2 Mine construction. The portion impacted by the Kinney No. 2 Mine will be reclaimed as discussed in 553.500 of this chapter.

553.130 Reclaimed Area Static Safety Factor

The Geotechnical Investigation, dated November 26, 2007 states on page 17 of 17:

"It is anticipated that fill slopes will be created with on-site materials. If this material is placed and compacted in accordance with recommendations provided in Section IV, fill slopes as steep as 1.5H:1V will have a factor of safety of at least 1.3 if constructed of the native clayey soils. Fill slopes shown on Sections A-A, B-B, and F-F will likely be constructed of this clayey on-site fill. Test pits in the vicinity of the fill areas shown on Sections C-C, D-D, and E-E encountered significant amounts of medium-dense silty sand. Fill slopes as steep as 1.8H:1V constructed of this silty sand material have a computed factor of safety of at least 1.3. Plots of stability analyses for typical fill slopes are included in the appendix."

In Addendum No. 1 to the Geotechnical Investigation, dated September 28, 2010, RB&G Engineers, Inc states,

"Note that the Direct Shear test on the sample of sandy lean clay which had a friction angle of 20 degrees also had cohesion of 15 psi. Two Triaxial Shear tests performed on samples of the lean

clay had total stress friction angles of 29.6 and 32.5 degrees with 2 psi cohesion and effective stress friction angles of 36.0 and 36.7 degrees with 2 psi cohesion."

A copy of the Geotechnical Investigation report, and Addendum No. 1 can be found in Exhibit 14.

553.200 Spoil and Waste

Evaluation of coal roof and floor materials and overburden/interburden materials indicates no significant toxicity concerns relative to these materials. As described in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements, under the subtitle of Non-Coal Waste Disposal, all non-coal wastes will be collected and stored in appropriate containers and will be disposed of off-site by a licensed contract disposal firm. These disposal plans include any non-coal wastes remaining on completion of mining operations with the exceptions of concrete demolition debris and road surfacing materials resulting from facility removal which will be placed and buried in the deepest cut areas of the reclaimed area. Off-site disposal of most non-coal wastes and the planned disposal measures for demolition debris will effectively eliminate any potential associated hazards.

The portals will be designed to be stable and to prevent runoff water from entering the mine. Refer to the Typical Portal Cross Section & Detail Looking South on Map 17, Mine Surface Facilities Area Pre-Mining, Mining and Post Mining Cross Sections for a typical detail. The portals will all be similar in design, except the portal used for the ventilation fan may be somewhat different to accommodate the temporary fan that will eventually by moved to a more remote location. According to the best information available, the coal seam dips away from the outcrop, which will prevent any in-mine water from flowing out of the mine. The geology of the actual outcrop may be different depending on how much surface slump has occurred, however, ~~CR~~ CEG3 will take precautions as needed to prevent water from exiting or entering the mine.

There are no old mine workings, or portals in the area of the proposed Kinney No. 2 Mine portals. If for any reason, old portals or mine openings are encountered they will be sealed according to the plan presented elsewhere in this permit, and in compliance with MSHA requirements.

553.250 Refuse Pile & 553.260 Disposal of Coal Processing Waste

Refer to discussion in previous sections. No coal washing facility (preparation plant) is planned at the Kinney No. 2 Mine. However, due to a specific interpretation of the Utah Coal Mining Rules (R645-100) stacking, crushing, screening, and general handling of coal may inadvertently produce coal processing waste. All materials falling into this category will be temporarily stored in the temporary coal processing waste pile then sold as distressed coal and shipped to the Arch Coal Washing Facility on Ridge Road south of Price, UT.

Any coal mine waste remaining from the UDOGM Abandoned Mine Reclamation work completed in the 1980's that is encountered during reclamation of the Kinney No. 2 Mine will be buried a minimum of four feet deep in deep cuts.

553.300 Exposed Coal Seams

Exposed coal seams will be backfilled completely leaving no exposed coal. Backfill will be placed a minimum of 4 feet above the coal seam, thus preventing spontaneous combustion at the outcrop. See the Typical Portal Cross Section & Detail Looking South on Map 17, Mine Surface

Facilities Area Pre-Mining, Mining and Post Mining Cross Sections for a typical detail.

553.400 Cut and Fill Terraces

No cut and fill terraces will be utilized at the Kinney No. 2 Mine.

553.500 Previously Mined Areas & 553.600 Approximate Original Contour

The Kinney No. 2 Mine area was mined by several mining companies as discussed in other sections of this permit application. These mining operations left numerous roads, operations areas and structures in the area, as well as a highwall remnant at the old Columbine Mine portal area. This area was reclaimed by the Utah AML program in the 1980's, however, the highwall remnant was not fully reclaimed, leaving a near vertical face of exposed rock and soils.

Due to previous mining and other disturbance of the area there is not sufficient available spoil to completely backfill this highwall remnant, and the other old mining roads and disturbances. Given that the Kinney No. 2 Mine development activities effectively constitute remining of the previously disturbed areas which included a preexisting highwall remnant, and other roads and disturbances, under the applicable regulatory provisions dealing with remining of previously mined areas (R645-301-553.500 through 524). Since the requirements of Rule R645-301-553.500 apply, a variance from the AOC restoration requirements is not necessary. The disturbed area for the Kinney No. 2 Mine will be reclaimed to the approximate original contour as it exists as of December, 2007, the state it was left in by the Utah AML reclamation project, including the highwall remnant.

553.700 Backfill and Grading Thin Overburden

Not applicable as the Kinney No. 2 Mine is an underground mine.

553.800 Backfill and Grading Thick Overburden

Not applicable as the Kinney No. 2 Mine is an underground mine.

R645-301-560 Performance Standards

The Kinney No. 2 Mine will be operated in accordance with the approved permit and requirements of R645-301-510 through R645-301-553.

Chapter 6

R645-301-600 GEOLOGY

Kinney No 2 Mine

Table of Contents

R645-301-600 Geology 1
R645-301-610 Introduction 1
R645-301-611 General Requirement 1
R645-301-612 Cross Sections, Maps and Plans 1
R645-301-620 Environmental Description 1
R645-301-621 General Description 1
R645-301-622 Cross-Sections, Maps and Plans 2
622.100 – 300 2
622.400 Oil and Gas Wells 2
R645-301-623 Geologic Information 3
623.100 Chemical Characteristics of Coal and Associated Strata 3
R645-301-624 3
R645-301-623.200 7
R645-301-623.300 7
R645-301-624 Geologic Description 7
624.100 Description of Geology 7
Regional Geology 8
Topography 8
Stratigraphy and General Lithology 8
Structure 9
Structural Features and Controls 11
Faults 11
Mining Blocks 12
Joints 13
Stratigraphy and Lithology 13
Flat Canyon Seam 14
U.P. Seam 14
Colombine Seam 14
Spring Canyon Member, Starr Point Sandstone 14
Hiawatha Seam 14
McKinnon Seam ..... 14~~15~~

Haley Seam 15
Immediate Roof and floor of the Hiawatha Seam 15
Strata from Hiawatha Seam to Top of Blackhawk Formation 15
624.130 Sources of Geological Information 15
624.200 Underground Coal Mining and Reclamation Activities 17
624.210 Lithologic Logs and Material Analyses 17
R645-301-624.310 18
Ground Water Occurrence 18
FAULTS and "VADOS ZONE SPRINGS" 18
624.220 and 624.230 Please refer to 623.100 24
624-300 Underground Coal Mining and Reclamation Activities 24
624-310 Please refer to 624.210. 24
624-320 and 624-330 Please refer to 623.100 24
624-340 Please refer to 624.100 24
R645-301-627 Overburden Thickness and Lithology 24
Coal and Overburden/Interburden Characteristics 25
Physical Properties of Coal/Overburden/Interburden 25
R645-301-630 Operation Plan 27
631 Plans for Casing and Sealing Exploration Holes 27
632 Subsidence Monitoring 27
R645-301-640 Performance Standards 27

R645-301-600 Geology

R645-301-610 Introduction

This section describes existing geologic conditions, resources, and features within the permit and adjacent areas that could potentially be affected or impacted by the mining and reclamation activities. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-600) for coal mine permitting in the State of Utah.

R645-301-611 General Requirement

Specifically, this section addresses rules R645-301-100 and R645-301-621 through R645-301-642.

R645-301-612 Cross Sections, Maps and Plans

All cross sections, maps and plans as required by R645-301-622 have been prepared and certified as described under R645-301-512.100.

R645-301-620 Environmental Description

R645-301-621 General Description

The geology of the permit area is dominated by relatively flat-lying, interbedded sedimentary units chopped into Basin and Range style North-South Horst and Grabens which control the N-S elongate valleys and long skinny flat topped ridges (plateaus).

The rather large number of faults has formed a series of mining blocks separated by vertical distances created by the throws on the mostly normal faults. These faults dictated the lateral limits of historic mining. The previous mine operators chose not to cross the larger faults (in excess of 90 feet) instead stopped mining against the faults. In order for ~~Carbon Resources~~Coal Energy Group 3 to reach the remaining reserves, a number of large fault crossings will have to be completed.

The Cretaceous Blackhawk Formation is the principal coal-bearing formation. Coal seams include, in ascending order, the Flat Canyon, UP, Columbine, Hiawatha, McKinnon, and Haley. The Hiawatha Seam is the only mineable coal seam within the permit boundary. The other two seams of mineable thickness (UP and Columbine) have already been mined. The Hiawatha Seam has also been mined over a large portion of the permit area. However, a fortuitous East-West elongate corridor of Hiawatha Seam Coal remains unmined. This corridor of unmined coal apparently was not mined because of a rock parting that may have rendered this local area less appealing to historic mine operators because of the high ash content of the coal where this parting is present. The parting appears to be a very small, mid to late swamp, channel that meandered through the swamp and deposited some mud and clay (possibly sand and silt also) in a sinuous East-West trending pattern.

A corridor of unmined coal, between old workings, approximately 600 feet wide is planned to be used as the access point in to the deposit. This corridor is clearly high and dry, relative to ground water. Data from the eleven monitor well completions makes a compelling case and when coupled with the structural data helps explain the position of the water table relative to the seam to be mined.

Based on chemical analysis of coal, roof, and floor samples, overall sulfur content is relatively low, typical of the Hiawatha Seam in this region. However, sulfur in the coal demonstrates a bi-modal distribution. That is, organic sulfur is responsible for the background sulfur values of approximately 0.5% and presence of pyritic sulfur is obviously responsible for driving the sulfur content to over 1% in some local areas. Acid producing potential is considered generally low and the neutralization capacity of the roof and floor rock is relatively high due to the presence of significant quantities of calcium carbonate as the nearly exclusive matrix in the sandstones and mudstones and as a common cleat filling. This results in a relatively high neutralizing capacity and acid-forming potential. Similarly, chemical analysis generally indicates low concentrations of most potentially toxic metals and low alkalinity producing potential. The chemical analysis results and subsequent conclusions are generally consistent with chemical analysis of coal waste materials from previous mining operations involving production from the same coal seams in the area.

R645-301-622 Cross-Sections, Maps and Plans

622.100 – 300

Information presented on the geology maps, cross-sections, and isopachs include:

- Locations and elevations of drill sites and core holes
- Major structural features
- Depth, thickness designations, and outcrop locations of the Hiawatha Coal Seam (the seam to be mined)
- Dip and strike of major formations and Hiawatha Coal Seam
- Areas of coal previously mined out
- Location and depth of groundwater where encountered during exploration drilling

622.400 Oil and Gas Wells

There are no oil and gas wells, and no planned exploration drill holes within the Portal Block Permit Boundary.

Consistent with applicable provisions of R645-301-512, geologic maps and cross-sections have been prepared under the direction of, and certified by a qualified, registered engineer or land surveyor with assistance from experts in the related field.

R645-301-623 Geologic Information

623.100 Chemical Characteristics of Coal and Associated Strata

As part of the 2006 Drilling Program coal core samples were analyzed for a variety of parameters including: Moisture, Ash, BTU, Sulfur, Volatile Matter, Fixed Carbon, Acid Potential (TCaCO3/1000T), Ash Fusion Temperatures. Ash Mineral Analysis includes, Ash Type, Specific Gravity, multiple Trace and major elements and others. Immediate roof and floor rock samples were separated and analyzed for toxic-metals and acid forming materials. The non-confidential portion of these data are located in Exhibit 19, 19(Geologic Information, Roof and Floor Analysis). The confidential portions of said data were submitted previously and reside in the DOGM library as Confidential Information under R645-300-124.

R645-301-624

Table 4 (List of Roof & Floor Samples & w/ Data from Acid Forming and Neutralization Potential Analyses) presents the Acid Potential and the Neutralization Potential in samples taken from the Roof and Floor of the Hiawatha Coal Seam. These data are available to be used in Acid-Base Accounting (ABA) which is a common static test developed to evaluate coal mine waste (Sobek et al. 1978).

The acid production potential (APP) or Acid Potential, as shown on lab analysis from SGS, is determined from the Total sulfur content per the formula 31.25 X Percent Total S = APP. This formula assumes that two moles of acid will be produced for each mole of sulfur. Units for APP are metric tons of CaCO3 required to neutralize the acid potential in 1,000 metric tons of the rock material being tested. This method should be referred to as the MAXIMUM Acid forming potential because all three forms of sulfur present in sedimentary rocks are summed together as Total Sulfur; Organic, Pyritic, and Sulfate. Pyritic Sulfur is the only form clearly demonstrated to contribute to the acid forming potential. Sulfate has already reached its highest oxidation state and should not enter into the calculation. Data are unclear as to the role of organic sulfur, if any. This method, therefore, very conservative and likely overstates the APP.

The Neutralization Potential (NP) is determined by a simple titration where a standard sample (grind and weight) is treated with hydrochloric acid then the sample is boiled until the reaction stops. The resulting solution is back titrated to pH7 with sodium hydroxide to determine the amount of acid consumed in the reaction between hydrochloric acid and the sample. Units for NP are also metric tons of CaCO3 per 1000 metric tons of material.

The net Neutralization Potential (NNP) is arrived at by subtracting the APP from the NP.
Table 4 presents data from core collected in 2006 with 18 of the 24 analysis being completed in 2006. A wide range of analyses were performed on these samples including "Acid Potential". Six additional samples were retrieved from archived core from the same 2006 drilling program as were the other 18 samples. These six samples were analyzed during August 2010 and included both "Acid Potential" and "Neutralization Potential". All analyses were performed at SGS Denver laboratories and the lab reports are contained in Exhibit19, Geological Information, Roof and Floor Analyses.

These data do not include "Sulfur Forms" which data is held in confidential section,

however, a washability study was performed on coal from drill holes completed in the 1970's and concluded that Pyritic Sulfur accounted for that portion of Total Sulfur when the Total Sulfur values exceed approximately 0.50% in the Hiawatha Coal Seam. It is expected that a similar threshold also exists for Roof and Floor Rock considering the equivalent depositional environment.

TABLE 4

LIST OF ROOF & FLOOR SAMPLES W/ DATA from ACID FORMIING AND NEUTRALIZATION POTENTIAL ANALYSES

			FOOTAGE					Acid Production Potential*	Neutralization Potential	Net
Drill Hole	Seam Site	Sample	From	To	*Saturation %*	*PH su*	*EC mmhos /cm*	Tons CaCO3 /1000Tons Material	Tons CaCO3 /1000Tons Material	Neutralization Potential
CR-06-01	HIA Roof	5B/5	75.6	76.4				4.91		
CR-06-01	HIA Roof	5C/5	76.4	76.9	*42.33*	*6.91*	*6.62*	7.50		
CR-06-01	HIA Roof	6/5	78.5	79.0	*56.45*	*3.74*	*9.37*			
CR-06-01	HIA Roof	1/6	78.2	78.8				9.38		
CR-06-01	HIA Floor	1/7	87.5	89.3		6.1	2.5	19.10	4.00	-15.10
CR-06-02	HIA Roof	1B-17	426.6	427.5				2.19		
CR-06-02	HIA Roof	2/17	427.5	428.2	*35.93*	*7.59*	*7.51*	5.36		
CR-06-02	HIA Floor	3/18	436.7	437.1	*57.68*	*4.08*	*11.56*			
CR-06-05	HIA Floor	2/1	1,043.0	1,043.5	*54.08*	*7.24*	*1.00*	13.44		
CR-06-05A	HIA Roof	6/1	1,031.9	1,033.7		8.1	1.5	2.50	43.00	40.50
CR-06-05A	HIA Roof	8/1	1,034.3	1,035.3	*42.40*	*7.17*	*8.23*	14.69		
CR-06-05A	HIA Roof	1/2	1,036.0	1,036.3	*55.35*	*7.13*	*0.80*	21.25		
CR-06-05A	HIA Floor	11/2	1,045.3	1,045.7				15.63		
CR-06-05A	HIA Floor	12/2	1,045.7	1,046.7		4.1	4.4	11.10	0.05	-11.05
CR-06-09	HIA Roof	3/1	990.7	991.7		6.3	3.6	23.70	38.90	15.20
CR-06-09	HIA Roof	4/1	991.7	992.5		4.4	5.4	40.10	21.10	-19.00
CR-06-09BLW	HIA Roof	8/2	987.8	988.7	*50.65*	*6.67*	*4.68*	25.31		
CR-06-09BLW	HIA Roof	9/2	988.7	989.4				16.56		
CR-06-09BLW	HIA Floor	6/3	1,001.3	101.8	*51.91*	*5.03*	*6.62*	30.00		
CR-06-10	HIA Roof	8/3	1,208.3	1,210.3				3.60	7.70	4.10
CR-06-10	HIA Roof	9A/3	1,210.3	1,210.7	*51.83*	*7.07*	*2.60*	11.56		
CR-06-10	HIA Roof	9B/3	1,210.7	1,211.3				1.25		
CR-06-10	HIA Roof	10/3	1,211.3	1,244.8	*53.14*	*6.64*	*2.45*	13.75		
CR-06-10	HIA Floor	3/4	1,222.5	1,223.0	*42.75*	*5.86*	*5.48*	47.50		
AVERAGE					49.54	6.13	4.96	15.47	19.13	2.44
COUNT	24				12	17	17	22	6	6

Highlighted Samples were taken from archived core analyzed August 2010

* Represents "Maximum" or Ultimate Possible Acid Forming Potential.

Italicized Values, Samples were analyzed in 2008 as paste from pulp of samples previously analysed in 2006 @ SGS Labs

Approximately 12,000 cubic yards (CY) of coal were buried on the property during AML reclamation of the old Columbine Mine surface pad sites Map 45, Reclaimed Coal. This coal is herein referred to as "reclaimed coal" and will be removed from the site before construction of structures begins. Per the Divisions request, characteristics of this reclaimed coal are presented on Table 4A (Reclaimed Coal, October 2007 SGS Lab Analysis). Lab analysis sheets from which this table was formed may be found in Exhibit 6, Soils Information, Reclaimed Coal. Sample locations are shown on Map 34,
Topsoil To Be Disturbed, and Map 45, Reclaimed Coal. This "reclaimed coal" is also discussed in section 232.100 Chapter 2 Soils.

TABLE 4A						
RECLAIMED COAL, October 2007 SGS Lab Analysis						
		As Received Basis				Acid
Sample ID	Location	Moisture	Ash	Sulfur	Btu/lb	Potential*
4-CP	Old Stack Tube	9.92	7.69	0.52	11266	16.3
5-CP	Old Stack Tube	9.6	9.09	0.57	11071	17.8
6-CP	Old Stack Tube	9.86	9.13	0.56	10803	17.5
7-CP	Old Stack Tube	9.16	8.92	0.57	11124	17.8
8-CP	Old Stack Tube	12.09	8.2	0.51	10584	15.9
9-CP	Old Stack Tube	9.51	8.54	0.51	11071	15.9
10-CP	Old Stack Tube	8.81	8.95	0.6	11181	18.8
11-CP	Old Stack Tube	10.61	11.42	0.46	10486	14.4
12-CP	Old Stack Tube	9.46	8.85	0.5	10941	15.6
13-CP	Old Stack Tube	10.42	8.55	0.52	11018	16.3
15-CS-1	Old Stack Tube	9.22	13.17	0.45	9986	14.1
9-B	North Block	8.48	11.75	0.66	10581	20.6
D-4	North Block	12.47	41.28	0.44	5929	13.8
DA-9-B	North Block	15.19	34.89	0.4	6496	12.5
D9-A Coal	North Block	7.29	34.08	0.55	7726	17.2
D9-A	North Block	6.81	37.09	0.52	7312	16.3
D-11	North Block	11.33	34.95	0.41	7063	12.8

*Acid Potential Calculate from Total Sulfur

The chemical analysis parameters used to evaluate coal, roof, and floor materials are listed on Table 5, (Analysis Parameters - Coal, Roof, and Floor Materials). Full chemical analyses for coal are considered confidential and are held as confidential information at SLC UDOGM library. Analyses of roof and floor materials together with the non-confidential portions of analyses for coal are included in Exhibit 19 (Geologic Information, Roof & Floor Analysis). This information is included for reference only. ~~Carbon Resources~~Coal Energy Group 3 has no plans to place roof and floor materials in long term stockpiles on the surface. Roof and floor materials cut during fault crossing, overcast and or under casts will be stored in designated in-mine rock storage areas. Should there arise an emergency need store mine development waste (roof and floor materials) on the surface, this material will be stored in the "off-spec coal" pile, or If the waste is categorized as coal processing waste it will be placed in the temporary coal processing wastepile Map 13 (Surface Facilities).

TABLE 5
ANALYSIS PARAMETERS - COAL, ROOF AND FLOOR MATERIALS

COAL, ROOF AND FLOOR

PROXIMATE ANALYSIS
% Moisture
% Ash
% Volatile
% Fixed Carbon
Btu/lb
% Sulfur
MAF Btu/lb
% MAF Volatile
% MAF Fixed Carbon
lb SO2/mm Btu
% Air Dry Loss
lb Sulfer/mm Btu
As Received Net Sample Wt.

TCLP EXTRACT ELEMENTS
Arsenic, As
Barium, Ba
Cadmium, Cd
Chromium, Cr
Lead, Pb
Mercury, Hg
Selenium, Se
Silver, Ag

MINERAL ASH ANALYSIS
(Rock Forming Elements)
Silicon Dioxide
Aluminum Oxide
Titanium Dioxide
Iron Oxide
Calcium Oxide
Magnesium Oxide
Potassium Oxide
Sodium Oxide
Sulfur Trioxide
Phosphorsus Pentoxide
Strontium Oxide
Barium Oxide
Manganese Oxide
Silica
Base:Acid Ratio
T 250 Temp
Ash TYPE
Fouling Index
Slagging Index

COAL ONLY with ROOF and FLOOR as part of COMPOSITE

TRACE ELEMENTS
Antimony
Arsenic
Beryllium
Cadmium
Chromium
Cobalt
Copper
Lead
Mercury
Molybdenum
Nickel
Selenium
Thallium
Vanadium
Zinc

SELECTED SAMPLES OF COAL, ROOF AND FLOOR

Acid Forming Potential
Neutralization Potential

If, for any unanticipated reason, temporary cessation of mining and/or reclamation operations for a period of 30 days or more becomes necessary, ~~CR~~ CRG3 will submit a notice of intention to UDOGM to temporarily cease or abandon operations. The notice will include a statement of the exact number of acres which have been disturbed prior to cessation, the nature and extent of any reclamation completed, and any reclamation, environmental monitoring, water treatment, or other activities which will continue during the period of temporary cessation. Environmental monitoring will include taking one composite sample of the temporary coal processing waste storage pile should there be coal processing waste rock in the temporary coal processing waste pile at time of cessation.

Should the temporary cessation continue for an extended period of time, ~~Carbon Resources~~Coal Energy Group 3 commits to take one composite sample every six months and report the findings to UDOGM so long as the said material remains in the temporary coal processing waste pile.

Roof and floor rock that is inadvertently taken during mining of the coal seam will be blended into the coal product stream and shipped out with the coal. When an area of high ash coal is encountered, or in areas where roof and or floor rock are difficult to avoid taking with the seam and the presence of this roof and floor rock raises the average ash content of the coal product above contract specifications, that coal will be temporarily stacked in the "off-spec" stacking tube then blended with "spec coal" as immediately as possible and will be shipped out with the coal product.

Should mining encounter such a large volume of high ash or low quality coal that blending with "spec coal" is not feasible, ~~CR~~ Coal Energy Group 3 will exercise the agreement with Arch Coal to sell the low quality coal, known in the industry as "distressed coal" to Arch Coal who will haul the material to their facility near Price for processing.

R645-301-623.200

Reclamation will be accomplished per discussions in Sections 2, 3, 4, 5, and 7.

R645-301-623.300

As discussed in Chapter 5 and elsewhere; first mining only is planned at this time therefore subsidence monitoring is not required.

R645-301-624 Geologic Description

624.100 Description of Geology

The following discussion, cross sections, maps, and plans address regulations 624.110 and 624.120.

Regional Geology

Topography

The permit area is characterized as incised "Basin and Range style Topography". This topography consists predominately of parallel N-S valleys separated by flat-topped ridges, typical of "graben and horst" physiography. Strata in the area are composed of moderately weak fine-grained units interfingered with thick, resistant sandstone units. These units typically erode to moderate to steep weathered slopes.

Major canyons in and near the permit boundary include Pleasant Valley, Eagles Canyon, and Longs Canyon; all draining northward tributary to Scofield Reservoir. Elevations in the general permit area range from over 9,000 feet above sea level on the tops of the flat-topped ridges to about 7,600 feet above sea-level in Pleasant Valley.

Stratigraphy and General Lithology

The general lithology of the area consists of thick accumulation of Upper Cretaceous and Tertiary strata, exposed in the Book Cliffs and Wasatch Coal Fields.

The Upper Cretaceous sediments of the section were deposited along the western margins of a north-south oriented Cretaceous Interior Seaway. This seaway is defined by the pattern of marine, marginal marine, and coastal plain sediments deposited at that time. A rapidly rising mountain belt to the west supplied clastic material for shoreline construction by wave-dominated delta systems. Throughout Cretaceous time, this seaway underwent a series of transgressive and regressive (advancing and retreating) phases depositing a number of broad sub aerial to submerged delta and prodelta sheet sandstones. These sandstones display landward shoreline pinch outs and seaward thinning and fining of sediment sizes. Major coal deposits found in Utah are usually formed immediately landward of shoreline delta sandstone pinch outs and on top of these regressive delta (foreshore) deposits.

Landward of the thick shoreline coal accumulations, lower coastal plain depositional influences come into play, generally creating a series of splits in the coal section by splays, small channels, and levee deposits. Above the delta sandstones, the coal seams are often thinner and/or split due to the decreased time available for peat deposition and common presence of additional "stacked" transgressive-regressive events which invaded the swamp system with interdeltaic features such as storm wash over fans, tidal inlet deltas, and lagoon mud flats.

Coals formed on delta sandstone sheets are usually very planar and continuous while coal seams found in the lower coastal plain are much more likely to exhibit rolls or undulations, scouring by fluvial channels, and discontinuous or lenticular geometry. A classic model of the Book Cliffs Delta Systems was developed by Balsley, 1980.

The formations are composed of, in ascending order, the Blue Gate Member of the Mancos Shale, the interfingering deltaic members of the Blackhawk Formation, the coal-bearing Blackhawk Formation, the unconformably overlying Castlegate Sandstone, the Price River Formation, and the North Horn Formation.

The Blue Gate Member of the Mancos Shale, which forms the valley floor and lower slopes

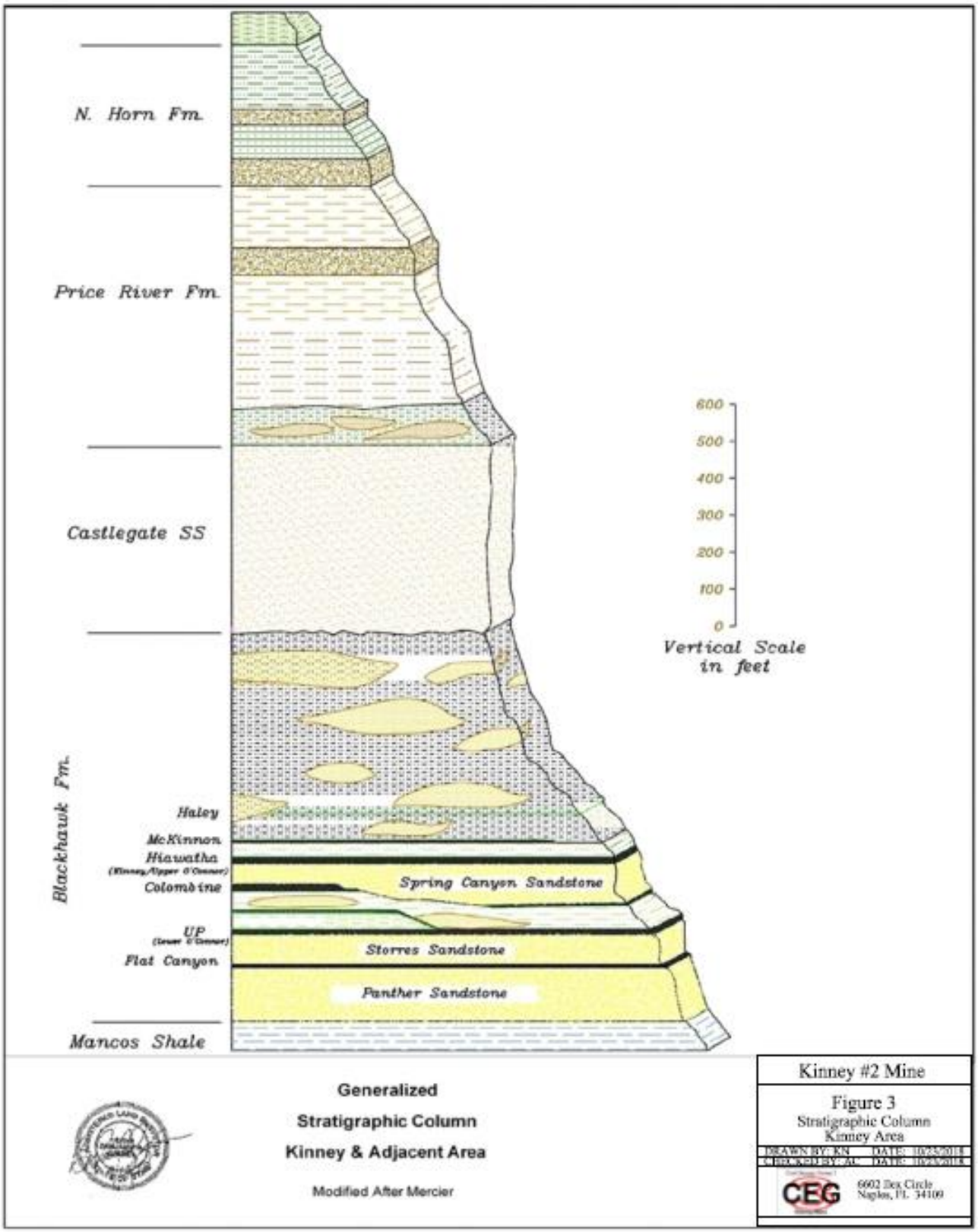
of the prominent cliffs, is over 4,000 feet thick in the area and consists primarily of interbedded marine shales. The Mancos is a clay-rich unit and is relatively impervious to water.

The base of the Blackhawk Formation is locally comprised of five deltaic cliff-forming sandstone members, the Panther, Storrs, Spring Canyon, Aberdeen, and Kenilworth Sandstones, in ascending order. These sandstone units interfinger to the west with the Mancos Shale. Locally the Panther, Storrs, and Spring Canyon Units have been combined under a formational status as the Star Point Sandstone. It is suggested here that these deltaic units be recognized as basal members of the Blackhawk. Lithologies are usually comprised of gradationally sorted sandstones; medium-grained and cross-bedded at the top and fine-grained to silty at their base. Figure 3 (Stratigraphic Column, Kinney Area).

The lower half of the Blackhawk, which contains the major coal seams, consists of sandstone, shale and coal. The upper part of the Blackhawk contains sandstone and a lesser amount of shale. The Blackhawk is about 900 to 1,300 feet thick in the Pleasant Valley District and is the exposed bedrock of the permit area Figure 4 (Regional Surface Geology & X-Section Lines).

Structure

The Kinney No. 2 Mine Permit area lies near the north end of the Wasatch Plateau structural province, immediately south of the north-west trending Fish Creek Graben which delineates the local northern border of the Castle Valley thrust. The position of the permit area, essentially at the intersection of the compression formed then extended Fish Creek Graben and the extensional Wasatch Plateau province, accounts for the very complex system of faults that chop up the property into relatively small mining blocks. Detailed description of faults is discussed in the following section, Structural Features and Controls.


N. Horn Fm.
Price River Fm.
Castlegate SS
Blackhawk Fm.
Haley
McKinnon
Hiawatha
Colombine
Spring Canyon Sandstone
UP
Flat Canyon
Storres Sandstone
Panther Sandstone
Mancos Shale
600
500
400
300
200
100
0
Vertical Scale in feet
Generalized
Stratigraphic Column
Kinney & Adjacent Area
Modified After Mercier
Kinney #2 Mine
Figure 3
Stratigraphic Column
Kinney Area
DRAWN BY: KN
DATE: 10/25/2018
CHECKED BY: AL
DATE: 10/25/2018
CEG
6602 Ibis Circle
Naples, FL 34109

Structural Features and Controls

Two and possibly three periods of structural deformation influenced deposition and are responsible for the present position of the strata of the Pleasant Valley District. The Sevier Orogeny, dating from post-Triassic to pre-Oligocene time, is characterized by compressional faulting and folding with the formation of the large Cretaceous clastic wedges west of the district and supplied the sediments that forced the Cretaceous sea eastward. The Laramide Orogeny, which overlaps the Sevier Orogeny in late Cretaceous through the Eocene Epoch, is characterized by vertical uplifts of the Rocky Mountains. The extent of influence of this tectonic event is uncertain in the Pleasant Valley District. Miocene to Recent relative uplift and block faulting is responsible for the present topography and position of the strata.

These structural events have imparted a regional dip of approximately 3 degrees North North-East and generally striking North-West South-East as can be observed on Figure 5 (Hiawatha Top Structure & X-Section Lines).

Local exceptions to the regional dip are numerous with some fault blocks even dipping south due to the complex faulting described below.

Faults

There are two distinct styles of faulting within the district. The oldest system is a conjugate set of strike-slip and or oblique-slip vertical faults. The dominant half of this set is oriented north ~57deg. west. The minor half of the set is oriented north ~60 east. The most prominent faults in this system form the Fish Creek Graben, the UP-South-Saddle-Fault, the UP-North Saddle-Fault, and the G-7 Fault. These structures were first formed in the early compressive episode and then were re-activated by regional uplift Figure 5 (Hiawatha Top Structure & X-Section Lines)

Elsewhere on the Eastern Wasatch Plateau, other faults in this system have been preferentially invaded with maffic dikes. This conjugate set of faults and dikes are cut by a later forming north-northeast set of normal faults. This later N-S fault system is by far the most dominant in terms of number, throw, and influence on the geomorphology. The largest local faults in this system have throws in excess of 600 feet. These faults form a series of "Basin and Range-style" horsts and grabens that are predominantly half grabens with the largest side dipping westerly. The N-S grabens are responsible for the N-S valleys that dominate the physiography.

Many of these N-S faults display characteristics of "curvy crossovers," some wandering in strike and most displaying "scissor action" or highly variable throw along strike. This is due, in part, to the perturbations to local stress fields caused by interaction between the early E-W compressional structures and the N-S extensional system.

The numerous grabens and interaction between the two types of fault systems has resulted in a complex geometry of N-S elongated fault controlled structural blocks, some large enough to mine and others too small and isolated by elevation differences to be economically mineable.

FIGURE 5 (Hiawatha Top Structure & X-Section Lines)
is considered Confidential Information under R645-300-124
and has been relocated to
Exhibit 3 Confidential Information.

Four major north-south grabens dominate the structural elements within and in near vicinity of the property. From west to east these are; the Pleasant Valley Graben, the Eagles Canyon Graben the Long Canyon Graben, and the Jump Creek Graben. This Basin and Range style structure is clearly viewed in X-Sections Figures 6 through 9. Lines of section are shown on Figures 4, (Regional Geology & X-Section Lines) and 5 (Hiawatha Top Structure & X-Section Lines). Figure 6 (W-E Structure X-Section A-A'), and Figure 8 (N-S Structure X-Section C-C' have the water table peizometric surface plotted while Figure 7 (W-E Structure X-Section B-B'), and Figure 9 (N-S Structure X-Section D-D') do not.

The Scofield area is unique in the Eastern Wasatch Plateau having the northwest-southeast Fish Creek Graben south of Scofield Town. The Fish Creek Graben forms the northern limit of mining in this area. Two other faults, UP-North Saddle Fault, and UP-South Saddle Fault, were formed in the same structural event that formed the Fish Creek Graben. These faults limit the north south length of individual mining blocks in the area.

The horsts, strata remaining standing high between the down-dropped grabens, have not been named, but the mining blocks within the horsts constrained by both the bounding faults and by legal boundaries have been given names Figure 10 (Hiawatha Overburden Isopachs& Mine Blocks). Of these mining blocks only the Portal block and part of the Scofield North blocks are located within the "Portal Block Permit Boundary" and are described below.

Overburden or "cover" covering the Mine Blocks ranges from zero at the outcrop along the west side of the Portal Block Permit Boundary to maximum of 1,000 feet along the east side of the Portal Block Permit Boundary, and of course mimics topography but modified by faulting, Figure 10 (Hiawatha Overburden Isopachs& Mining Blocks).

Mining Blocks

Experience mining throughout the Eastern Wasatch Plateau has shown that mining within most grabens is very problematic for several reasons. The lower relative elevations cause the coal there to be saturated with water, this together with the increased number of small faults and fractures within the grabens, in contrast to the horsts, make mining conditions in the grabens very unfavorable. Therefore planned mining blocks are predominately in the larger horsts within the property Figures 5,(Hiawatha Top Structure & X-Section Lines) 10,(Hiawatha Overburden Isopachs & Mining Blocks) and 11 (Hiawatha Thickness & Mining Blocks.

Portal Mining Block: The Portal Block will be accessed from outcrop via a narrow corridor

of coal left un-mined by previous operators. The Portal block is bounded on the West by outcrop, North and South-West by previous workings, but on the East by the Eagles Canyon Graben and on the South-East by the G-6 fault. From the Portal block mining will ramp southward down across the G-6 fault, approximately 50 vertical feet, to access the Scofield North Block.

Scofield North Mining Block: The Scofield North Block is created by bounding faults; on the North and West by the G-6 Fault; on the East by the Eagles Canyon Graben, on the South by the UP North Saddle Fault. All of the bounding faults display throws of approximately 100 feet except the Eagles Canyon Graben (or the southern extension of it) which has an apparent throw of approximately 20 feet.

Joints

A joint study on the permit property has not been completed, however, Wade Hutchings (1997) completed field mapping on property immediately adjacent to the north of the this property and found joint orientations consistent with those predicted by a model of regional geology (GL Hunt Unpublished data) by understanding of the regional geology and the position occupied by the property within it. This has strong implications relative to joint orientations within the Kinney Property and allows a rather high degree of comfort in predicting the joint patters within the permit boundary to be predominately N-S with fewer numbers of NW and NE joints.

Stratigraphy and Lithology

The predominate lithotype in the Blackhawk Formation is sandstone/siltstone. Above the thick marginal marine sandstones forming the base of the formation, are thick (10 - 50 foot) sequences of lenticular channel deposits interspersed with more moderate (5 - 15 foot) sequences of sheet sandstone deposits. These sandstones are medium to fine-grained with a high percentage of silica and/or calcite cement filling the sand matrix which generally produces a low permeability. An estimated 35 percent of the formation is composed of correlatable sandstones.

About 30 percent of the Blackhawk is formed of thin, dirty, or discontinuous sandstones. Another 35 percent of the unit is composed of siltstones, often interbedded with the thin sandstones, and the remainder of the formation is composed of mudstones, carbonaceous mudstones, or claystones. The finer grained materials, especially the siltstones, have a higher percentage of silica cement and are often very well indurated. The interbedded units range in thickness from a few tenths of a foot to over a hundred feet. Thick sequences of mudstones in the Blackhawk are less common in this area.

The coal seams in the permit area are contained in the bottom half of the Blackhawk Formation and are interbedded with sandstone and shale. They are, in ascending order, the Flat Canyon, U.P. (Union Pacific), Columbine, Hiawatha and Haley seams Figure 3 (Stratigraphic Column, Kinney Area).

The base of the coal-bearing section is a transition between the lower seams deposited on and above the "Panther Sandstone" and the Seams deposited on and above the "Spring Canyon Member of the Starpoint Sandstone". The westward pinchout of the "Spring Canyon Member of the Star Point Sandstone" occurs within the permit boundary, thus the immediate floor of the Hiawatha Seam changes westward from marine sandstone to

shale.

Flat Canyon Seam

The Flat Canyon Seam occurs near the bottom of the Blackhawk Formation a few feet above the Panther Sandstone. It reaches thicknesses of up to four feet locally but is split or absent over the permit area.

U.P. Seam

The U.P. Seam is the thickest seam found in the Pleasant Valley District. In the U.P. Pleasant Valley Mine it attained a thickness of thirty feet and is greater than twenty feet for at least half a mile south and southwest of that mine. To the north and east of the U.P. Pleasant Valley Mine the seam splits into two or more seams ranging from six feet to one foot. It lies 70 to 90 feet above the Flat Canyon zone. It is correlated to the Lower O'Connor Seam south and west of the Western Reserve properties and has been mined in the Clear Creek, U.P., and Winter Quarters mines. It is of mineable thickness in the permit area, as can be seen in cross sections of drill holes and on drill logs.

Colombine Seam

The Colombine Seam occurs in a limited area northeast of Scofield. The Colombine Mine was the only development of this seam where it is five feet thick. The seam thins and splits east of the mine. It lies 30 to 55 feet above the U.P. Seam. Insufficient reserves and lack of access eliminate this seam from mining considerations.

Spring Canyon Member, Starr Point Sandstone

This unit can generally be described as a series of seaward imbricated sheet sandstones locally containing fluvial channels and tidal inlet deposits on its upper surface. The upper portion of the Spring Canyon (upper shore face) is typically composed of silica and dolomite-cemented, medium-grained, well-sorted, coarsening upward, sandstone.

Hiawatha Seam

The Hiawatha Seam is the most laterally persistent seam in the Pleasant Valley District and is the only economically mineable seam within the permit boundary. The Hiawatha Seam directly overlies the Spring Canyon Sandstone throughout all but the western-most 500 feet of the permit area where the sandstone pinches out westward. The Hiawatha Seam overlies the U.P. zone by 80 to 130 feet. It is correlated to the Upper O'Connor Seam to the south and west. It has been mined in the Clear Creek, O'Connor, Belina, Utah No. 1, Utah No. 2, Kinney, Blue Seal and Monay, Blazon mines and is being developed in the Skyline mines. Historically it has been referred to as the Kinney Seam, but only at the Kinney Mine.

The Hiawatha Seam Ranges from 6 to 12 feet in thickness locally, and is the only seam to be mined within the Portal Block Permit Boundary, Figure 11 (Hiawatha Thickness & Mining Blocks).

McKinnon Seam

The McKinnon Seam lies 250-400 feet above the Hiawatha Seam. It reaches a maximum

thickness of four feet but is usually much thinner or parted and is not easily identified in drill holes over the permit area.

Haley Seam

The Haley Seam is very inconsistent in stratigraphic position and thickness. The seam is found only in the northeast corner of the study area. It overlies the Hiawatha by about 500 feet. The Haley Seam locally achieves a thickness of five feet but is usually absent or very thin. It was worked to a limited extent at the Haley Mine east of the Scofield Dam but is not considered economic in the permit area.

Immediate Roof and floor of the Hiawatha Seam

Strata enclosing the Hiawatha Seam with the potential of being mined together with the coal vary from marine sandstone, where the Spring Canyon Member of the Star Point Formation underlies the Seam, to fluvial dominated sandstones and overbank mudstones and siltstones.

The immediate roof rock of the Hiawatha Seam is typically composed of a locally thin veneer of clay-rich mudstones grading upwards into muddy to sandy siltstones. Meandering sandstone channels have been picked up by drill holes which intersect the top of the seam. The chemical composition of these strata are discussed in Section 623.100.

Strata from Hiawatha Seam to Top of Blackhawk Formation

Rocks overlying the seam are dominated by fluvial rocks containing an abundance of mudstone often rooted and carbon-rich with some ribbon shaped channel sands. This portion of the Blackhawk Formation above the Hiawatha Seam is extremely variable, being formed in a fluvial dominated system. This system produced numerous fluvial channel deposits and their related over bank deposits of siltstone, mudstone, claystone, and discontinuous inter-channel coals.

624.130 Sources of Geological Information

Geologic conditions in the permit and adjacent areas have been characterized in this section using information from studies and reports and previous and ongoing baseline characterization and monitoring activities. Available geologic information and relevance to this site are summarized below.

Interpretive data available include the following reports:

- Mounir Tawfik Moussa (1965)
- Vard H. Johnson Ph.D. (1977)
- Joel E. Palmer, Sanders Associates, Inc. (1979)
- Steven P. Knowles (1985)
- Wade Hutchings for Geo-Hunt Consulting (1997)
- David E. Pedersen Ph.D. for Geo-Hunt Consulting (1998)

Additional information was obtained from personal communications with Eric Robeck, who refined geologic interpretations together with Gregory Hunt. Additional data was obtained from work performed by W.R. Grace (1974) and Itel Resources (~1977).

FIGURE 11 Hiawatha Thickness & Mining Blocks
is considered Confidential Information under R645-300-124
and has been relocated to
Exhibit 3 Confidential Information.

The Geologic data set includes data from 70 drill holes from several vintages (26 are located within the Permit Boundary) Figure 2 (Drill Hole Locations w/Hiawatha Outcrop).

The data set also includes maps from four old mines that show the location of numerous faults and recorded coal thickness and conditions, limited surface outcrop exposures, and high quality aerial photography.
Drill hole data include:

1. gamma, density, caliper logs and down hole surveys
2. continuous core of the coal horizons and enclosing strata
3. chemical analysis of the coal seams and enclosing strata
4. rock mechanics data from the coal seams and enclosing strata

A comprehensive suite of data from the nine 2006 holes has been submitted and is considered Confidential Information under R645-300-124 and is located in Exhibit 3, Confidential Information).

Nine of the 2006 exploration drill holes, located on four of the drill sites, were completed as groundwater monitor wells with completions in the Hiawatha Seam and enclosing strata. Three of these locations are within the permit boundary. A digital color down-hole camera was lowered into and recorded continuous data from four of the completions to document the presence or non-presence of groundwater soon after the wells were completed. Subsequently, monthly and later quarterly baseline groundwater data have been collected from these monitor wells from 2006 to present with a hiatus during 2009.

Of the nine holes drilled in 2006 significant groundwater was encountered in CR-06-03 and CR-06-03ABV only. Minor amounts were encountered or suspected during drilling in all of the nine wells however it turns out that most of that water was from small perched aquifers as demonstrated by contrasting the data obtained from CR-06-02 and CR-06-02ABV. CR-06-09 and CR-06-09BLW encountered the water table but the volume of water demonstrated by airlifting during drilling from both of them are small. This suggests rather low permeability.

CR-06-02ABV was completed over 100 feet above the Hiawatha Coal Seam in a

perched aquifer and shows minor amounts of water. CR-06-02 is completed in the Hiawatha Coal Seam and is DRY. The completion process "cased-off" the small perched aquifer the CR-06-02ABV is complete in and has a screen isolated in the Hiawatha Coal Seam. This clearly demonstrates the presence of small perched aquifers in the area.

Two additional groundwater monitor wells were complete in July 2010 and both penetrated the regional water table. Data from all monitor wells is presented and discussed in Chapter 7.

Data from all sources have been integrated to form a conceptual geologic model which is here presented as a digital representation of that conceptual model in the form of maps and descriptions.

624.200 Underground Coal Mining and Reclamation Activities

624.210 Lithologic Logs and Material Analyses

Information gathered from previous drilling and exploratory programs varied considerably in completeness, format, and uniformity of the resulting data. Significant data gaps included the lack of geophysical logs, incomplete cutting logs, generalized core descriptions, rare and/or partial coal core analyses, and non-existent geotechnical descriptions for several of the prior exploration programs.

The primary focus of the 2006 exploration program was the development of ground water monitor wells to gather groundwater data for the permitting process. In conjunction with well drilling activities, geologic data was also collected to address existing gaps in the baseline geologic data.

Holes were both rotary drilled and spot cored. Cuttings were collected on ten foot increments and described for lithologic type, color, and significant grain size, mineral and carbon content. Drilling conditions are noted and are summarized by drill logs included in Exhibit 3, (Confidential Information).

Core sample descriptions include sample increments, recovery rates, strength designations, discontinuity descriptions and graphs, lithologic columns, detailed lithologic descriptions, and photographs. Any water, gas, fractures, etc. encountered during drilling were noted. Holes were deepened approximately 20 feet beyond the lowest strata of interest to create a "rat hole" for cuttings prior to geophysical logging or installation of well screen and casing.

Holes were geophysical logged producing curves including but not limited to Natural Gamma, Compensated Density, and Caliper. Geophysical logging information is provided as both hard-copy and in digital format. Four of the groundwater monitor wells were logged with a digital down-hole camera, providing color video of the hole, casing conditions, water inflow zones and water level. A comprehensive suite of data collected from the 2006 drilling program is included in Confidential Information).

Coal core samples were analyzed for a variety of parameters including: Moisture, Ash, BTU,

Sulfur, Volatile Matter, Fixed Carbon, Acid Potential (TCaCO3/1000T), Ash Fusion Temperatures. Ash Mineral Analysis includes, Ash Type, Specific Gravity, multiple Trace and major elements. Immediate roof and floor rock samples were separated and analyzed for acid forming or toxic-forming materials. Coal and roof/floor analysis results are included in Exhibit 19, (Geologic Information, Roof & Floor Analysis), and are discussed in Section 623.100, Chemical Characteristics of Coal and Associated Strata.

Any significant ground water encountered during drilling was reported to UDOGM. Each drill hole collar was surveyed after installation of the well monitoring equipment, and the drill sites reclaimed. All significant drilling parameters, hydrologic, and physical data about the hole is recorded on a Hole Completion Report with detailed backup residing in the accompanying drill hole file folder. Core not taken for laboratory analysis is being held for possible future geotechnical or geochemical testing.

R645-301-624.310

A complete and comprehensive drill hole data set for nine drill holes (CR-06-01, CR-06-02, CR-06-03, CR-06-03-ABV, CR-06-05, CR-06-05A, CR-06-09, CR-06-09BLW, CR-06-10) have been submitted. These data show lithologic characteristics, including physical properties and thickness of each stratum that may be impacted by mining.

Drill Data are considered Confidential Information under R645-300-124 and have been relocated to Confidential Information.

Ground Water Occurrence

Occurrence of groundwater is addressed in Chapter 7, Hydrology. However, detailed geology, particularly that of fault architecture, detail of fault boundary materials and how those features influences groundwater flow is not covered in Chapter 7 but is covered here in Chapter 6.

FAULTS and "VADOS ZONE SPRINGS"

The one spring within the permit boundary (Aspen Spring) and the two in nearest proximity to the permit area (Angle Spring, and Sulfur Spring), are all located within the vados zone, above the water table or above the saturated zone also known as phretic zone, See Figure 12 (Vadose Zone Cartoon) below.

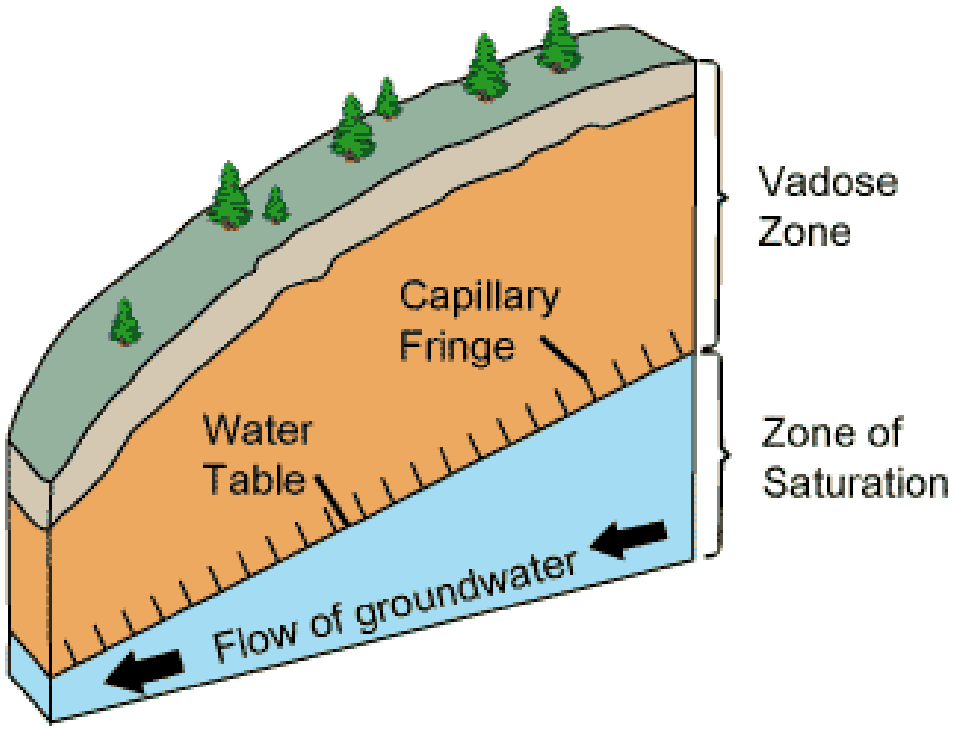


Figure 12: Cartoon depicting Vadose Zone as including all soil and bedrock lying above the Water Table (also known as Zone of Saturation or phretic zone).

As demonstrated on Map 7, Regional Hydrology, Aspen and Angle Springs are located more than one hundred feet above the peizometric surface. Sulfur Spring issues from the vados zone but just barely; it lies less than 30 feet above the peizometric surface at that point.

Anecdotal data from local cattle ranchers, together with personal observations and baseline monitoring data indicate that Aspen and Angle Springs are both intermittent. Angle Spring dries up in late summer – early fall - many years but not every year. Aspen Spring appears to flow in spring and summer only. Sulfur Spring appears to be perennial as it has never been observed to not flow water.

Springs located below the water table, in the zone of saturation, are rather easy to understand. More difficult to explain are springs issuing from the vados zone.
Many "apparent vados zone springs" are actually water table springs with "confined plumbing" connected to the water table (peizometric surface) at a point where elevation of the peizometric surface is higher than where the spring is issuing from.

Years of studying structural geology on the Eastern Wasatch Plateau have provided many examples of a correlation between major faults and springs. In fact, it is hard to find an example of a major spring on the Eastern Wasatch that is not connected to a fault. The study of structural geology includes in-depth study of the architecture of typical faults and how they interact with ground water. The author has personally observed many vados zone fault crossings underground in coal mines where the detailed architecture of fault geometry together with the omnipresent difference in rock moisture

content across the faults and evidence of water migration through the breccia zone on one side of the faults only.

One such example is the Bear Canyon Graben, where rock tunnels in the Plateau Mine penetrated both sides of the graben at right angles in the graben crossing. This allowed careful observation of the fault planes.

The photograph in Figure 13 (Oblique Photo, Western Boundary Fault) below is an oblique aerial view of the west boundary fault of the Bear Canyon Graben as observed in outcrop of north wall of Tie Fork Canyon. This photograph shows two fault planes together with joints in the Castlegate Sandstone, with increased joint density near the westernmost and largest fault. This view shows only the large scale features because weathering on the outcrop obscures the fine detail. This structure was also observed underground in rock tunnels that crossed this graben approximately four thousand feet north of this photo location.

Figure 13A (Fault Detail) below, is a schematic of the detail observed in the rock tunnels and is typical of faults in the vados zone observed throughout the Eastern Wasatch Plateau. In addition to the breccia and gouge zones depicted, the rock west of the gouge zone was more moist than that of the east side. The west side breccia zone also contained limonite and goethite stains (rusty iron stains) indicating historic presence of oxidized water having passing through the conduit formed by this breccia zone.

The moisture difference observed underground accounts for the resistivity anomaly recorded from a surface survey prior to crossing the fault with the rock tunnels. This resistivity anomaly is also typical of those observed in the Eastern Wasatch Plateau suggesting the asymmetry in moisture content is the rule and not the exception. The presence of this moisture is accounted for by downward percolation of terrestrial water on its path to the water table.

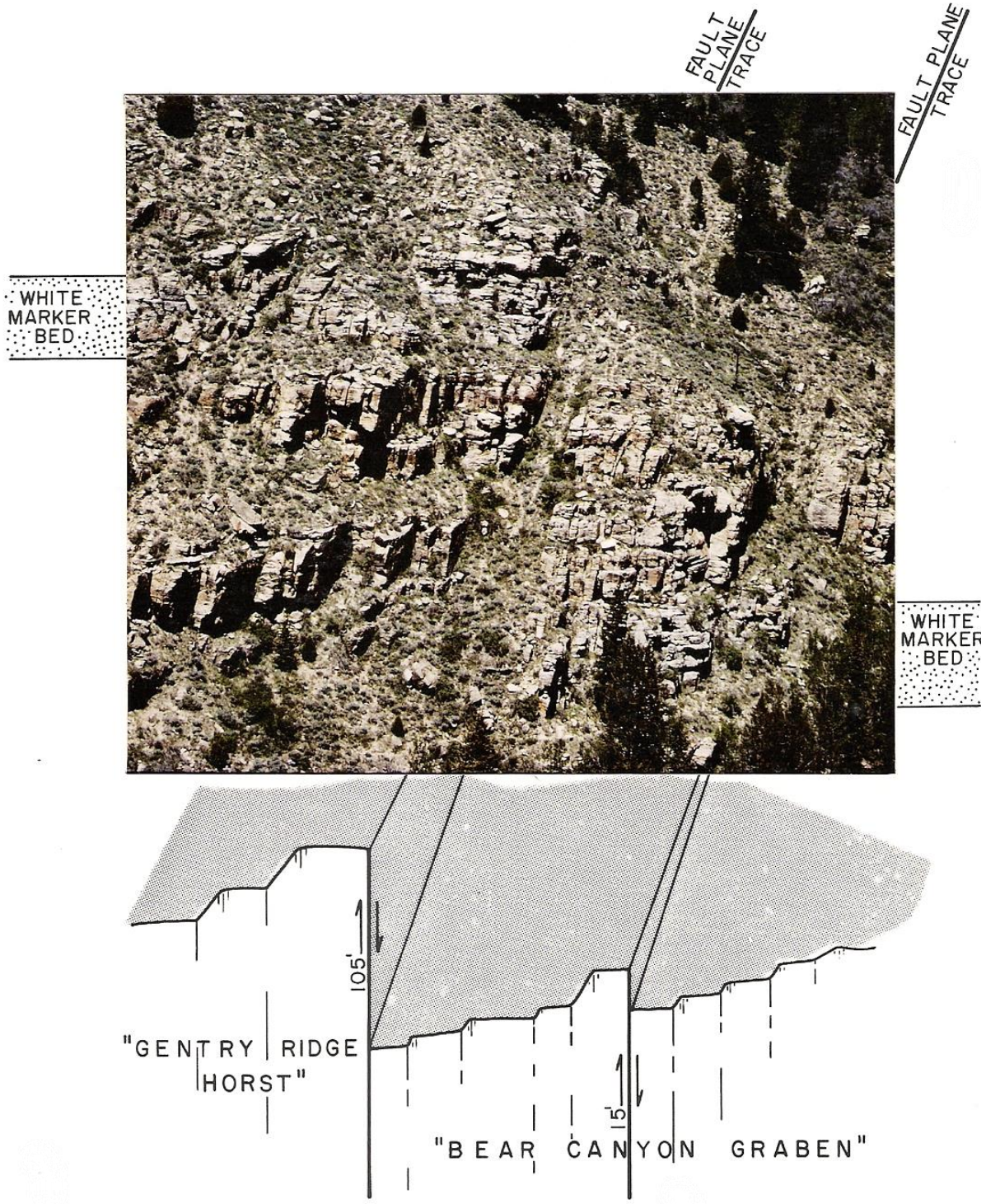


FIGURE 13

OF THE "WESTERN BOUNDARY FAULT"

Of the "Bear Canyon Graben", in the Castlegate Sandstone, along north wall of Tie Fork Canyon.

Figure 13

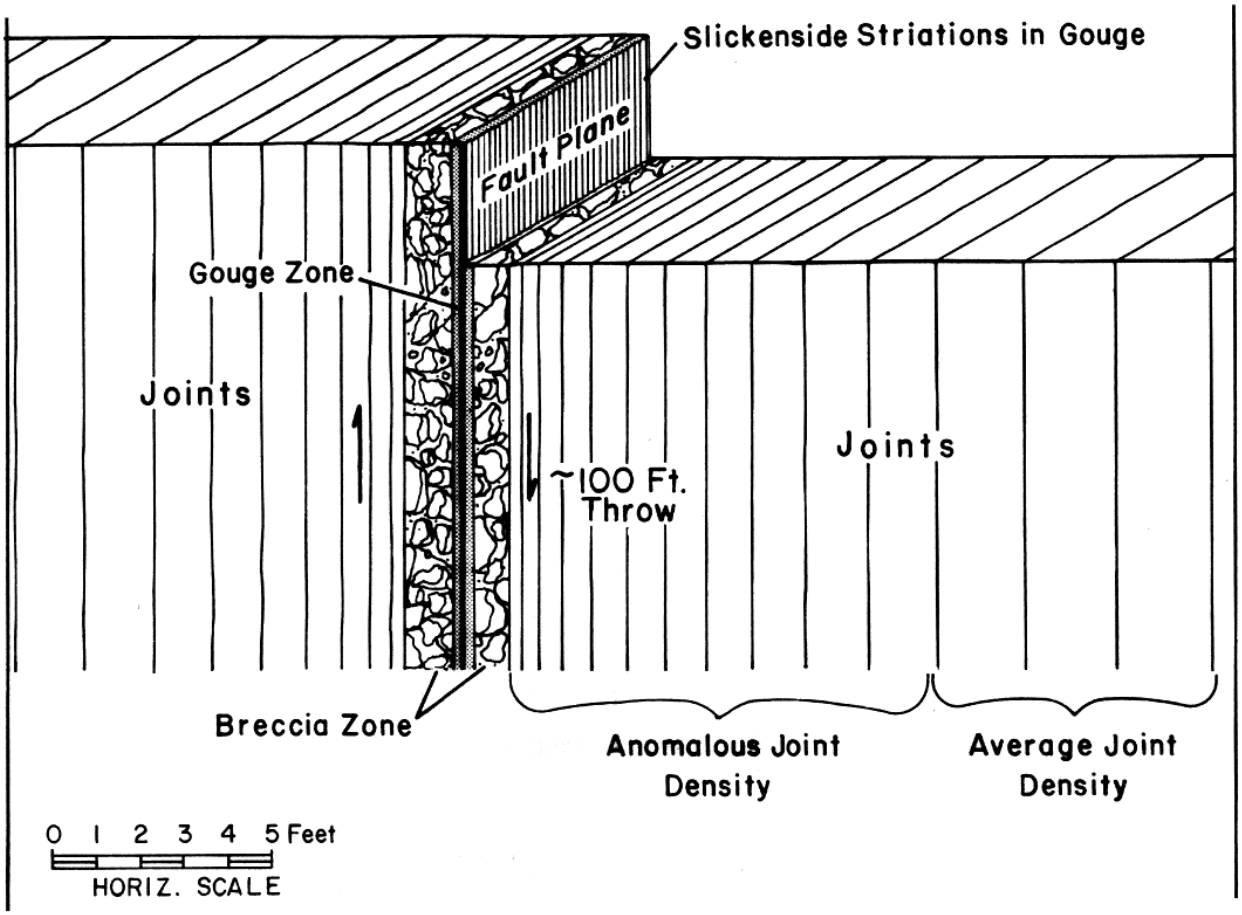


FIGURE 13A: Detail of typical fault plane in Cretaceous Sandstone and Coal of the Eastern Wasatch Plateau observed from in-mine penetrations.

This mechanism is demonstrated in a dramatic manner, approximately one mile west of the Figure 13 (Oblique Photo, Western Boundary Fault) location, where the southern extension of the Pleasant Valley Graben is also exposed along the north wall of Tie Fork Canyon. At this location the Tie Fork Spring issues from along the east side breccia zone of the Pleasant Valley Graben eastern boundary fault. The spring is perennial but the flow changes greatly, flowing in the neighborhood of 30 GPM in spring but reducing to less than 5 GPM in the fall. This flow pattern was traced to an obvious flow path where a large spring/seep complex discharges from the upper Price River Formation then migrates down-dip (westward) where it encounters the Pleasant Valley Graben east boundary fault then percolates along the fault downward and then southward to issue at the spring. This entire flow path is in the vados zone but is controlled by the dual nature of the fault, acting both as a horizontal flow barrier and a vertical and horizontal conduit providing the plumbing for direct recharge of the Tie Fork Spring.

Figure 13B (Excavated Dike) is a photograph of a splinter fault off the Pleasant Valley Graben truncating a dike in the mouth of Short Canyon (approximately five miles north of Tie Fork Canyon and twelve miles south of Kinney Mine). This photo shows graphically a breccia zone that developed between two small pieces of this fault system.

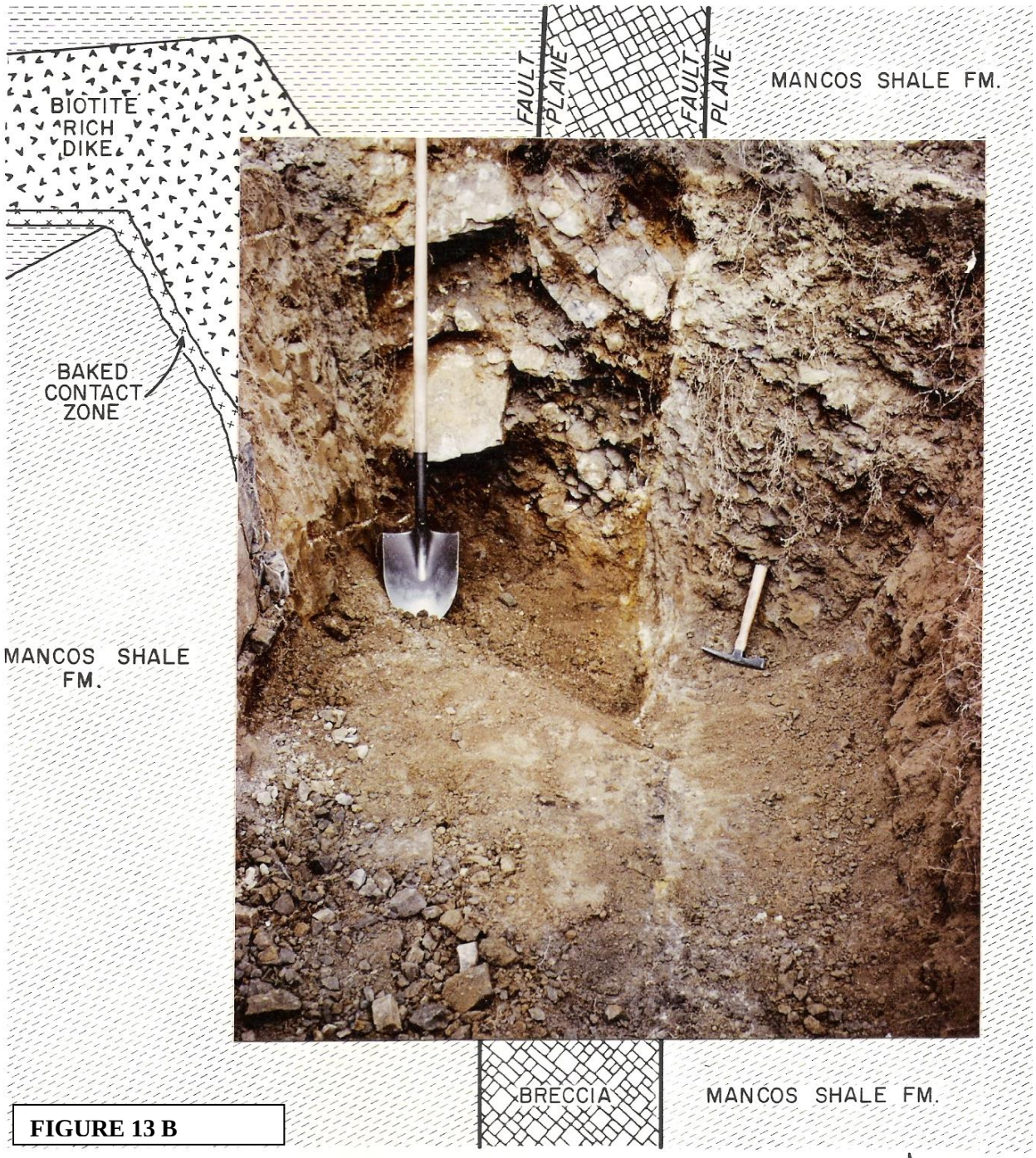


FIGURE 13 B

EXCAVATED N. 80° W. BIOTITE RICH DIKE
Truncated by N-S Normal Fault at the mouth of Short Canyon, in NuckWoodward Canyon.

The gouge zone at this location is approximately five millimeters (less than one quarter on one inch) and does not display the asymmetric moisture content or iron staining present along underground encounters with faults of larger displacement.

The relationship between fault displacement and width of gouge and breccia zones has been observed by many investigators. E.C. Robertson (Mining Engineering, October 1983) describes this relationship observed in many locations throughout the west in underground mine penetrations and outcrops. This investigator has observed the detail of faults with varying displacement and in varying Lithologies on the Eastern Wasatch Plateau in the Skyline and Plateau Mines. These observations have lead to a rule of thumb – faults with displacement of 100 feet or more produce gouge zones up of five inches. Five inches of gouge appears to be thick enough to behave as a barrier to groundwater flow, at least in the vados zone. It is not know to what extent a five inch gouge zone behaves as a groundwater barrier in the saturated zone where a head may exist. Information is not available from saturated zone fault penetrations, however, data presented here from the Kinney Mine area suggests that one; either faults having displacement of 100+ feet do not partition groundwater flow in the saturated zone, or two; the faults are "short" enough to allow groundwater to migrate around their ends in the saturated zone. There are likely ridges and valleys caused by the many faults in the peizometric surface at Kinney that are not reflected in the mapped peizometric surface (Map 7) due to insufficient data. However, the larger picture seems clear that a semi-regional water table exists and at that scale appears rather predictable.

With the understanding that 100+ ft. faults typically have a double role relating to water moving through the vados zone. Faults act as both flow barriers and conduits. That is, as rain water makes its journey from point of impact in a drainage basin, having substantial topography, it flows on an oblique trajectory downward to the zone of saturation. The trajectory is determined by many variables, hillside slopes in the drainage basin, plant cover, soil type, geologic formations with varying permeability's and transmissivities, structural discontinuities including faults, fractures, and joints. The flow trajectory typically tends down-slope, with a large amount being lost to evaporation or evapotransporation in warm months, gradually penetrating into the bedrock. In the case of Eagles Canyon, which is an Influent stream (loosing water to the water table), rainwater migrates downward to the water table via the path of least resistance. Likely much of the water migrates to the water table via encountering the gouge zone of a fault then utilizing the adjacent breccia zone conduit flows down to the water table. This suggests that there should be a very local ridges in the peizometric surface along man faults.

624.220 and 624.230 Please refer to 623.100

624-300 Underground Coal Mining and Reclamation Activities

624-310 Please refer to 624.210.

624-320 and 624-330 Please refer to 623.100

624-340 Please refer to 624.100

R645-301-627 Overburden Thickness and Lithology

Coal and Overburden/Interburden Characteristics

Geologic information from various sources obtained between 1977 and the present were used to evaluate the physical and chemical characteristics of coal and non-coal strata within the proposed lease and adjacent areas. Generally, the historical information is very limited. The 2006 Drilling Program generated the lion's share of the available data that include geophysical logging, and laboratory analyses of coal, roof, and floor samples from the Hiawatha Seam.

During exploration drilling, drilling conditions were recorded and core samples were described. Descriptions included sampling increments, recovery rates, strength designations, discontinuities, and detailed lithology. Occurrences of water, gas, and fractures were also noted. At a minimum, boreholes were logged for natural gamma, compensated density, and caliper.

Geologic logs and core data for the permit area are presented in Exhibit 3 (Confidential Information). Drill Data are considered Confidential Information under R645-300-124. These logs provide valuable information which has been used to characterize the lithologic characteristics of coal reserve areas and define site-specific information on the thickness of coal and other strata within the proposed permit area. The locations of the drillholes in the permit area are shown on the Figure 2 (Drill Hole Locations w/ Hiawatha Outcrop). Geologic information is also graphically illustrated by the Geologic Cross-Sections, Figures 6 through 9.

Physical Properties of Coal/Overburden/Interburden

Regionally and in the permit area, the Spring Canyon Member of the Starr Point Sandstone has historically been considered a regional aquifer. The well sorted, fine to medium-grained nature of the Spring Canyon Member even with moderate cementation, appeared to allow for ground water migration. However, more recent observations throughout the Eastern Wasatch Plateau has shown that the Spring Canyon is quite well cemented restricting the permeability and transmissivity to a degree as to render the Spring Canyon Member only a marginal regional aquifer. The one thing it has going is lateral persistence. The major coal seams having large secondary permeability due to cleating are better aquifers than is the Spring Canyon Member.

Ribbon shaped (plan view) and lenticular (x-section view) fluvial sandstones, occurring in the Blackhawk Formation act as perched aquifers and in some cases as small reservoirs for methane or natural gas. Experience in coal mines throughout the Eastern Wasatch Plateau Coal Field shows that coal units drain quickly when encountered by mining due to their limited thickness and lateral continuity. Interconnection of permeable units by crosscutting joints appears to be rare due to limited jointing and "healing" of most fractures by calcite cement.

Virtually no rock mechanics data were available prior to the 2006 drilling program. Testing of collected coal core and core of representative rock units above and below the Hiawatha seam provide the available data set.

Uniaxial Compressive Strength for the Hiawatha seam and associated immediate roof

and floor found in the proposed permit area are summarized by Table 5A, Strength Characteristics of Coal, Roof, and Floor Materials.

TABLE 5A
STRENGTH CHARACTERISTICS OF COAL, ROOF, AND FLOOR MATERIALS

Specimen No.		Lithologic Description	Failure Load (lb)	UCS* (psi)	Failure Mode
06-CR-06-01_5B/4-U-01	Hiawatha Upper Roof	Sandstone	27,700	3,180	
06-CR-06-01 5B/5-U-02	Hiawatha Upper	Sandstone	49,220	5,951	
06-CR06-05A-5/1-U-13*	Hiawatha Roof	Mudstone	40,850	5,561	45° fracture
06-CR06-05A-6/1-U-14*	Hiawatha Roof	Sandstone	79,850	11,033	Axial fractures
06-CR-06-02_1A/17-U-06	Hiawatha Roof	Silty Sandstone	142,800	17,299	
06-CR06-05A-8/2-U-03	Hiawatha Seam	Sandstone	8,200	1,162	Axial fractures
06-CR06-05-5/1-U-08	Hiawatha Floor	Sandstone	16,530	2,363	45° fracture
06-02-CR-02_5A/18-U-07	Hiawatha Floor	Sandstone	57,930	6,998	

The

* UCS values for samples with L/D<2.0 are corrected as per ASTM D2938-86.

Lab reports supporting Table 5A are found in Exhibit 19 (Geological Information, Rock Strength Data).

R645-301-630 Operation Plan

631 Plans for Casing and Sealing Exploration Holes

Generally, a determination will be made either prior to or during completion of any exploration holes or boreholes whether or not the hole(s) will be utilized for ground water monitoring purposes. If the hole is to be utilized for monitoring it will be cased, completed and developed as a monitoring well consistent with Figure 21 (Typical Well Completion Diagram) and as described in Chapter 7 Section 301-738 Completion as Ground Water Monitoring Wells. If the hole(s) is not to be utilized as a monitoring well or when an existing well is no longer required for ongoing monitoring, it will be sealed by filling the borehole or casing with cement to form a plug from the bottom of the hole to at least 20 feet above any zone of completion or water-bearing zone; filling the remainder of the hole to within 20 feet of the ground surface; and filling the remainder of the hole to the ground surface with cement to form a surface plug. A steel fence post will be placed in the center of the surface plug before the cement sets-up to provide a permanent marker for the hole location.

In the event a water monitoring well is transferred to use as a water well, it will be done under regulation R645-301-731.400.

632 Subsidence Monitoring

No full extraction mining, or pulling of pillars is planned at the Kinney No. 2 Mine, therefore subsidence will not take place. No subsidence monitoring is necessary.

R645-301-640 Performance Standards

Performance will be maintained as in 631 and 632.

Chapter 7

R645-301-700 Hydrology

Kinney No 2 Mine

Table of Contents

R645-301-710 General Contents 1
R645-301-712 Certification 2
R645-301-721 General Requirements 2
R645-301-722 Cross Sections and Maps 8
301-722.400 Water Wells In The Permit and Adjacent Area 9
R645-301-723 Sampling and Analysis 9
R645-301-724.100 Ground Water Information 12
Ground Water Environment 14
Ground Water Aquifers 15
Alluvial/Colluvial Aquifer System 15
Perched Ground Water System 16
Stored Mine Water System 17
Regional Aquifer System 17
Ground Water Occurrence 20
Ground Water Quality 23
Ground Water Rights and Use 36
Ground Water/Surface Water Interactions 36
Ground Water Summary 37
R645-301-724.200 Surface Water Information 37
Surface Water Environment 38
Drainages and Surface Water Bodies 39
Drainages 39
Surface Water Bodies 40
Perennial Streams 41
Ephemeral Drainages 41
Drainages and Surface Water Bodies 42
Surface Water Occurrence 42
Surface Water Quality 53
General Water Quality Characteristics 53

Temporal and Spatial Water Quality Characteristics 54
Surface Water Rights and Use 55
Surface Water/Ground Water Interactions 58
Surface Water Summary 81
The Major Perennial Streams 81
R645-301-724.320 Reclamation & Prevention Material Damage 81
R645-301-724.400 Climatological Information 83
Temperature 84
Precipitation 84
Wind 85
R645-301-724.700 Including R645-302-320 Alluvial Valley Floors 85
R645-302-320 & 321 Alluvial Valley Floors Determination 85
R645-301-725 Baseline Cumulative Impact Area Information 85
R645-301-726 Modeling 87
R645-301-727 Alternative Water Source Information 88
R645-301-728 Probable Hydrologic Consequences Determination 88
Ground Water Baseline Conditions 88
Surface Water Baseline Conditions 89
Stream Flows and Surface Water Quality 89
Ground Water Occurrence, Movement, Discharge, and Quality 91
Potential for Adverse Impacts 91
Ground Water Impacts 91
Ground Water Consequences 93
Surface Water Impacts 95
Surface Water Consequences 96
R645-301-729 Cumulative Hydrologic Impact Assessment 91
R645-301-730 Operation Plan 101
R645-301-728.320 Presence of Acid or Toxic Forming Materials 102
R645-301-731 Transfer of Wells 102
Contamination, Diminution, or Interruption of Ground or Surface Water Sources with Current Beneficial Use Within the Permit and Adjacent Areas 102
R645-301-731 Hydrologic-Balance Protection 103

Components of the Hydrologic Protection Plans 103
R645-301-731.110 Ground Water Protection 104
Underground Coal Removal 105
Surface Placement of Coal, Mine Waste 106
Retention of Drainage in Sedimentation Pond Structures 107
R645-301-731.120 Surface Water Protection 108
Mapping of Hydrologic Resource Protection Information 108
Removal of Vegetation and Soil Materials from Disturbance Areas 109
Surface Placement of Coal, Mine Waste 111
Discharge of Mine Water to Surface Drainages 112
Mine Water Supply Withdrawals 116
Coal Preparation Activities 116
Operation of Drainage and Sediment Control Structures 116
R645-301-731.200 Water Monitoring 117
R645-301-731.300 Acid and Toxic Forming Materials 120
R645-731.500 Discharges 120
R645-301-731.600 Stream Buffer Zones 120
R645-301-731.700 Cross Sections and Maps 120
R645-301-731.800 Water Rights and Replacement 120
R645-301-732 Sediment Control Measures 121
Runoff Calculations 124
Discharge Rate Calculations 124
Volume Calculations 124
Climatological Information 124
Modeling Methodology 125
R645-301-733 Impoundments 126
Operation and Maintenance 126
R645-301-735 Disposal of Excess Spoil 128
R645-301-736 Coal Mine Waste & Underground Development Waste 128
Underground Development Waste 128
R645-301-737 Noncoal Mine Waste 128
R645-301-738 Temporary Casing and Sealing of Wells 129

R645-301-740 Design Criteria and Plans 129
R645-301-742 Sediment Control Measures 130
R645-301-742.200 Siltation Structures 130
R645-301-742.220 Sedimentation Ponds 131
R645-301-742.300 Diversions 133
Collection Ditches and Associated Structures 133
R645-301-742.400 Road Drainage 134
R645-301-743 Impoundments 135
R645-301-744 Discharge Structures 135
R645-301-745 Disposal of Excess Spoil 137
R645-301-746 Coal Mine Waste 137
R645-301-738 Temporary Casing and Sealing of Wells 137
R645-301-747 Disposal of Noncoal Mine Waste 137
R645-301-748 Casing and Sealing of Wells 138
R645-301-750 Performance Standards 139
R645-301-751 Water Quality Standards and Effluent Limitations 139
R645-301-752 Sediment Control Measures 128
R645-301-753 Impoundments and Discharge Structures 128
R645-301-754 Disposal of Excess Spoil, Coal Mine Waste and Noncoal Mine Waste 128
R645-301-755 Casing and Sealing of Wells 128
R645-301-760 Reclamation 140
R645-301-761 General Requirements 141
R645-301-762 Roads 144
R645-301-763 Siltation Structures 144
R645-301-764 Structure Removal 145
R645-301-765 Permanent Casing and Sealing of Wells 146
References 146

R645-301-710 General Contents

This section describes the hydrologic conditions and resources within the permit and adjacent areas that could potentially be affected or impacted by the mining and reclamation activities. Information in this section was developed following applicable regulatory guidelines (R645-301-700) for coal mine permitting in the State of Utah.

Hydrologic conditions in the permit and adjacent areas have been characterized in this section using information from ongoing baseline characterization and monitoring. This hydrology description represents a consolidation of monitoring data specific to the Kinney No. 2 Mine permit area (Exhibit 9, Seep and Spring Survey, Exhibit 10, Surface and Ground Water Field Measurements, Exhibit 11, Monitor Well Completion Details, Exhibit 12, Surface and Ground Water Quality Data; Spread sheet prints, and Lab Analyses, Exhibit 20, Ephemeral Drainage Determination). Ongoing baseline monitoring activities are as specified herein, and within R645-301-724 and R645-301-724.100.

This hydrology description represents a consolidation of regional information and recent monitoring data specific to the Kinney No. 2 Mine permit area. Ongoing baseline monitoring activities to be a part of the Baseline Hydrology Monitoring Plan for the Kinney No. 2 Mine are discussed briefly below. The purpose of the plan is to collect and evaluate baseline hydrologic data specific to the Kinney No. 2 Mine. Data collected under the plan is used to characterize existing surface water and ground water in the area and evaluate potential impacts to these resources from mining and reclamation activities. The monitoring plan consists of a comprehensive seep and spring survey completed by Rock Logic Consulting, LLC of Cedaredge, Colorado in 2006 Exhibit 9, Seep and Spring Survey. The survey resulted in the identification of 25 spring/seep locations. Unfortunately several nomenclature issues have occurred relative to seeps and springs, wherein springs and seeps were originally given one name during the spring and seep survey then later, during collection of baseline data from those locations, the names were inadvertently changed introducing some confusion when reviewing the data. In addition to the seep and spring survey, well drilling, testing, and monitoring has been completed on 11 wells to evaluate geohydrologic conditions including the occurrence of ground water and hydraulic characteristics of the aquifers. Additional baseline data have been collected from the two perennial streams near the permit area (Mud Creek, and Miller Canyon), and from nearby Scofield Reservoir. Nomenclature problems also plague data collected from streams, the groundwater wells and Scofield Reservoir. Clarification of the nomenclature confusion is found below under General Requirements and on Map 7, Regional Hydrology where the preferred name and the AKA's are also shown.

References to design criteria methods used throughout Chapter 7 of the MRP include:

Curve Number Methodology

Sec 732	Discharge Rate Calculation
Sec 732	Volume Calculation
Sec 732	Modeling Methodology

Ditch Design

Sec 742.300	Collection Ditches and Associated Structures
Sec 724.400	Road Drainages

Pond Design	
Sec 742.220	Sedimentation Ponds
Sec 728	Surface Water Consequences
Sec 731.110	Retention of Drainage in Sedimentation Pond Structures
Sec 732	Table 16 – Design Rainfall Events
Reclamation	
Sec 760	This section discusses reclamation activities based on the criteria set in Sections 728 through 742.220

R645-301-712 Certification

All cross sections, maps and plans required by R645-301-722 as appropriate, and R645-301-731.700 have been prepared and certified according to R645-301-512.

R645-301-721 General Requirements

This permit application document includes a description of the existing, premining hydrologic resources within the proposed permit and adjacent areas that may be affected or impacted by the proposed coal mining and reclamation operation.

All surface and well monitoring stations utilized for baseline monitoring for the Kinney No. 2 Mine permit area are listed in Table, 6 Kinney # 2 Mine Baseline Monitoring Stations. Operational monitoring stations are shown in Table 7, Kinney No. 2 Mine Operational Monitoring Stations. Surface and ground water monitoring locations are shown on Map 7, Regional Hydrology, and Map 28, Surface and Ground Water Monitoring Sites. During the preparation of the mine permit application it was discovered that some monitoring stations had inadvertently been given different names during data collection. Attempts have been made to rectify this situation including the identification of a preferred monitoring station name. However, the following clarification is provided in the event that old references are located within the permit or its appendices.

Preferred Name	**AKA's (Alternate Documented Names)**
CR-06-03-ABV	CR-06-03
Eagle Spring	Miller Spring, Eagle Springs
Miller Outlet	Eagle Outlet, Eagle Outlook
Mud Creek	Muddy Creek
Res-1	Scofield Res. 1
Sulfur Spring	Sulfur Springs, Sulfer Spring, Sulfer Springs
Aspen Spring	Eagle Pond 1
Eagle Seep 1	Eagle Spring 1
Eagle Seep 1A	Eagle Spring 1A

Baseline hydrologic monitoring has been performed for the Kinney No. 2 Mine permit area at the

following frequency:

Springs – R645-301-724.100 requires minimum baseline monitoring of TDS or Specific Conductance, pH, total iron and manganese, and approximate rate of discharge or usage. Springs and seeps identified in Table 6 have been monitored for several years to establish baseline conditions for aqueous parameters according to the schedule provided in Table 20, Hydrologic Monitoring Schedule.

Certain springs and seeps identified in the Seep and Spring Survey (Exhibit 9) were not chosen for monitoring stations for the following reasons. Eagle Springs 1, 1A, 2, Eagle Seep 3, Eagle Pond 2are all located along a 1,290 ft. stretch of Upper Eagle Canyon and apparently are all issuing from the fault related perched aquifer system there. Angle Spring was chosen to monitor the fault related perched aquifer in Eagles Canyon and was monitored for one year (Sept. 05 – Sept. 06). When access to Angle Spring was prohibited, Aspen Spring (named Eagle Pond 1 in the Spring and Seep Survey) was chosen to replace Angle Spring and continue the monitoring of the fault related perched aquifer in Eagles Canyon. Aspen Spring has been visited in the field eight times, five of those visits yielded data which was collected from June 2008 through Sept 2010 (Table 6 and Exhibit 10).

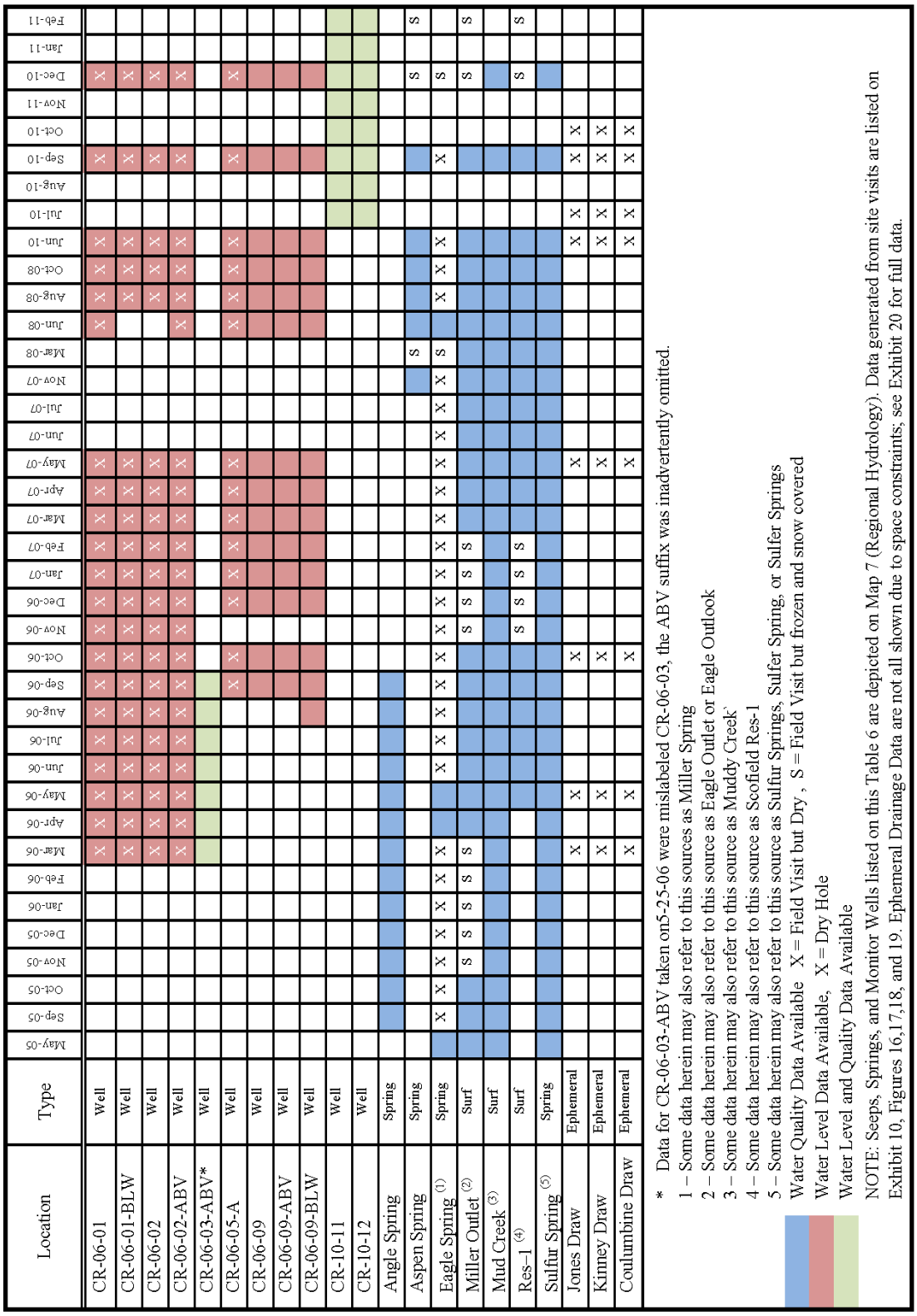
Monitoring of Aspen Spring, as with all other ground and surface water monitor stations, was interrupted during 2009 due to lack of funding. It is noted that, in general, patterns established in the data prior to the 2009 hiatus continue with no substantive deviation in data collected after monitoring was resumed. This suggests the hiatus served only to spread the data collection over more years which provides additional confidence in the patterns observed.

Stream Stations - R645-301-724.200 requires minimum baseline monitoring of Total Suspended Solids, TDS or Specific Conductance, pH, total iron and manganese, and the rate of discharge or usage. Flow and field water quality parameters have been measured on a monthly basis for two years then on a quarterly basis for the Miller Outlet and Mud Creek surface stations, and for the Scofield "Res-1" site during periods wherein access is not limited due to ice. All stream stations have been monitored for a two year period to establish baseline conditions for aqueous parameters according to the schedule provided in 20, Hydrologic Monitoring Schedule. Flow measurements for Miller Outlet (aka Miller Creek in Miller Canyon) and Sulfur Spring were calculated via the following method. Both water sources flow beneath Highway 96 through culverts who's diameter and length have been measured. At each field outing the depth of water passing through each culvert is measured and a stick is dropped into the flow at one end of the culvert and timed as it passes through the culvert. These data have been used to calculate flow volumes presented on Figure 17, Field Data and Exhibit 10, Field Measurements Surface and Ground Water. Flow volume for Mud Creek is obtained via internet from the USGS real-time monitoring station at the mouth of Winter Quarters Canyon and the Scofield Reservoir Pool Elevation is measured in the field on the staff gauge near the dam and via the internet from the Bureau of Reclamation real-time measuring station also located at the Scofield Dam. Estimates of flow from the springs also utilize standard field techniques. All field data can be found on Figure 17, Field Data and Exhibit 10, Field Measurements Surface and Ground Water.

Monitoring Wells - R645-301-724.100 requires minimum baseline monitoring of TDS or Specific Conductance, pH, total iron and manganese, the rate of discharge or usage (if applicable) and depth to water. Wells shown on Map 28, Surface and Ground Water Monitoring Sites, have or will be sampled on a monthly basis for a one year period, through each of the four seasons (when the well is accessible, and when sufficient water exists to extract a sample) to establish baseline conditions for aqueous parameters according to the schedule provided in Table 20, Hydrologic Monitoring Schedule. Five of the eleven monitor wells are DRY thus providing zero-point data.

Monitor Wells CR-10-11 and CR-10-12 were completed at the request of UDOGM to be added as operational-phase down-gradient augmentation to the nine (9) existing baseline ground water monitor well completions. The two new wells were completed in July of 2011 and have been monitored monthly, to date accumulating eight months of monitoring data. Table 6, Exhibits 10, and 12 have been updated to include these data.

Table 6 Kinney #2 Baseline Monitoring Stations



As a

result of CR-06-03-ABV being decommissioned only six months of groundwater data were collected from within the Eagles Canyon Graben. ~~Carbon Resources~~Coal Energy Group 3 commits to replace CR-06-03-ABV with an in-mine monitor well. As mining extends eastward to the Western Boundary Fault of the Eagles Canyon Graben ~~Carbon Resources~~Coal Energy Group 3 will complete an in-mine monitoring well to monitor ground water inside of the Eagles Canyon Graben. Due to the differential in water level within the Eagles Canyon Graben and immediately west of this Graben, a monitor well will consist of piercing the gouge zone of the graben and installing a grouted-in differential pressure gauge and valve to monitor the water level and quality within the Eagles Canyon Graben, Figure 15.

Figure 15. Underground Horizontal Monitor Well Completion

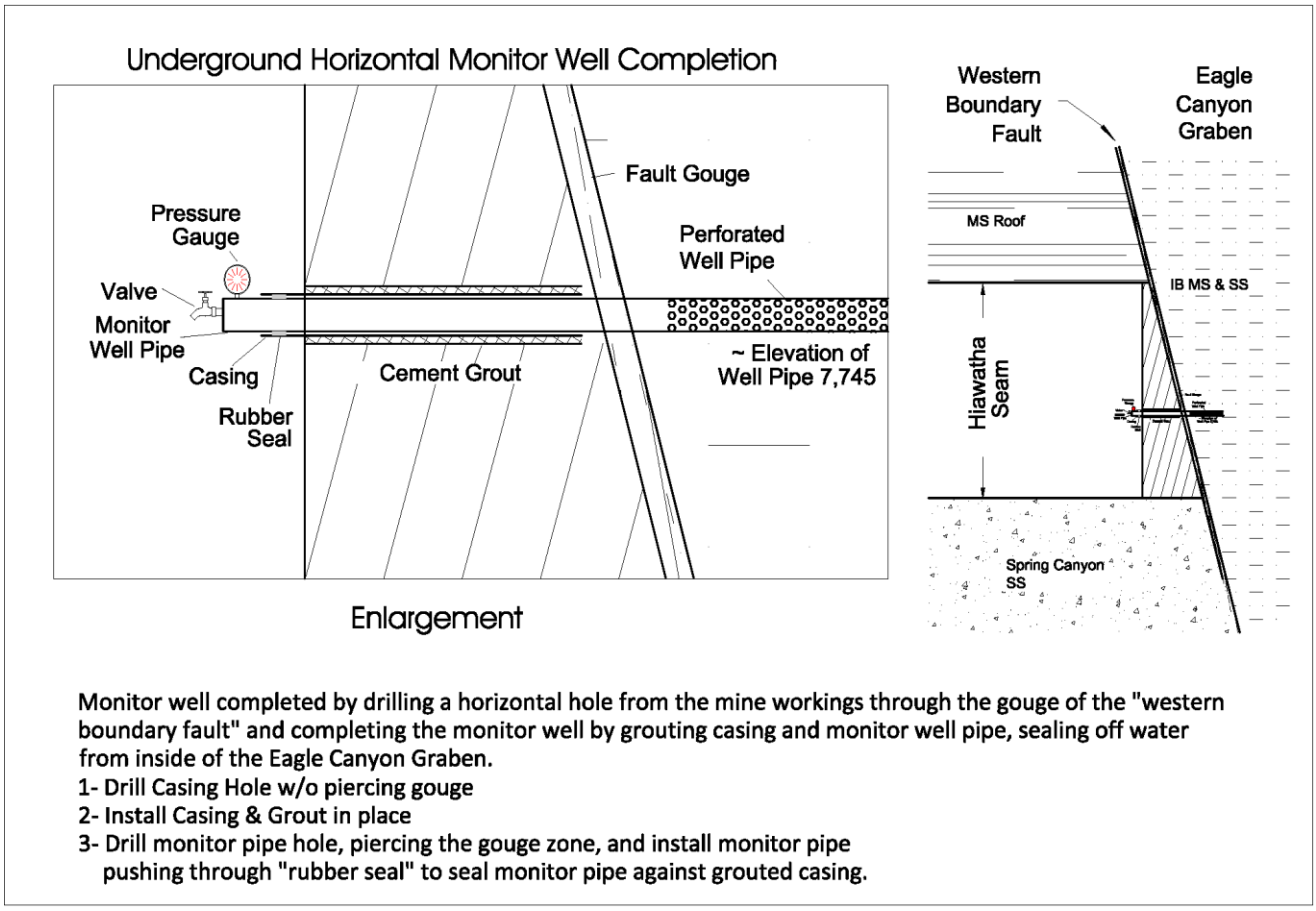


Table 7 - Kinney Mine Operational Monitoring Stations

Location	Type	Water Level or Flow	Field Parameters	Laboratory Analytical Parameters
* CR-06-01	Well	X	X	X
* CR-06-01-BLW	Well	X	X	X
* CR-06-02	Well	X	X	X
* CR-06-02-ABV	Well	X	X	X
* CR-06-05-A	Well	X	X	X
CR-06-09-ABV	Well	X	X	X
CR-06-09-BLW	Well	X	X	X
CR-10-11	Well	X	X	X
CR-10-12	Well	X	X	X
Aspen Spring/Pond	Spring/Pond	X	X	X
Eagle Spring 2 & Pond 2	Spring/Pond	X	X	X
Eagle Seep 1	Seep	X	X	X
Eagle Seep 1A	Seep	X	X	X
Eagle Seep 3	Seep	X	X	X
Eagle Spring (1)	Spring	X	X	X
Miller Outlet (2)	Surface	X	X	X
Mud Creek (3)	Surface	X	X	X
Res–1 (4)	Surface	X	X	X
Sulfur Spring (5)	Spring	X	X	X
* Jones Draw	Ephemeral	X	X	X
* Kinney Draw	Ephemeral	X	X	X
* Columbine Draw	Ephemeral	X	X	X
* These Monitor Wells and Ephememeral Drainages are considered to be Dry, however, monitoring will continue and presence of water will allow collection and reporting of data				
1 – Some baseline data herein may also refer to this sources as Miller Spring				
2 – Some baseline data herein may also refer to this source as Eagle Outlet or Eagle Outlook				
3 – Some baseline data herein may also refer to this source as Muddy Creek`				
4 – Some baseline data herein may also refer to this source as Scofield Res-1				
5 – Some baseline data herein may also refer to this source as Sulfur Springs, Sulfer Spring, or Sulfer Springs				
NOTE: Seeps, Springs, and Monitor Wells listed on this Table 7 are depicted on Map 7 (Regional Hydrology). Baseline Data generated from site visits are listed on Exhibit 10, (Field Parameter Measurements) Figures 16,17,18, and 19. Complete Laboratory Analysis Data can be found in Exhibit 12 (Water Quality Data). Baseline and Operational Laboratory Paramaters are located on Table 20 Hydrologic Monitoring Schedule.				

Data obtained from the baseline monitoring plan characterizes current surface and ground water flows, water quality conditions, and any seasonal variations in these characteristics. Approximately four years of baseline data are available from the surface monitoring locations and approximately one year of groundwater baseline hydrologic data is now available for most stations for UDOGM's technical adequacy review of this permit application. Adequate baseline data have been collected, per discussions with UDOGM personnel, and ~~CR~~ CEG3 has now moved into quarterly sampling. The "two down peizometric slope" monitor wells CR-10-11 and CR-10-12 were added to the group of groundwater monitor wells at the request of the Division.

Per UDOGM request ~~Carbon Resources~~Coal Energy Group 3 commits to add additional water monitoring stations in Long Canyon to collect the appropriate data to support an expansion of the MRP eastward from the present permit boundary. These data points will be determined and added to the MRP in the field season of 2011.

R645-301-722 Cross Sections and Maps

Hydrologic information is presented in various locations within the permit including:

• Other Permits	Exhibit 4
• Springs and seeps	Exhibit 9 (Map 10)
• Field Measurements , Surface and Groundwater	Exhibit 10
• Monitor Well Completion Details	Exhibit 11
• Surface and Groundwater Quality Data	Exhibit 12
• Water Quality Rights	Exhibit 13
• Runoff Control	Exhibit 16
• CHIA (UDOGM)	Exhibit 17

• Surface water bodies	Map 7
• Boreholes and test wells	Map 7
• X-Section A–A'	Map 7A
• X-Section –C-C'	Map 7B
• Faults and other geologic structures affecting hydrology	Map 8
• Ground Water Level Data	Map 9
• Regional Water Quality	Map 10
• Surface Facilities	Map13
• Drainage and Sediment Pond Controls, Undisturbed Area	Map 23
• Drainage and Sediment Pond Control, Disturbed Area	Map 24
• Sediment Pond 1	Map 25
• Runoff Control	Map 27
• Surface and ground water monitoring locations	Map 28

301-722.400 Water Wells In The Permit and Adjacent Area

Four water wells exist within 1 mile of the permit boundary as shown on Map 30, Ground Water, Water Rights as follows:

Water Right No.
91-3401 – No depth information is available in the Utah Division of Water Rights information.
91-3402 – No depth information is available in the Utah Division of Water Rights information.
91-4889 – The well is listed as 6", with a depth of 100-500 feet.
A34946(91-5106) – The well is listed as 6" and depth of 100-500 feet.
These water wells are addressed in response to R645-301-724.100 to follow.

R645-301-723 Sampling and Analysis

All water quality samples have been and will continue to be analyzed according to the most current copy of the Standard Methods for the Examination of Water and Wastewater, a joint publication of the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation.

Table 20 Hydrologic Monitoring Schedule

Field Measurements	Reported As	Baseline		Operational & Post-Mining	
		Surf	GW	Surf	GW
Water Level or Flow	Depth, Flow				
pH	Std Units				
Specific Conductivity	umhos/cm @ 25 °C				
Temperature	°C				

Laboratory Measurements	Reported As	Baseline		Operational & Post-Mining	
		Surf	GW	Surf	GW
Total Dissolved Solids	mg/l				
Total Suspended Solids	mg/l				
Total Hardness ($CaCO_3$)	mg/l				
Total Alkalinity	mg/l				
Acidity	mg/l				
Aluminum (Dissolved)	mg/l				
Arsenic (Dissolved)	mg/l				
Boron (Dissolved)	mg/l				
Carbonate	mg/l				
Bicarbonate	mg/l				
Cadmium (Dissolved)	mg/l				
Calcium (Dissolved)	mg/l				
Chloride	mg/l				
Copper (Dissolved)	mg/l				
Iron (Dissolved)	mg/l				
Iron (Total)	mg/l				
Lead (Dissolved)	mg/l				
Magnesium (Dissolved)	mg/l				
Manganese (Dissolved)	mg/l				
Manganese (Total)	mg/l				
Molybdenum (Dissolved)	mg/l				
Ammonia	mg/l				
Nitrates	mg/l				
Nitrites	mg/l				
Potassium (Dissolved)	mg/l				
Phosphate (Ortho)	mg/l				
Selenium (Dissolved)	mg/l				
Sodium (Dissolved)	mg/l				
Sulfate	mg/l				
Zinc	mg/l				
Oil & Grease					
Settleable Solids	UPDES				
Cations	meq/l				
Anions	meq/l				

Data submittals will be made to UDOGM on the following Basis:

Quarterly – Lab water quality results will be submitted within 90 days of the end of the quarter.

Annually – Hydrologic review and summary of data will be submitted on or before June 1st.

Figure 14 Ariel View of Permit Area

The topography and general hydrogeology of the mine permit area is typical of central Utah mountain areas, containing both valley and mountain segments. The direct permit area lies within a north south trending mountain range traversed by small east to west drainages as shown in Figure 14, Arial View of Permit Area. The figure, looking to the north-east shows the general topographic nature of the area, Scofield Reservoir to the north, the town of Scofield in the bottom central portions, the railroad which goes through the town of Scofield then bends to the east, then crosses and parallels the highway as it continues northward, a private mountain access road that zigzags up the mountain side within the southern portions of the permit area, and an un-named ephemeral drainage lying just south of the mountain access road. In general, the permit area includes the area north of the un-named ephemeral drainage, south of the point where the railroad crosses the highway, and within 1,500 feet east of Utah highway 96.

The relatively dry climate and limited up-gradient drainage area limit local ground water recharge and surface water runoff. The majority of seeps and springs identified within the general area were found within the north-south trending drainages lying to the east and south of the permit area including Long Canyon, Merrill Canyon, Eagle Canyon, and UP Canyon, Exhibit 9, Seep and Spring Survey.

Semi-arid climatic conditions and precipitation patterns result in a high loss of moisture to runoff, evaporation, and sublimation reducing the amount of water available for recharge or stream flow. Recharge to underlying units is also limited by flat lying units. Downward movement of recharge through the stratigraphic sequence to underlying units is limited by low vertical permeabilities of the units (which are often fine-grained, well cemented, or massive), the presence of relatively impermeable shale units acting as confining layers. Downward movement of recharge is predominately accomplished within the breccia zones of the faults, predominately the N-S faults.

As noted below in (R645-301-724.100) and on Table 6 and in Exhibit 11 , static water levels that may be interpreted as representing a regional water table have been encountered in only four of the eleven monitor wells (CR-06-03ABV, CR-06-09, CR-10-11, and CR-10-12). Data from these monitor wells together with data from the two perennial streams (Mud Creek & Miller Creek) and from Scofield Reservoir, have been interpreted to indicate a regional ground water table with a piezometric surface dipping westward indicating an east to west flow of groundwater in the regional water table. This interpretation suggests groundwater is not entirely partitioned by the N-S faults or Stratigraphy, therefore flowing across strata and some faults in a westerly direction. As noted elsewhere in this chapter, drilling of one or more additional ground water monitor wells will be required to confirm this interpretation and or supplant it with the alternate interpretation of a North North-Eastely ground water flow in the regional groundwater table following stratigraphic units down the regional dip.

The coal mining operations planned for the site will include mine portals, office and maintenance facilities, coal handling, storage, and loadout facilities, roads, and runoff control facilities. The facilities will be constructed on a series of pads interconnected by roads. Runoff control facilities will consist of a series of ditches, culverts, and a single flow/sediment pond located at the extreme north end of the disturbed area.

Five alternate sediment control areas are planned for the mining operation. The first and main area is a topsoil stockpile area planned to be located east of and adjacent to highway 96, and immediately south of the main entrance and access road. This alternate sediment control area will utilize a downhill berm, small drainage channel, and silt fencing and/or straw bales to control sediment runoff. The second and third areas involve small overland flow zones immediately adjacent to the entrance off Highway 96. These small areas will discharge into small sediment traps. The fourth and fifth areas involve additional soil stockpile areas located just north and south of culvert CP-2 within the small triangular permit area west of Highway 96. Details regarding the runoff control plan are provided on Map 24 and within R645-301-731 – 738.

R645-301-724.100 Ground Water Information

Ground water occurrence in the permit and adjacent areas has been quantified by the completion of a seep and spring survey, exploratory well drilling geologic analysis of potential water-bearing strata, the identification of potential ground water storage in underground mines, and the analysis of water quality and quantity characteristics and by completing a total of eleven groundwater monitor wells located in eight different locations in and around the permit area, and from surface water conditions known to exist within Long Canyon, Miller Canyon, Mud Creek, and Scofield Reservoir. Locations of monitor wells are shown on Map 7, Regional Hydrology. Wells CR-06-01, CR-06-02, CR-06-05A and CR-06-09 all penetrate and are screened within the Hiawatha coal seam. Wells CR-06-02-ABV, CR-06-03-ABV, and CR-06-09-ABV are all

screened into potential water bearing zones (perched sands) above the Hiawatha coal seam, while wells CR-06-01-BLW and CR-06-09-BLW are completed in zones below the Hiawatha seam. Monitor wells CR-10-11 and CR-10-12 are completed into the regional water table within the pleasant valley graben and as a result are completed far above the Hiawatha Coal Seam because the Seam has been dropped down approximately 600 feet inside of the graben. To maintain nomenclature these two monitor wells should have been given the ABV suffix but were not. Completion details for all monitoring wells are included within Exhibit 11, Monitor Well Completion Details.

It will be noted that a concerted effort was made to complete some of the wells a significant depth beneath the seam to be mined (Hiawatha). As can be seen by on the completion diagram for Monitor Well CR-06-01-BLW, the top of the ten foot well screen is one hundred fifty four (154) feet below the base of the Hiawatha Seam.

Field data collected from the monitoring wells are included within Exhibit 10, Surface and Ground Water Field Measurements and on Table 6, Kinney #2 Mine Baseline Monitoring Stations. Five of the eleven monitor wells are "dry". Comparing the Ground Water Field Measurements with the Monitor Well Completion Diagrams reveals that all the water levels recorded in these five dry holes are within the ten foot blank below the base of the screened interval in each of these five wells as discussed above.

Raw data, referred to above, have been reviewed to develop interpretations and reach the conclusions presented in this section. As previously noted, only limited ground water exists within the permit and adjacent areas; it is mostly limited to the underlying regional water table, and in alluvial/colluvial deposits that form shallow unconfined aquifers associated with small area drainages. Some water may also be found within localized perched ground water systems within the stratigraphic sequence, and small vertical aquifers adjacent to faults, and as stored water in adjacent abandoned underground mine workings. These ground water occurrences, especially within the proposed permit area are not significant as water supplies due to the limited regional continuity of the associated units, low overall permeabilities, limited recharge and, in the case of the water table aquifer, relative depth and lack of confinement. Surface water sources, dominated by Mud Creek, provide a much more consistent and reliable water supply source.

While some ground water recharge undoubtedly occurs within the permit and adjacent areas, recharge is limited both by the factors noted above and by the low overall permeability of the stratigraphic sequence which effectively limits significant vertical ground water movement.

The exception to this generality is some of the N-S faults which are suspected of providing vertical conduits for recharge. On a regional basis, recharge is believed to occur through isolated outcrop areas where permeable units are exposed to direct precipitation.

Consistent with applicable provisions of R645-301-512, hydrologic information has been prepared under the direction of, and certified by a qualified registered professional engineer or land surveyor with assistance from experts in the related fields. To aid in the following discussion, Map 8, Works-Wells-Springs-Faults has been created to assist in showing the inter-relationships between important geologic and man-made features.

The regulatory definition for "Renewable Resource Lands" includes geographic areas which are important in supporting and maintaining water supplies and areas which contribute significantly to agricultural production. The water supply component of this definition specifically includes

those areas containing ground water aquifers and associated recharge areas.

While there are known, but limited, ground water occurrences within the permit and adjacent areas, none of the identified aquifers are important water supply sources. In general, the sparse vegetation, geologic stratification, and semi-arid climate combine to limit ground water infiltration, with either runoff or evaporation/transpiration accounting for most of the precipitation received. Based on this and test drilling data, we conclude that the area does not provide significant recharge to any regional ground water aquifer. The most important local feature is the areas importance as a watershed for local surface drainages. There are no known significant historical nor recent agricultural activity within the permit or adjacent areas and the USDA-SCS has issued a negative determination for prime farmlands for the area as discussed and documented in R645-301-211, 222, and 223, Prime Farmlands.

Ground Water Environment

The geology of the permit and adjacent areas is described in detail in R645-301-610 - 627, however, the regional hydrostratigraphy of the area is reflective of the following primary formations, listed and described in order beginning with the lowermost stratigraphic unit of interest:

Mancos Shale - A massive grey marine shale. Commonly fine grained, the Mancos Shale is generally interbedded with fine to medium-grained sandstones. While the shale members are characterized by relatively low permeability, any ground water percolating through the more permeable interbedded sandstones may come in contact with associated evaporites such as gypsum resulting in rapid degradation of water quality. The Mancos Shale is laterally continuous in the proposed permit area.

Blackhawk Formation - The principal coal-bearing formation of the Mesa Verde Group, the Blackhawk Formation, is a sequence of alternating sandstone, mudstone, and coal. The coal seams of greatest economic importance occur within the lower portions of the formation. The sandstones are fine to medium-grained and are typically well cemented resulting in relatively low permeabilities. The shale units are similar in character to the Mancos Shale and are relatively tight, acting as aquitards to limit vertical ground water movement.

In ascending order, major units of the Blackhawk Formation include the Panther sandstone, Flat Canyon coal seam, Storres sandstone, Lower UP coal seam, Columbine coal seam, Spring Canyon sandstone, Hiawatha coal seam, McKinnon coal seam, and Haley Coal Seam

Castle Gate Sandstone - A fine to medium-grained, argillaceous to slightly calcareous massive sandstone. The Castle Gate Sandstone grades to shale both along its basal contact with the Blackhawk Formation and, in many locations, near the top of the unit. Due to its massive occurrence and strong cementation, it is highly resistant to weathering forming prominent cliffs throughout the region, and exhibits relatively low permeability. The thickness of this unit typically ranges from 100 to 500 feet.

Price River Formation - Medium-grained sandstone and shaley sandstone grading to a grey to green shale. The Price River Formation is generally characterized by low primary permeability with some localized increases in permeability due to extensive

fracturing.

North Horn Formation - A series of shales, sandstones, conglomerates, and freshwater limestone deposits, which throughout the region can be 2,400 feet thick, and laterally discontinuous in rugged topography. The shales are relatively tight, functioning as aquitards to minimize downward ground water movement.

Although ground water can occur in all of the major stratigraphic units identified, all are considered poor to moderate aquifers. Ground water yields are limited within the proposed permit area by small recharge basins, the semi-arid climate of the region which limits recharge to the units, low permeabilities, and the lack of regional lateral continuity resulting from dissection by deep drainage valleys. While many of the minor stratigraphic units (such as sandstones and coal seams) are capable of storing and transmitting ground water, regional ground water transmission capabilities are limited by the relatively thin and laterally discontinuous nature of these semi-permeable units.

Ground Water Aquifers

Ground water aquifers within the proposed lease and adjacent areas have been characterized on the basis of information obtained from field investigations, well drilling, and ongoing monitoring activities. These activities include borehole drilling and well installation, geologic and geophysical logging, observations of the occurrence of water during exploration drilling, aquifer testing, routine water level monitoring, and routine ground water quality analyses. Ground water occurrence and movement in the proposed permit boundary and adjacent areas can best be characterized by describing the four primary aquifer systems identified through field investigations and monitoring activities to date.

The four aquifer systems include the:

- Alluvial/Colluvial Surficial Aquifer System
- Perched / Isolated Ground Water Systems
  Includes narrow vertical systems within breccia zones of some faults.
- Regional Ground Water System
- Stored Mine Water System

These aquifer systems are individually described below.

Alluvial/Colluvial Aquifer System

The alluvial/colluvial aquifer system consists of shallow ground water contained in limited alluvial/colluvial deposits associated with area surface drainages. In the smaller drainages, these alluvial/colluvial deposits are very narrow and may store and transmit relatively minor amounts of ground water. The only alluvial/colluvial aquifers of any significance occur along the channels of the perennial drainages of Mud Creek and Miller Creek downstream of the permit area and are generally confined to the active stream channel, immediately adjacent areas, and any hydrologicaly connected inactive or abandoned channel segments.

The alluvial/colluvial aquifer system in the area appears to be closely tied to the surface water system with ground water recharge occurring during periods of high flow and ground water

discharge occurring near Scofield Reservoir on a relatively continuous basis but becoming more pronounced during periods of low flow when stream levels may drop below the existing potentiometric surface of the alluvial/colluvial aquifer. Some lateral discharge from the shallow ground water aquifer to Mud Creek may also occur from side channel tributaries during late season low flow periods. The regional aquifer system may also be a source of recharge to the alluvial/colluvial system in the lower reaches of Mud and Miller Creeks.

Perched Ground Water System

Perched ground water in the permit area can occur within limited semi-permeable strata-bound units within the Blackhawk Formation. Typically, perched ground water systems consist of isolated lithologic members which have sufficient permeability to store and transmit ground water and are connected to a natural source of recharge.

Perched ground water occurrence are typically ribbon shaped sand-rich fluvial paleo-channels that are enclosed in an envelope of rather impervious mudstone and siltstone. These channels become water bearing in two ways. one; much of the water in perched systems is connate as determined from isotope age dating of water from these ribbon channels from other mines throughout the Eastern Wasatch. Two; because these channels have extremely long lateral extent along their axis they either daylight as an outcrop in a recharge zone or "sub-crop" against a fault and receive recharge from water that is moving downward within the breccia zone of the fault when structural dip of the fault block in which they reside is favorable.

A second group of perched aquifers consist of coal seams. Coal seams have inherently low permeability and transmissivity but possess rather large secondary permeability and transmissivity due to cleating. The coal seams are also enclosed, generally, by rather impervious mudstone and siltstone but unlike the narrow sinuous shapes of paleo-channels, coal seams have large areal extent. The same two basic recharge mechanisms apply to coal seams as apply to channels.

A third group of perched aquifers are the narrow vertical aquifers adjacent to faults. These small volume perched aquifers appear to be responsible for many of the springs located within and near the permit boundary and indeed within the Eastern Wasatch Plateau Region. The springs in Eagle Canyon, Angle, and Aspen show strong evidence for being fed by a fault controlled perched aquifer. They both occur above the regional water table and both display very high quality water, (low TDS and dissolved elements etc.) both have short flow periods each year. Flowing in the early spring and drying up, or reducing in flow significantly in midsummer to early fall on a yearly basis.

The thickness of strata-bound perched (unconfined) aquifers vary significantly, corresponding to the thickness of the sandstone or other water-bearing units. Many of the perched aquifers in the upper portion of the stratigraphic section are limited in areal extent by the numerous large and small surface drainages which dissect the area and truncate the relatively flat-lying sedimentary units.

The small aquifers in the perched ground water system are recharged almost exclusively by direct precipitation and near-surface ground water infiltration. Principal recharge areas for the perched ground water system include formation outcrops in basins where runoff or snowfall accumulations provide supplemental recharge. The combination of steep terrain and relatively low permeabilities typical of the region, limit infiltration to less than 5 percent of annual precipitation (Price and Arrow, 1974; USGS, 1979), and the limited areal extent of the water-

bearing strata result in low discharge rates from the perched ground water system.

Discharge from the perched ground water system occurs primarily in the form of seeps and springs at sandstone-shale interfaces where the water-bearing strata outcrop. Limited discharge from the perched ground water system to the regional ground water system may also occur due to fracture or fault related secondary permeability. It is possible that vertical losses may be occurring locally within faulted and fractured units.

A comprehensive spring and seep inventory of the permit and adjacent areas, conducted in June 2006, identified 6 active seeps and 27 active springs. The locations of known springs and seeps are shown within the report included as Exhibit 9, Seep and Spring Survey. As can be seen in Table 9, Seep and Spring Flow Summary, discharges were reported to typically vary from small or negligible seeps to approximately 10 GPM. Isolated flows in two springs have flows recorded up to 15 to 20 GPM, and one spring (Sulfur spring) has flows up to 80 GPM. As is typical of the intermountain region, discharges from the perched ground water system, which feed local seeps and springs, will exhibit significant seasonal variation with maximum discharge following spring snowmelt followed by a decline in discharge with many springs and seeps drying up during late summer and early fall. This is shown in the data collected as part of the baseline monitoring. Springs and seeps are discussed further in R645-301-724, Surface Water Information. Of the springs identified in the survey, Eagle (AKA Miller), Sulfur, Angle, and Aspen (AKA Eagle Pond 1), are included within the ground water monitoring program, data for which is included within Exhibit 10, Surface and Ground Water Field Measurements. As can be seen from the data, Eagle spring only flows during the April-May time period in response to spring snowmelt events. Sulfur Spring flows year round with the highest flows occurring in the fall and winter periods. During the period of measurement, Angle Spring was found to flow between 0.25 and 1.25 GPM, the highest flows occurring during the spring and early summer of 2006. Angle Spring has not been measured since September of 2006 due to access issues discussed previously.

Stored Mine Water System

Historic coal mining in the area has resulted in well documented underground mine workings. In those areas where the mine workings are below the local ground water table or where subsidence has resulted in fractures connecting to the perched ground water system to a portion of an old mine that lies upon an aquitard, mine inflows may have resulted in the gradual accumulation of stored ground water in the underground workings. Mining planned for this permit will include the extraction of coal from seams overlying abandoned workings, and thus are not anticipated to have any potential impact on the underlying ground water systems resulting from mining activities including subsidence.

The total volume of ground water storage in the old mine workings is unknown since abandoned mine workings in the area have been sealed. Any water accumulations however (if they exist) would occur within down-dip workings. To the applicants knowledge, there are no known mine water discharges reported from old workings. This of course is expected because the regional dip is down to the North East away from the coal seam outcrops along the Eastern side of Pleasant Valley.

Regional Aquifer System

The regional aquifer consists of a water table, an aquifer in which all units below the normal water table have sufficient permeability to contain and transmit ground water to some degree. The peizometric surface of the regional aquifer system includes the deeper portions of the

Blackhawk Formation and extends into the underlying Star Point and Mancos Formations. Map 7, Regional Hydrology, depicts the present understanding of a piezometric surface inclined westward to Scofield Reservoir. Map 7A, W-E X Section A-A', and Map 7B, N-S X Section C-C" also display the piezometric surface and include it's relationship to the coal seams in the lower Blackhawk Formation. Because the lower portion of the Blackhawk Formation is the primary coal-bearing sequence in the area, the regional aquifer system is the only ground water system which could be directly affected by the mining operations in areas where elevation of the Seam to be mined is below the regional groundwater table.

The permit and adjacent areas display classic Basin & Range Style structural geology. With multiple north-south trending fault systems which have created a series of local horsts and grabens. These geologic mountain / valley sections dominate the local geomorphology and to varying degrees create blocks and impediments (partitions) to the horizontal movement of ground water, and limit the ability of water to move freely within a consistent and homogeneous aquifer system. Notwistanding the interference to free movement of groundwater, there does appear to be a regional ground water aquifer that appears to show east to west movement towards Mud Creek and Scofield Reservoir. For a number of reasons, including the fact that the impervious portions of the faults do not extend over great distances N-S thus allowing ground water to flow around the ends of these "short faults." It is expected these faults create local irregularities in the regional peizometric surface but do not compartmentalize the regional aquifer to an extreme extent.

Information characterizing the ground water flow regime and hydraulic parameters of the regional aquifer comes from eleven wells located in eight different locations in and around the permit area, and from surface water conditions known to exist within Long Canyon, Miller Canyon, Mud Creek, and Scofield Reservoir. The locations of all wells shown on Map 7, Regional Hydrology. Wells CR-06-01, CR-06-02, CR-06-05A and CR-06-09 all penetrate and are screened within the Hiawatha coal seam. Wells CR-06-02-ABV, CR-06-03-ABV, and CR-06-09-ABV all penetrate and are screened into potential water bearing zones above the Hiawatha coal seam, while wells CR-06-01-BLW and CR-06-09-BLW penetrate and are completed in zones below the Hiawatha seam. Well completion details for all monitoring wells are included within Exhibit 11, Monitor Well Completion Details. Field data collected for the monitoring wells is included within Exhibit 10, Surface and Ground Water Field Measurements.

Recharge to the local and regional aquifer systems appears to occur primarily in higher elevation areas where limited outcrop zones are exposed to direct precipitation and near-surface infiltration. This recharge mechanism is, however, limited by steep slopes and relatively small outcrop exposure areas. Similarly, recharge from vertical ground water movement through the overlying sediments is believed to be relatively minor due to the presence of mixed overlying low permeability units. Some recharge of the regional aquifer system may occur where the associated formations are exposed in deep drainage canyons and as a result come into direct contact with either surface drainages or the associated alluvial/colluvial aquifer system, such as Long Canyon, Miller Canyon, and Jump Creek.

A review of available data that provides three dimensional geometry of groundwater occurrences or potential representations of a regional piezometric surface (Scofield Reservoir, perennial reaches of Mud and Miller Creeks, static water levels measured in CR-06-03-ABV, CR-06-09, CR-10-11, CR-10-12, and the absence of a static water level in CR-06-01-BLW, and CR-06-05A) may be interpreted in one of two ways. The preferred interpretation is that a regional aquifer system does underlie the Kinney Mine permit area and, due to the universal influence of gravity on groundwater causing it to flow down-gradient, and assuming the absence of thick

large scale sedimentary units (except the Mancos Shale) that could be true tight aquacludes in the sedimentary strata involved, flows in a general east to west direction toward Mud Creek and Scofield Reservoir. The alternative interpretation of the data suggests ground water may be confined by a combination of stratigraphic aquacludes and fault gouge causing groundwater to flow in a generally northward northeasterly direction (down dip), both within the Pleasant Valley Graben and the Eagles Canyon and Long Canyon Grabens. A minimum on one additional monitor well in the area south and perhaps east of CR-06-09 will be required to determine which interpretation is correct.

During the early stages of review it was felt that there was a general lack of data to document the presence of the regional system. It was later recognized that perennial reaches of the two creeks and Scofield Reservoir as a baseline could be used to assist in modeling the regional groundwater system.

As documented by the Seep and Spring Survey included as Exhibit 9, there are many seeps and springs located within Long Canyon, Miller Canyon, and UP Canyon. The report documents in excess of 8 springs and 3 seeps in Long Canyon, 2 springs and 3 seeps in Eagle Canyon, and 1 spring in UP Canyon, and acknowledging that each of these water sources is a surface manifestation of local ground water.

High elevation seeps and springs within Long Canyon were not used as potential ground water points since some of these features are ephemeral in nature. The portions of Long and Miller Canyon however near and downstream of their confluence is perennial, indicative of continued year round connection with the water table. Points along these perennial stream sections were used in the development of the regional water table surface projection. On the downstream side, Mud Creek and Scofield Reservoir also become additional points of contact defining the western boundary of the regional aquifer.

Evaluating these combined well and surface data points using a triangular extrapolation program has resulted in the development of the projected regional ground water table as shown on Map 7. Note that the piezometric contours coincide with perennial portions (lower reaches) of Long Canyon and Miller Creek on the north and northeast, and the surface waters of Mud Creek and Scofield Reservoir on the west. The resulting contours show that flow is generally to the west-northwest. Refer to R645-301-726 Modeling, below for more detail.

Seasonal variation of the regional water table is believed to be small as characterized by the general lack of change in well and surface data. Specifically water level data from monitored wells has shown very little to no variation over the period of measurement. Connecting data with the changing surface of Mud Creek 2,000 feet to the west by 3 feet would have virtually no impact on the regional water table within the mine permit area. In fact, when considering the basic hydrogeologic principals of the shallow valley aquifer, it is unlikely that any significant change would be noted in the regional ground water aquifer along the valley margin due to changes in Mud Creek flows.

Through reservoir operations water levels within Scofield reservoir located 1 mile to the north and northwest may change by several feet. It is believed however that these changes would have the greatest impact in the areas immediately adjacent to the shoreline, but have relatively small impact on the regional water table to the east.

In a similar fashion, seasonal variation within the northern areas of Long Canyon and Miller Creek

are also believed to be small. Although there is annual variation in perennial flow within the Canyons, water is present throughout the year thus maintaining constant data points. Seasonal recharge to the regional water table is expected to result in a corresponding delayed seasonal fluctuation in the water table, especially to the east in the area of Long and Miler Canyons east of the permit area. Little change will be noted along the west and northern boundaries due to the relatively fixed surface water reference points. Considering the above factors one is lead to the conclusion that with relatively stable water table conditions on the west, north, and northeast, that seasonal variations in the regional water table are small.

Within and down the peizometric slope of the permit area, potential impacts to the regional aquifer system due to mining are believed to be small to non-existent. Although there is some potential to drain overlying small perched and isolated water bearing zones, there are no plans to discharge the water to the surface environment. The limited amount of water anticipated to be encountered within the mine will be diverted to sumps within the mine workings where it will create a storage pool, which over time will contribute to the regional system via horizontal and downward leakage to adjacent units.

Ground Water Occurrence

The evaluation of the occurrence and movement of ground water is based on ground water characteristics and site-specific information obtained during drilling, testing, and monitoring of wells and springs within the permit area.

It has been observed through data collected that there is a mix of local water resources. Areas to be mined have been shown to have limited water resources through exploratory drilling, while surrounding areas east of planned mining show the presence of more significant seeps and springs, all of which are influenced by local confining geologic strata. The most significant, yet least preferable water source within the general area is Sulfur Spring, located adjacent to Highway 96 along the western slope of the permit area. Although this spring flows year round at an approximate 80 GPM, it's water quality is relatively poor, having a strong sulfur smell. Flows from this spring are not used directly, but cross the highway and enter the Scofield Reservoir flood plain.

Table 9. Seep and Spring Flow Summary

Spring	Location	Est. Flow (GPM)
Sulfur Spring	Adjacent to Highway 96	80 – Yr Round
Miller Spring (AKA Eagle Spring)	1 ¼ mile north of Sulfur Spring, east of Highway 96	1
UP Spring	South Fork, UP Canyon	Seep
Angle Spring	Eagle Canyon	0.5 – Yr Round
Eagle Seep 1(AKA Eagle Spring 1)		< 0.5
Eagle Seep 1A (AKA Eagle Spring 1A)		< 0.5
Eagle Pond 1 (AKA Aspen Spring)		Seep under pond-
Eagle Seep 3 (AK Eagle Spring 3)		Estimated to be a maximum of 5
Eagle Spring 2/Eagle Pond 2		<0.5
Eagle Seep 3		< 0.5
Long Canyon Seep 1 & 2	Long Canyon	Seep
Long Canyon Seep 3		
Long Canyon Spring 1		10
Long Canyon Spring 2		0.5
Long Canyon Spring 3		3
Long Canyon Spring 4		< 0.5
Long Canyon Spring 5 & 5A		5
Long Canyon Spring 6		10
Long Canyon Spring 7		7
Long Canyon Spring 8		20
Merrill Spring 1	Merrill Canyon	10
Luis Spring	(Tributary to Long Canyon)	10 - 15
Guzman Spring		0.5
Merrill Spring 2		10
Merrill Spring 4		5
Merrill Springs 5 & 5A		10
Merrill Spring 6		< 1
JC Spring 1	Jump Creek	10
JC Spring 2		5
JC Spring 3		< 1
JC Spring 4		< 1
JC Spring 5		< 1

Foot Note:
Eagle Pond 1 is shown on the Seep and Spring Survey Map, between Eagle Seep 1A and Eagle Seep 2, but the flow was not measured due to lack of opportunity to do so. The spring feeds a small pond and either seeps into upgradient soil with no distinct outlet or discharges to the pond from beneath the water surface or a combination of both. Eagle Pond 1 was later renamed Aspen Spring and was picked up as a monitoring station. As a result it has never been possible to measure flow from this spring.

As documented within the 2006 Seep and Spring Survey, discussed earlier, no other springs of significance are found along the western slopes, either north or south of the permit area. Flows within Eagle Canyon, the next north-south trending drainage east of the mine portals have limited flows. Aspen Spring, as described in the footnote for Table 9, does not have a measured flow. Based on a water balance of the spring/pond an estimate, as allowed by rule 724.100, has been prepared to provide a maximum value to cover the anticipated flows from this source. Exhibit 10 presents these estimate calculations together with a Rock Logic memo reviewing Aspen Spring Field Data. All other seeps/springs in the canyon flow at less than ½ GPM each. Based on these flows and estimates, the total flow from Eagle Canyon springs and seeps has a maximum flow of 7.5 gpm. Not until Long Canyon, located 1 ½ miles east of the mine portals, does one encounter flows of any significance. The 2006 Seep and Spring discussed three seeps with only minor flows, and springs with flows ranging between 0.5 and 20 GPM. Combined, flows from these 9 springs at the time of the field investigation averaged 6.8 GPM and totaled 61 GPM.

Seeps and springs located within Jump Creek and Merrill Canyon, located 2 ½ miles east of the mine portals were also relatively significant. Of the 11 springs identified, three had minor flows of less than 1 GPM, four had flows of 5gpm, three of 10 GPM, and one of between 10 and 15 GPM.

On a regional basis, ground water occurrence and movement are believed to be stratigraphic and structurally controlled. Faulting is believed to have impact on ground water movement as is the layered geologic strata. At times, shales in or adjacent to fractured or faulted zones will swell, acting as an aquitard thus limiting vertical ground water movement via the fault, and horizontal movement through the fault. Folding is also limited to low-gradient regional features which may influence the overall direction and rate of regional ground water movement but have limited localized influence.

Although there have been eleven monitoring wells constructed, there use is limited to determine local and regional ground water flow directions due to the presence of many interrupting faults that form localized horst, and graben systems. Generally speaking, it is believed that the general ground water flow direction is to the west-northwest as shown on Map 7, Regional Hydrology. Information that is available to characterize the occurrence and movement of ground water within the permit area comes from the installation, testing, and routine monitoring of the wells installed and used within the Baseline Hydrologic Monitoring Plan, from seeps and springs, and from surface sources including Mud Creek and Scofield Reservoir as discussed above. Two cross-sections of the regional water table were prepared based on information provided on Map 7. The east-west section (A-A') is shown taken through the center of the permit area is shown on Map 7A. The north-south section (C-C') taken through the western portions of the permit area near the mine portals is shown on Map 7B.

Map 7A shows the connection of the regional water table with Mud Creek and Scofield Reservoir on the left with an upward gradient to the east beneath Long Canyon that is expected to continue upward to at least Jump Creek. The regional water table shown is based on a triangular interpolation model using fixed data points at the wells and surface water features. Note through a comparison of Maps 7A and 7B with Map 7 that the piezometric surface appears to not match up directly with wells shown; this is because those having water level data are out of the line of the cross-section. Some wells however are shown in the cross-sections for general reference.

Data showing available water level elevations for all monitoring wells are provided in Exhibit 10, Surface and Ground Water Field Measurements. Data plots and graphs are provided in R645-

301-724.

Ground Water Quality

Although water quality data has been collected from surface water and spring/seep sources, ground water quality from wells is limited to three wells, CR-06-03ABV, CR-10-11 and CR-10-12, as shown in Exhibit 10, Surface and Ground Water Field Measurements. Well water quality data is limited by the general lack of water encountered within the wells subsequent to drilling. As discussed previously, water levels within the majority of the wells remains within the lowermost blank casing section indicative of dry holes. Field water quality data collected from well CR-06-03ABV show that the well has moderately variable pH, Dissolved Oxygen, Specific Conductivity and Temperature ranges of 6.87-7.28, 1.1-5.7, 245-689, and 20.7-28.3 respectively. A complete set of field and laboratory water quality data is provided in Exhibit 10, Surface and Ground Water Field Measurements and Exhibit 12, Surface and Ground Water Quality Data, respectively. A summary of water quality data is provided in Table 10, Surface and Ground Water Quality Summary.

A plot of major anions and cations for base water quality data collected during the summer of 2006 (shown on Map 10, Regional Water Quality), shows that although the waters are generally of calcium bicarbonate type, there are some distinct variations between sources as shown on Map 10, Regional Water Quality. Waters from Angle and Sulfur Springs, and from well CR-06-03ABV show a strongly calcium bicarbonate type water. Miller Outlet, Mud Creek, and Res-1 also show calcium bicarbonate type waters, but with slightly lesser contents than Angle and Sulfur springs and Well CR-06-03 ABV. Mud Creek also appears to show stronger content of sodium potassium, magnesium, and sulfate than other samples, most likely the result of upstream mine discharges. The real water quality anomaly lies with Eagle spring which shows a sodium - calcium bicarbonate type water, but at much higher quality than other sources. From the data shown it can be concluded that a clear distinction lies between the water type of Eagle Spring and all other local waters tested. The data also shows a clear distinction between ground waters and surface waters, ground waters having higher calcium and bicarbonate contents than surface waters.

Basic anion-cation data and total dissolved solids for Eagle Spring shows a significantly higher water quality than other local sources. Average TDS of Eagle Spring is 152 for the documented period of record whereas Angle, Aspen and Sulfur Springs have TDS values of 303 and 366 mg/l respectively.

The average TDS of well CR-06-03 ABV is calculated to be 401 mg/l and surface sources including Miller Outlet, Mud Creek and RES-1 are 299, 470 and 322 mg/l respectively. It is interesting to note that local general surface water quality is quite good, Mud Creek having the poorest water quality of the samples taken. Again, the degradation of water quality in Mud Creek is believed to be the result of upstream mine discharges.

Table 10. Surface and Ground Water Quality Summary

Table 10. Surface and Ground Water Quality Summary				
Eagle Spring thru 6/16/2008				
Analyte	Count	Max	Min	Avg
Acidity	4	24.00	0.00	10.50
Alkalinity,(As CaCO3)	4	64.00	34.00	45.00
Aluminum	4	3.90	0.94	1.89
Ammonia (as N)	4	0.09	0.07	0.08
Arsenic	4	0.01	0.00	0.00
Bicarbonate (As CaCO3)	4	64.00	34.00	45.00
Boron	4	0.08	0.00	0.02
Cadmium	4	0.00	0.00	0.00
Calcium	4	15.00	11.00	13.00
Carbonate (As CaCO3)	4	0.00	0.00	0.00
Chloride	4	5.00	3.80	4.63
Conductivity	0	na	na	na
Copper	4	0.01	0.01	0.01
Hardness (as CaCO3)	4	55.00	28.00	43.00
Iron - Diss	3	1.10	0.75	0.93
Iron - Total	3	2.70	1.10	2.00
Lead	4	0.00	0.00	0.00
Magnesium	4	3.50	2.70	3.05
Manganese - Diss	3	0.02	0.00	0.01
Manganese - Total	3	0.02	0.01	0.01
Molybdenum	4	0.00	0.00	0.00
Nitrate (as N)	3	0.10	0.00	0.04
Nitrite (as N)	3	0.04	0.01	0.02
Oil & Grease	4	5.40	3.30	3.85
pH @ 25° C	0	na	na	na
Phosphate, ortho (as P)	4	0.13	0.06	0.09
Potassium	4	4.50	1.10	2.15
Selenium	4	0.00	0.00	0.00
Settleable Solids	1	0.00	0.00	0.00
Sodium	4	25.00	4.40	13.85
Sulfate	4	6.20	4.80	5.73
TDS	4	200.00	120.00	152.50
TSS	4	36.00	8.00	22.50
Zinc	4	0.03	0.02	0.03

Table 10. Surface and Ground Water Quality Summary				
Angle Spring thru 9/27/2006				
Analyte	Count	Max	Min	Avg
Acidity	12	0.00	0.00	0.00
Alkalinity,(As CaCO3)	12	320.00	290.00	299.17
Aluminum	12	0.00	0.00	0.00
Ammonia (as N)	12	0.17	0.00	0.01
Arsenic	12	0.01	0.00	0.00
Bicarbonate (As CaCO3)	13	320.00	0.00	276.92
Boron	13	0.00	0.00	0.00
Cadmium	13	0.09	0.00	0.01
Calcium	13	100.00	90.00	97.31
Carbonate (As CaCO3)	13	0.00	0.00	0.00
Chloride	13	67.00	20.00	26.23
Conductivity	1	670.00	670.00	670.00
Copper	13	0.02	0.00	0.00
Hardness (as CaCO3)	13	340.00	220.00	318.46
Iron - Diss	12	0.00	0.00	0.00
Iron - Total	12	0.00	0.00	0.00
Lead	13	0.00	0.00	0.00
Magnesium	13	20.00	17.00	18.54
Manganese - Diss	12	0.01	0.00	0.00
Manganese - Total	12	0.00	0.00	0.00
Molybdenum	13	0.00	0.00	0.00
Nitrate (as N)	12	1.10	0.92	0.99
Nitrite (as N)	12	0.10	0.00	0.01
Oil & Grease	13	5.50	0.00	3.24
pH @ 25° C	2	7.71	7.04	7.38
Phosphate, ortho (as P)	13	0.04	0.00	0.00
Potassium	13	1.90	0.00	1.32
Selenium	13	0.05	0.00	0.01
Settleable Solids	0	na	na	na
Sodium	13	21.00	8.70	10.54
Sulfate	13	19.00	0.00	14.92
TDS	12	400.00	190.00	300.00
TSS	13	0.00	0.00	0.00
Zinc	13	0.11	0.00	0.03

Table 10. Surface and Ground Water Quality Summary				
Aspen Spring thru 9/28/2010				
Analyte	Count	Max	Min	Avg
Acidity	6	0.00	0.00	0.00
Alkalinity,(As CaCO3)	4	280.00	75.00	188.75
Aluminum	6	0.00	0.00	0.00
Ammonia (as N)	6	1.63	0.00	0.33
Arsenic	6	0.00	0.00	0.00
Bicarbonate (As CaCO3)	6	280.00	71.00	170.83
Boron	6	0.00	0.00	0.00
Cadmium	6	0.00	0.00	0.00
Calcium	6	92.00	20.00	52.02
Carbonate (As CaCO3)	6	0.00	0.00	0.00
Chloride	6	36.10	5.80	22.48
Conductivity	0	na	na	na
Copper	6	0.00	0.00	0.00
Hardness (as CaCO3)	6	290.00	70.00	174.67
Iron - Diss	4	1.50	0.00	0.43
Iron - Total	8	25.80	0.21	5.28
Lead	6	0.00	0.00	0.00
Magnesium	6	15.00	4.70	10.78
Manganese - Diss	4	0.75	0.00	0.21
Manganese - Total	8	0.90	0.01	0.33
Molybdenum	6	0.00	0.00	0.00
Nitrate (as N)	6	0.36	0.00	0.06
Nitrite (as N)	6	0.06	0.00	0.02
Oil & Grease	6	6.40	0.00	3.12
pH @ 25° C	1	7.71	7.71	7.71
Phosphate, ortho (as P)	3	0.00	0.00	0.00
Potassium	6	24.10	3.20	11.72
Selenium	6	0.00	0.00	0.00
Settleable Solids	6	1.50	0.00	0.25
Sodium	6	27.00	5.80	14.75
Sulfate	6	29.10	1.70	10.48
TDS	6	370.00	120.00	278.67
TSS	6	344.00	13.00	77.17
Zinc	6	0.02	0.00	0.01

Table 10. Surface and Ground Water Quality Summary				
Sulfur Spring thru 12/1/2010				
Analyte	Count	Max	Min	Avg
Acidity	30	80.00	0.00	2.67
Alkalinity,(As CaCO3)	27	380.00	290.00	342.59
Aluminum	30	0.00	0.00	0.00
Ammonia (as N)	30	0.44	0.00	0.09
Arsenic	30	0.00	0.00	0.00
Bicarbonate (As CaCO3)	30	380.00	290.00	342.70
Boron	31	0.07	0.00	0.00
Cadmium	31	0.00	0.00	0.00
Calcium	31	95.00	82.00	89.05
Carbonate (As CaCO3)	31	10.00	0.00	0.32
Chloride	31	9.30	5.10	6.54
Conductivity	1	710.00	710.00	710.00
Copper	31	0.01	0.00	0.00
Hardness (as CaCO3)	31	390.00	210.00	365.29
Iron - Diss	28	0.15	0.00	0.01
Iron - Total	34	0.30	0.00	0.01
Lead	31	0.01	0.00	0.00
Magnesium	31	38.00	31.00	35.72
Manganese - Diss	28	0.16	0.00	0.04
Manganese - Total	34	0.17	0.03	0.03
Molybdenum	31	0.00	0.00	0.00
Nitrate (as N)	30	0.02	0.00	0.00
Nitrite (as N)	30	0.10	0.00	0.00
Oil & Grease	31	540.00	0.00	20.73
pH @ 25° C	2	7.38	7.30	7.34
Phosphate, ortho (as P)	27	0.02	0.00	0.00
Potassium	31	5.90	4.20	4.88
Selenium	31	0.01	0.00	0.00
Settleable Solids	11	0.00	0.00	0.00
Sodium	31	19.00	7.40	9.27
Sulfate	31	47.00	29.00	43.87
TDS	30	440.00	230.00	365.07
TSS	31	17.00	0.00	1.84
Zinc	31	0.12	0.00	0.01

Table 10. Surface and Ground Water Quality Summary				
Mud Creek thru 12/1/2010				
Analyte	Count	Max	Min	Avg
Acidity	31	68.00	0.00	2.19
Alkalinity,(As CaCO3)	28	300.00	160.00	237.86
Aluminum	31	0.00	0.00	0.00
Ammonia (as N)	31	0.57	0.00	0.03
Arsenic	31	0.00	0.00	0.00
Bicarbonate (As CaCO3)	31	280.00	150.00	228.65
Boron	32	0.10	0.00	0.00
Cadmium	32	0.05	0.00	0.00
Calcium	32	100.00	48.00	72.44
Carbonate (As CaCO3)	32	55.00	0.00	7.31
Chloride	32	63.00	6.90	20.21
Conductivity	1	1000.00	1000.00	1000.00
Copper	32	0.01	0.00	0.00
Hardness (as CaCO3)	32	490.00	120.00	340.81
Iron - Diss	29	0.07	0.00	0.00
Iron - Total	35	2.70	0.00	0.60
Lead	32	0.00	0.00	0.00
Magnesium	32	59.00	14.00	38.88
Manganese - Diss	29	0.09	0.00	0.02
Manganese - Total	35	0.15	0.01	0.04
Molybdenum	32	0.00	0.00	0.00
Nitrate (as N)	31	1.50	0.00	0.31
Nitrite (as N)	31	0.02	0.00	0.00
Oil & Grease	32	360.00	0.00	14.09
pH @ 25° C	2	8.49	8.18	8.34
Phosphate, ortho (as P)	28	0.07	0.00	0.00
Potassium	32	9.70	1.90	6.44
Selenium	32	0.03	0.00	0.00
Settleable Solids	12	0.20	0.00	0.06
Sodium	32	57.00	18.00	38.63
Sulfate	32	290.00	38.00	147.13
TDS	31	720.00	230.00	458.45
TSS	32	320.00	4.00	43.16
Zinc	32	0.16	0.00	0.01

Table 10. Surface and Ground Water Quality Summary Miller Outlet thru 12/1/2010				
Analyte	Count	Max	Min	Avg
Acidity	30	86.00	0.00	2.87
Alkalinity,(As CaCO3)	27	300.00	210.00	251.11
Aluminum	30	0.24	0.00	0.01
Ammonia (as N)	30	0.16	0.00	0.05
Arsenic	30	0.00	0.00	0.00
Bicarbonate (As CaCO3)	31	300.00	200.00	245.32
Boron	31	0.03	0.00	0.00
Cadmium	31	0.05	0.00	0.00
Calcium	31	100.00	63.00	80.93
Carbonate (As CaCO3)	31	21.00	0.00	3.13
Chloride	31	39.00	8.10	11.15
Conductivity	1	550.00	550.00	550.00
Copper	31	0.01	0.00	0.00
Hardness (as CaCO3)	31	330.00	180.00	269.55
Iron - Diss	28	1.30	0.00	0.05
Iron - Total	34	6.50	0.00	2.22
Lead	31	0.00	0.00	0.00
Magnesium	31	20.00	14.00	16.64
Manganese - Diss	28	0.15	0.00	0.03
Manganese - Total	34	0.34	0.00	0.13
Molybdenum	31	0.00	0.00	0.00
Nitrate (as N)	30	0.92	0.00	0.31
Nitrite (as N)	30	0.04	0.00	0.01
Oil & Grease	31	460.00	0.00	18.01
pH @ 25° C	2	8.29	8.10	8.20
Phosphate, ortho (as P)	27	0.13	0.00	0.03
Potassium	31	2.80	1.10	2.04
Selenium	31	0.03	0.00	0.00
Settleable Solids	11	0.50	0.00	0.13
Sodium	31	19.00	5.40	9.28
Sulfate	31	48.00	19.00	25.63
TDS	30	620.00	200.00	298.73
TSS	31	430.00	18.00	121.97
Zinc	31	0.09	0.00	0.01

Table 10. Surface and Ground Water Quality Summary				
RES-1 thru 9/28/2010				
Analyte	Count	Max	Min	Avg
Acidity	18	0.00	0.00	0.00
Alkalinity,(As CaCO3)	16	330.00	120.00	207.50
Aluminum	18	0.00	0.00	0.00
Ammonia (as N)	18	0.20	0.00	0.07
Arsenic	18	0.00	0.00	0.00
Bicarbonate (As CaCO3)	18	330.00	0.00	187.50
Boron	18	0.00	0.00	0.00
Cadmium	18	0.00	0.00	0.00
Calcium	18	81.00	21.00	54.04
Carbonate (As CaCO3)	18	140.00	0.00	27.33
Chloride	18	86.00	3.60	28.69
Conductivity	0	na	na	na
Copper	18	0.01	0.00	0.00
Hardness (as CaCO3)	18	430.00	130.00	262.22
Iron - Diss	16	0.15	0.00	0.03
Iron - Total	20	10.00	0.00	1.60
Lead	18	0.00	0.00	0.00
Magnesium	18	75.50	14.00	30.75
Manganese - Diss	16	0.47	0.00	0.11
Manganese - Total	20	1.10	0.01	0.24
Molybdenum	18	0.00	0.00	0.00
Nitrate (as N)	18	0.37	0.00	0.07
Nitrite (as N)	18	0.04	0.00	0.00
Oil & Grease	18	340.00	0.00	21.00
pH @ 25° C	1	8.50	8.50	8.50
Phosphate, ortho (as P)	15	0.12	0.00	0.03
Potassium	18	15.00	1.30	4.86
Selenium	18	0.01	0.00	0.00
Settleable Solids	11	5.50	0.00	1.32
Sodium	18	42.00	8.30	24.01
Sulfate	18	140.00	11.60	60.20
TDS	18	620.00	96.00	335.78
TSS	18	1600.00	11.00	179.33
Zinc	18	0.04	0.00	0.01

CR-06-03 ABV thru 8/21/2006				
Analyte	Count	Max	Min	Avg
Acidity	6	0.00	0.00	0.00
Alkalinity,(As CaCO3)	6	410.00	370.00	385.00
Aluminum	6	0.12	0.00	0.02
Ammonia (as N)	6	0.00	0.00	0.00
Arsenic	6	0.04	0.03	0.03
Bicarbonate (As CaCO3)	6	410.00	370.00	385.00
Boron	7	0.00	0.00	0.00
Cadmium	7	0.00	0.00	0.00
Calcium	7	130.00	110.00	120.00
Carbonate (As CaCO3)	7	0.00	0.00	0.00
Chloride	7	63.00	17.00	27.00
Conductivity	1	800.00	800.00	800.00
Copper	7	0.07	0.00	0.01
Hardness (as CaCO3)	7	460.00	280.00	412.86
Iron - Diss	7	0.05	0.00	0.01
Iron - Total	7	4.30	0.31	1.17
Lead	7	0.00	0.00	0.00
Magnesium	7	31.00	28.00	29.71
Manganese - Diss	7	0.10	0.02	0.05
Manganese - Total	7	0.15	0.02	0.06
Molybdenum	7	0.00	0.00	0.00
Nitrate (as N)	6	0.09	0.00	0.04
Nitrite (as N)	6	0.03	0.00	0.01
Oil & Grease	0	na	na	na
pH @ 25° C	1	7.14	7.14	7.14
Phosphate, ortho (as P)	7	0.07	0.00	0.02
Potassium	7	2.50	1.40	2.07
Selenium	7	0.00	0.00	0.00
Settleable Solids	0	na	na	na
Sodium	7	25.00	8.70	14.70
Sulfate	7	50.00	31.00	38.57
TDS	7	460.00	350.00	398.57
TSS	0	na	na	na
Zinc	7	2.80	0.23	0.70

Table 10. Surface and Ground Water Quality Summary				
CR-10-11 thru 1/22/2011				
Analyte	Count	Max	Min	Avg
Acidity	7	50.00	0.00	16.86
Alkalinity,(As CaCO3)	0	na	na	na
Aluminum	7	0.00	0.00	0.00
Ammonia (as N)	7	0.06	0.00	0.01
Arsenic	7	0.00	0.00	0.00
Bicarbonate (As CaCO3)	7	235.00	212.00	220.57
Boron	7	0.00	0.00	0.00
Cadmium	7	0.00	0.00	0.00
Calcium	7	82.40	69.10	78.97
Carbonate (As CaCO3)	7	0.00	0.00	0.00
Chloride	7	20.80	14.20	15.34
Conductivity	0	na	na	na
Copper	7	0.00	0.00	0.00
Hardness (as CaCO3)	7	257.00	223.00	247.29
Iron - Diss	7	0.00	0.00	0.00
Iron - Total	7	22.70	0.12	4.39
Lead	7	0.00	0.00	0.00
Magnesium	7	13.00	11.00	12.19
Manganese - Diss	7	0.02	0.00	0.00
Manganese - Total	7	0.44	0.00	0.08
Molybdenum	7	0.00	0.00	0.00
Nitrate (as N)	7	2.68	2.36	2.55
Nitrite (as N)	7	0.37	0.00	0.07
Oil & Grease	1	0.00	0.00	0.00
pH @ 25° C	0	na	na	na
Phosphate, ortho (as P)	0	na	na	na
Potassium	7	1.47	0.00	1.09
Selenium	7	0.00	0.00	0.00
Settleable Solids	1	6.50	6.50	6.50
Sodium	7	11.50	10.20	11.04
Sulfate	7	11700.00	26.70	1695.46
TDS	7	470.00	280.00	318.29
TSS	1	2690.00	2690.00	2690.00
Zinc	7	0.14	0.00	0.04

Table 10. Surface and Ground Water Quality Summary				
CR-10-12 thru 1/22/2011				
Analyte	Count	Max	Min	Avg
Acidity	7	0.00	0.00	0.00
Alkalinity,(As CaCO3)	0	na	na	na
Aluminum	7	0.32	0.00	0.05
Ammonia (as N)	7	0.00	0.00	0.00
Arsenic	7	0.00	0.00	0.00
Bicarbonate (As CaCO3)	7	186.00	173.00	177.43
Boron	7	0.00	0.00	0.00
Cadmium	7	0.00	0.00	0.00
Calcium	7	99.90	66.20	77.49
Carbonate (As CaCO3)	7	0.00	0.00	0.00
Chloride	7	27.20	17.90	20.24
Conductivity	0	na	na	na
Copper	7	0.00	0.00	0.00
Hardness (as CaCO3)	7	286.00	191.00	222.29
Iron - Diss	7	0.17	0.00	0.02
Iron - Total	7	135.00	0.39	48.01
Lead	7	0.01	0.00	0.00
Magnesium	7	8.96	6.10	6.99
Manganese - Diss	7	0.09	0.00	0.02
Manganese - Total	7	2.65	0.01	0.83
Molybdenum	7	0.00	0.00	0.00
Nitrate (as N)	7	6.70	0.68	4.90
Nitrite (as N)	7	0.18	0.01	0.05
Oil & Grease	1	0.00	0.00	0.00
pH @ 25° C	0	na	na	na
Phosphate, ortho (as P)	0	na	na	na
Potassium	7	1.21	1.01	1.10
Selenium	7	0.00	0.00	0.00
Settleable Solids	1	0.00	0.00	0.00
Sodium	7	25.70	16.00	21.41
Sulfate	7	11500.00	36.70	1680.60
TDS	7	620.00	264.00	416.00
TSS	1	95.00	95.00	95.00
Zinc	7	0.12	0.00	0.02

Ground Water Rights and Use

Ground water rights within a 2 mile radius of the central mine area are shown on Map 30, Ground Water Right Locations, and listed in Table 11, Ground Water Rights. None of the ground water rights identified are believed to be potentially impacted by the mining operation for the reasons discussed below.

The closest ground water rights to the mining operation are located approximately ¼ mile to the southwest, and are associated with a change application (a34946-right 91-5106) for a well, diverting water for use at a home. This water right is limited to 1.0 acre-foot of water. The next closest water rights to the mining operation are located approximately ½ mile to the southwest, and are associated with a small domestic single family dwellings. Water rights 91-3401 and 91-3402 (included within Exhibit 13, Water Rights) are supplemental rights to each other with a total domestic and stock watering withdrawal limit of 0.73 acre-feet. Exchange application E1912 exchanges surface water flows for ground water flows tributary to Scofield Reservoir and is limited to a 1.0 acre-foot withdrawal for domestic purposes. These water rights are all located within valley alluvium, and lie within an unconfined ground water aquifer zone fed by local surface sources, and geologically below the elevation of the coal seams to be mined. With dry conditions encountered during exploration and the fact that geologic strata dip to the north-east, there is little to no potential for mining activities to affect these water rights.

Water rights west of Mud Creek follow a similar impact potential since they are 1) hydrologicaly disconnected from surface sources, and 2) geologically disconnected from the coal seam and overlying strata.

Water rights 91-4891 and exchange application rights E1934 (see Exhibit 13, Water Rights), are located over 2 miles to the north near the mouth of Miller Canyon, are domestic and irrigation ground water rights that have either been changed or exchanged from surface water sources. The volume of water allowed to be diverted under the rights are 2.0 and 20.0 acre-feet respectively. No impact to these water rights is anticipated since 1) the ground water would be withdrawn adjacent to Scofield Reservoir at relatively shallow depths, 2) the rights are located north of planned mined areas, 3) the coal seams to be mined are relatively dry and are located hydrologicaly above the water right areas.

Ground Water/Surface Water Interactions

Ground water/surface water interactions in the permit area are controlled by stratigraphy, lithology, localized topography, and climatic conditions, which affect recharge, subsurface flow paths and direction, and discharge areas.

In many cases, shallow perched ground water discharges as springs or seeps to the small tributary surface drainages both from outcrop exposures on exposed slopes above the drainages and from stratigraphic exposures within the drainage channels. Discharge of perched ground water to the surface drainage system occurs most frequently where flat lying, relatively low permeable, and consequent low infiltration stratigraphic units are found.

Table 11. Ground Water Rights

Table 11. Ground Water Rights

WRNUM	CHEXNUM	TYPE	STATUS	PRIORITY	USES	CFS	ACFT	LOCATION	OWNER	SOURCE
91-3401		Underground	DIL	18950000	DS	0.011	0.000	N625 E710 S4 32 12S 7E SL	WAINO E. BURTON	Underground Water Well
91-3402		Underground	DIL	18950000	DS	0.011	0.000	N570 E690 S4 32 12S 7E SL	WAINO E. BURTON	Underground Water Well
91-5160	a34946	Underground	APPLAPP	20081016	DIS	0.000	1.000	S1235 W1351 E4 32 12S 7E SL	BOYD L. PETERSON AND PEGGY PETERSON TRU	Underground Water Well
91-4889	E1912	Underground	APPLAPP	19810611	D	0.000	1.000	N2145 W1350 E4 05 13S 7E SL	JIM NICOLODEMOS	Scofield Reservoir
91-4891	E1934	Underground	APPLAPP	19810629	O	0.000	20.000	N1320 0 S4 21 12S 7E SL	UCO INCORPORATED	Scofield Reservoir
91-4891	E1934	Underground	APPLAPP	19810629	O	0.000	20.000	N1771 E210 S4 21 12S 7E SL	UCO INCORPORATED	Scofield Reservoir
91-4891	E1934	Underground	APPLAPP	19810629	O	0.000	20.000	N2220 E420 S4 21 12S 7E SL	UCO INCORPORATED	Scofield Reservoir
91-4891	E1934	Underground	APPLAPP	19810629	O	0.000	20.000	N2640 E630 S4 21 12S 7E SL	UCO INCORPORATED	Scofield Reservoir
91-5165	A34604	Underground	APD	20080701	O	0.000	1.000	N1347 W995 S4 05 13S 7E SL	ROBERT & HELEN RADAKOVICH MARITAL/FAM. T	Scofield Reservoir
91-4909	E2567	Underground	SUPP	19871013	O	0.000	30.000	S1056 W1451 N4 S05 13S 7E SL	SCOFIELD TOWN	Scofield Reservoir

Significant alluvial/colluvial deposits, particularly in the flatter reaches of area drainages, form localized ground water storage systems which may or may not be laterally continuous along the length of the drainage depending on localized conditions. During periods of high runoff, the alluvial/colluvial deposits are recharged. As surface flows recede, limited stored ground water may discharge to the surface system extending the period of active surface flow. Residual ground water storage in the alluvial/colluvial system may be retained, may serve as a source of recharge to more permeable exposed bedrock units, or may be depleted through normal evapo- transpiration during extended dry periods.

Ground Water Summary

Ground water resources in the permit and adjacent areas are limited in both extent and quantity. Ground water occurrences are limited to: shallow alluvial/colluvial valley- fill deposits in local drainages; perched ground water in thin, laterally discontinuous geologic units and in narrow near vertical aquifers adjacent to faults; ground water accumulated over time in lower underground mine workings; and, the regional aquifer consisting of deeper units in the Blackhawk Formation extending into the underlying Star Point and Mancos Formations.

Ground water movement is limited by low transmissivities, the general lack of significant secondary permeabilities except in limited areas along faults, and limited recharge in outcrop zones. It is likely that ground water has gradually accumulated over time in the down-dip workings of abandoned and sealed mines underlying the Hiawatha Coal seam, resulting in potentially significant volumes of water. Mine inflows are minimal.

R645-301-724.200

Surface Water Information

Surface water in the permit and adjacent areas is limited to Scofield Reservoir, perennial flows within Mud Creek, Miller and Long Canyon, and ephemeral flows from various side tributaries. Flows have been quantified by analysis of water quality and quantity characteristics, historic flow and quality data for Mud Creek, Miller Canyon (Miller Outlet), Scofield Reservoir, Angle Spring, Eagle Spring, Sulfur Spring, and Aspen

Spring. Some flow data is available for seeps and springs identified in the Seep and Spring survey completed in 2006. The evaluation of surface water involved the collection of surface water data in the permit and adjacent areas and an assessment of regional hydrologic information from adjacent areas. Raw data have been reduced by standard scientific methods to develop interpretations and reach conclusions presented in this section.

Surface Water Environment

As discussed in the ground water section (R645-301-724), both surface and ground water hydrologic features and regimes within the permit and adjacent areas are reflective of and strongly influenced by geologic structure, stratigraphy, lithology, and localized topography and climatic conditions. Map 7, Regional Hydrology and Map 10, Regional Water Quality display surface topography and watersheds in the permit area.

The climate in the proposed lease area and adjacent areas is arid to semi-arid. Table 13, Summary of Temperature Data, Table 14, Summary of Precipitation Data – Scofield Dam, and Table 15, Summary of Wind Data – Price, Utah provide data believed to be representative to the mine site. Wind data provided was the closest found to the project site.

According to the data, the area has an average annual precipitation of 14.56 inches. Average monthly precipitation ranges from 0.90 inches in June to 1.65 inches in January. Most of the precipitation falling as snowfall occurs during November, December, January, February, March and April, although it often falls in October and May, and sometimes in June. Like many areas within the State, precipitation falling as rainfall, commonly occurs in response to high-intensity short-duration storms of limited aerial extent (Butler and Marsell, 1972).

Temperatures in the proposed permit area are seasonal, with the high mean monthly temperature occurring in July and the low mean monthly temperature occurring in February. Evaporation and infiltration rates in the proposed lease and adjacent areas vary with vegetation, soil type, and time of year. The average annual potential evaporation in central Utah is 40 inches per year (Geraghty, et al., 1973).

The permit area is located near the north end of the Wasatch Plateau, which is an uplifted N-S elongated geomorphic feature extending over more than 60 miles in Central Utah. The Wasatch Plateau forms the transition zone between the Basin and Range and Colorado Plateau Structural Provinces. The Uintah Basin structural element also affects this northern end of the Wasatch Plateau, causing the northward "regional dip" of the beds in the area.
Generally, the topography in the area is fairly mountainous with shallow narrow valleys and side channel tributaries. The mountainous terrain combined with climate influence the surface drainage configuration and flow characteristics. Most drainage channels contain no flowing water except during snowmelt and/or precipitation events. Rapid runoff from snowmelt and thunderstorm precipitation often cause relatively brief, high velocity flows in the smaller drainages, and significant flow variation in the larger drainages.

Velocities in Mud Creek measured since May of 2005 have varied between 11.0 and 131.1 CFS. Measured stream flows in Miller Canyon to the north range from 0.0 during winter months when the stream is frozen to 1.21 CFS which occurred on April 26, 2005.

Drainages and Surface Water Bodies

Drainages

The permit and adjacent areas fall within the upper Price River drainage basin. Miller Canyon and Mud Creek are the major perennial streams in the area adjacent to the mine site. These water sources are tributary to Scofield Reservoir, which is the source of headwaters for Price River. Minor perennial streams drain watersheds adjacent to the proposed permit area including several small ephemeral tributaries are located within and adjacent to the permit area, including UP Canyon to the south and Eagle Canyon to the north. The majority of the smaller drainages exhibit an ephemeral flow pattern with sustained flows only in

Table 13. Summary of Temperature Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Station - Clear Creek #1													
Record Mean:	23.5	22.5	28.5	34.5	44.1	52.0	60.0	56.4	49.3	35.8	28.6	20.8	n/a
Record Max:	55.4	59.0	62.6	68.0	77.0	82.4	89.6	86.0	78.8	73.4	64.4	53.6	n/a
Record Min:	-11.2	-5.8	-18.4	-2.2	-11.2	19.4	24.8	19.4	17.6	5.0	-4.0	-22.0	n/a
Station - Scofield Dam													
Avg Max (F):	27.4	31.9	38.1	48.2	59.4	70.2	77.7	75.4	67.3	56.1	39.9	30.4	51.8
Avg Min. (F):	-1.4	0.6	11.9	21.9	31.0	38.0	44.4	42.9	34.9	26.1	15.8	3.4	22.5

response to spring snowmelt and major thunderstorms Exhibit, 20 Ephemeral Drainage Determination. All or portions of the following named drainages fall within a two-mile radius of the permit area. Drainage west of Pleasant Valley as well as Mud Creek are hydraulically disconnected to potential impacts from potential mining activities.

Perennial	Ephemeral
Drainages East of Pleasant Valley	
Mud Creek	Eagle Canyon
Miller / Long Canyon	UP Canyon
Drainage West of Pleasant Valley	
Bear Canyon Creek	Number Four Gulch
Fish Creek	Tucker Canyon
Green Canyon	Woods Canyon
Winter Quarters Canyon	Winter Quarters

General basin characteristics are rolling uplands and open parks above the Price River Canyon, with vegetation communities of sagebrush/grasslands and mixed coniferous/aspen forests.

Mud Creek where it enters Scofield Reservoir drains an area of approximately 42 square miles. The headwaters lie approximately 9 miles south of the proposed lease area. Elevations range from approximately 10,394 feet to 7,612 feet at its confluence with Scofield Reservoir. Mud Creek, having a length of 11.2 miles is the only major tributary to Scofield Reservoir within the vicinity of the proposed permit area.

The general local basin topography can be characterized as moderately steep mountain lands with narrow valleys having a mixed vegetation consisting of pinion, quaking aspen, and sagebrush vegetative mixes. Stream flow from local ephemeral drainages is commonly very low.

Surface Water Bodies

Scofield Reservoir, a man-made reservoirs is not located within the permit area, but is located a short distance to the north west. Several very small stock-watering ponds and beaver dams were however, identified in the Seep and Spring Survey, basically located within the small canyon drainages to the east, including Eagle and Long Canyons. As is typical of the region, stock ponds are commonly associated with local springs.

The sedimentation structure planned for the Kinney No. 2 Mine surface facility will exist solely for the containment and retention of disturbed area runoff to allow for settling of suspended solids

prior to release and discharge to natural drainages. The active sedimentation pond will be monitored on a regular basis to verify compliance with all applicable regulatory provisions and effluent discharge limitations. Because the sediment pond will be utilized solely for temporary retention of stormwater runoff, no water rights or beneficial uses are associated with it. Water rights associated with springs and/or stock ponds are provided in Exhibit 13, Water Rights.

Perennial Streams

As previously described under the sub-heading "Drainages", the perennial streams in the permit and adjacent areas include Mud Creek, and Long/Miller Canyons. All other area drainages are characterized by ephemeral flow patterns. In the vicinity of the permit area, the floodplain areas of the perennial streams have experienced only limited disturbance. Disturbance along Mud Creek is mostly confined to areas through the Town of Scofield, and very minor disturbance in grazing areas along the creek. Flood plain disturbance within Long and Miller Canyons appears to be basically limited to small road and ranch property zones within the lower reaches of Miller Canyon, and stock watering ponds within the reaches of Long Canyon.

Based on available information, some floodplain areas in the immediate vicinity and downstream of Scofield, Utah have a limited history of irrigation or farming. These small areas bordering Mud Creek are shown on aerial photography easily visible on aerial photography to be west of the proposed permit area and Highway 96. Small irrigated areas are also visible on photography in the vicinity of the ranch house located within Miller Canyon downstream of the confluence of Miller and Long Canyons.

According to the Utah Division of Water Quality, surface water sources including Mud Creek and Scofield Reservoir have stream classifications of 1C, 2B, 3A and 4 in the areas adjacent to the proposed lease area. Definitions of each classification are:

- 1C – Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.
- 2B – Protected for secondary contact recreation such as boating, wading, or similar uses.
- 3A – Protected for cold water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
- 4 – Protected for agricultural uses including irrigation of crops and stock watering.

These drainage classifications indicate that the Scofield Reservoir and associated tributaries are designated for culinary use when treated, recreation, as cold water non-game fish habitat, and irrigation and stock watering with no associated natural resource waters restrictions other than applicable effluent standards for discharges.

Ephemeral Drainages

Four Ephemeral Drainages are found to cross from, East to West, portions of the Permit Boundary. Three additional Ephemeral Drainages are found in near proximity to the Permit Boundary. Five of the Seven Ephemeral Drainages are shown as no-name drainages on the USGS Scofield Quadrangle Map but are here given names for utility in referencing. These new names appear on nearly all of the Exhibits within this Permit Application that have a topographic base map; Figure 2, Drill Hole Locations w/ Hiawatha Outcrop, in Chapter 6 is a good example. New names for the drainages, derived from the old mine portals located in them are, from North to South,

Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, and Jones Draw. Monay and Blue Seal Draws are located North of the Permit Boundary with the other three lying within the Permit Boundary. The other two Ephemeral Drainages are named on the USGS Scofield Quadrangle as Eagle Canyon and UP Canyon. Eagle Canon is the northern-most of the seven drainages and UP Canyon is the southern-most of the seven with the five newly named Drainages positioned between. UP Canyon is South of the Permit Boundary and does not cross the Boundary at any part, while Eagles Canyon exits the mountain front North of the Permit Boundary, however, Eagles Canyon bends sharply southward and crosses a portion of the Permit Boundary on its East Side.

Baseline Surface Water Data were NOT collected from these Seven Drainages simply because there was NO WATER to collect. As part of an "Ephemeral Drainage Determination" ~~Carbon Resources~~Coal Energy Group 3 documented the absence of flowing water on 22 separate days spread over four years, and on one occasion photographed the absence of water in the four drainages that cross the Permit Boundary (Eagle Canyon, Kinney Draw, Columbine Draw, and Jones Draw). These photos together with an in-depth analyses of the drainages 3D geometry, geomorphic character, alluvial and vegetative material, and notably their position elevated above the water table is contained in Exhibit 20, Ephemeral Drainage Determination.

Drainages and Surface Water Bodies

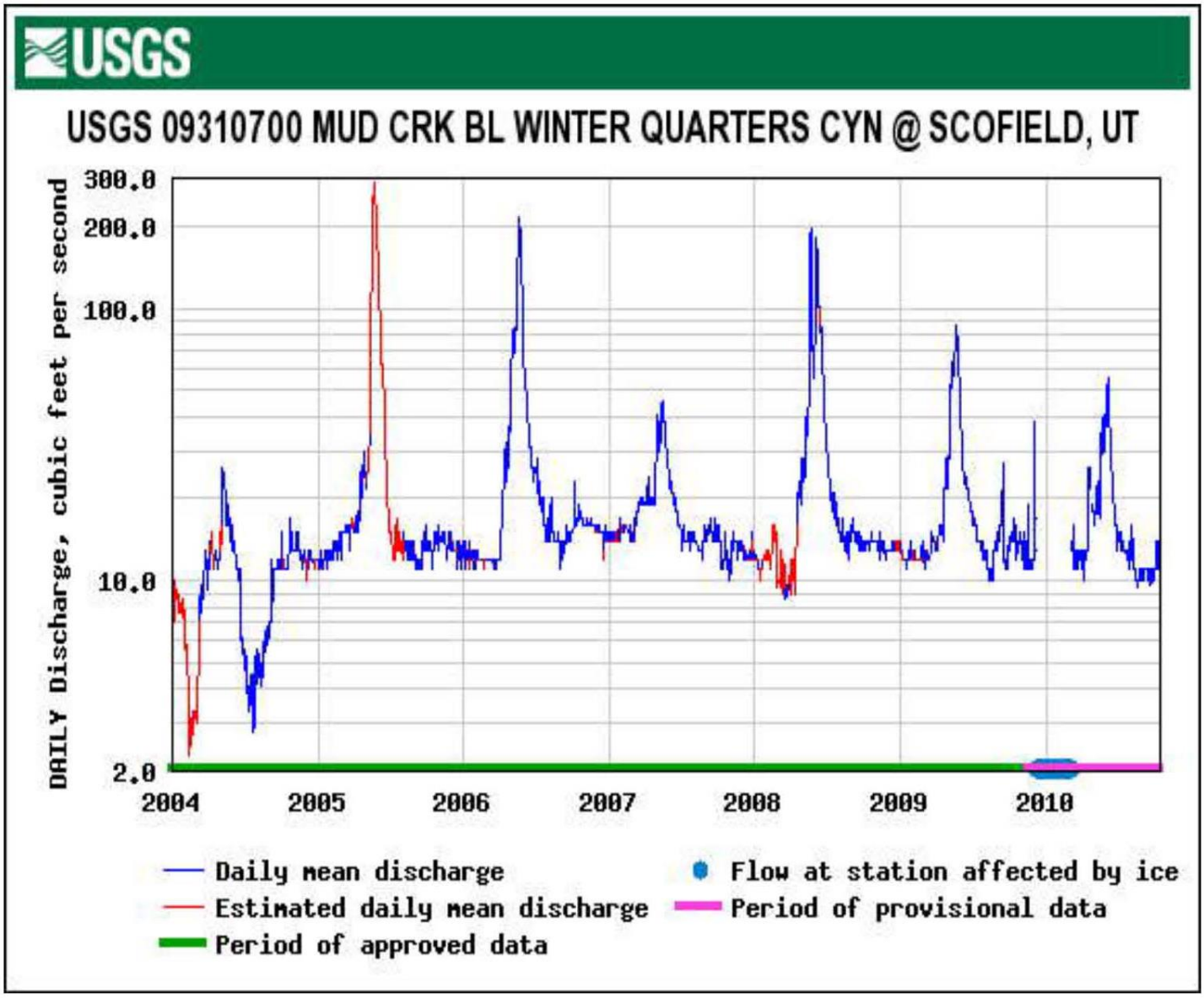
Surface Water Occurrence

Significant runoff characteristics relative to both definition of baseline condition and evaluation of any potential mining related impacts include, peak flow rate, low flow rate, mean annual discharge rate, and any seasonal variations in flow. These runoff parameters will be defined through baseline monitoring for individual drainages at approved monitoring stations.

Mean annual discharge for Mud Creek, as measured from 1978-2007 at USGS station 09310700, Mid CRK BL WINTER QUARTERSCYN SCOFIELD, UT, is 16.9 CFS (12,260 ac-ft/yr). This station is located on Mud Creek just south of the town of Scofield, Utah and approximately 0.75 miles southwest of the proposed mine portals. A plot of USGS data is shown in Figure 16 Mud Creek Flows.

No historic monitoring information is available for the named and unnamed minor area drainages, most of which are dry over much of the year. In May 2005, in conjunction with development of the Kinney No. 2 Mine Project, ~~Carbon Resources~~Coal Energy Group 3 (~~CR~~CEG3) began monitoring Scofield Reservoir, Mud Creek, and Miller Canyon, the three major surface water sources in the mine vicinity. Ongoing monitoring will supplement existing data and provide a basis for definition of existing hydrologic baseline conditions. Surface water monitoring locations are shown on Map 10, Regional Water Quality. The water level in Scofield Reservoir can be seen in Figure 16 below. It should be noted that the Bureau of Reclamation records the lake level in North American Vertical Datum of 1929 (NAVD 29) elevations. The Top of Active Storage (7617.5 ft) shown in the table above is a NAVD 29 elevation. The elevations shown on the Y line of the graph are in North American Vertical Datum 1988 (NAVD 88), which is the datum used by the Kinney No. 2 Mine. The NAVD 88 use is mandated by Utah State Law for new projects such as the Kinney No. 2 Mine.

Figure 16 Mud Creek Flows



Carbon Resources LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

Mud Creek *

Elevation: **~7,685**

Date	** Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/11/2005	13,015	8.31	7.4	694	10.0
9/6/2005	4,937	8.51	5.4	655	17.7
10/31/2005	6,732	6.68	6.4	759	10.7
11/29/2005	6,283	6.94	7.2	758	5.6
12/22/2005	5,386	6.67	6.2	520	13.6
1/22/2006	8,527	8.63	4.1	568	7.6
2/26/2006	5,834	9.0	3.6	501	19.3
3/27/2006	5,386	**8.18**		**1000**	~2
4/26/2006	17,952	8.3	5	394	18.5
5/25/2006	58,797	8.45	4.4	324	26.5
6/29/2006	11,670		6.2	581	28.5
7/31/2006	6,732	8.4	4.8	471	26.9
8/20/2006	6,284	8.38	5.1	188	27.7
9/7/2006	5,386		6.1	564	14.3
10/30/2006	7,181	7.94	6.9	424	17.3
11/27/2006	7,181	7.76	6	463	12.0
12/26/2006	6,284	8.08	7.3	571	13.1
1/31/2007	7,181	7.4	5.5	834	12.4
2/19/2007	6,732	8.3	6.8	476	12.4
3/29/2007	8,528	8.33	7.9	555	13.4
4/25/2007	9,425	8.29	7.8	546	25.0
5/29/2007	12,567	8.51	7.9	481	20.7
6/25/2006	6,733	8.65	5.7	742	27.7
7/30/2007	6,284	8.58	5.3	532	25.5
3/25/2008	4,129	7.8	5.0	633	17.5
6/16/2008	38,151	8.93	4.7	355	23.8
8/26/2008	6,732	8.31	3.9	651	28.6
10/29/2008	6,284	8.93	11.4	667	15.9
6/23/2010	7,630	9.29	3.4	289	24.6
9/28/2010	4,937	8.90		732	11.4
12/1/2010	5,386	7.62		741	6.8
2/24/2011		7.84		744	4.8

NOTE: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

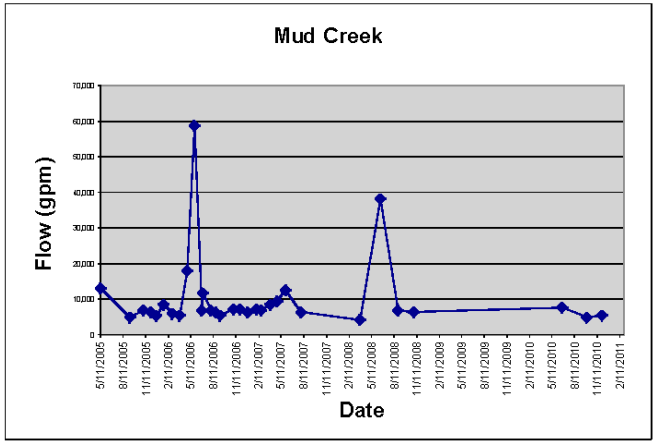
*The sample collected at Mud Creek in May 2005 was mislabled "Muddy Creek" and analytic data are labled accordingly. Data labled Mud Creek & Muddy Creek represent samples collected at the same location.

** Flow Data From USGS 09310700 MUD CRK BL WINTER QUARTERS CYN @ SCOFIELD, UT From Web Site; http://waterdata.usgs.gov/nwis/dw/?site_no=09310700&agency_cd=USGS&referred_module=sw

Red Values are SUSPECT

FIGURE 17. FIELD DATA

Updated: February 2011



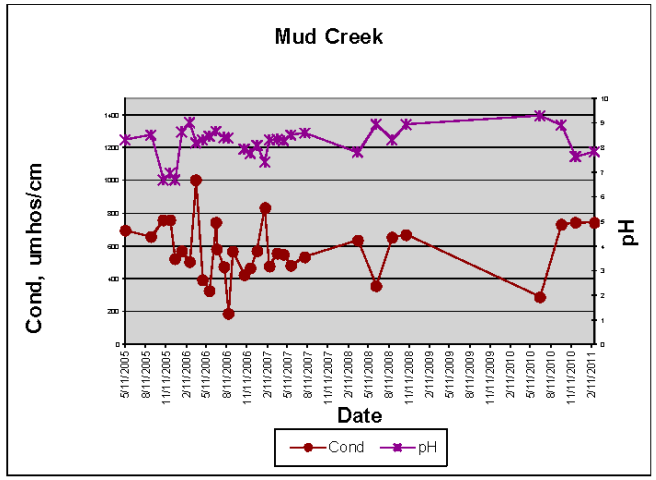


Figure 17. Field Data

Carbon Resources LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

Miller Outlet *

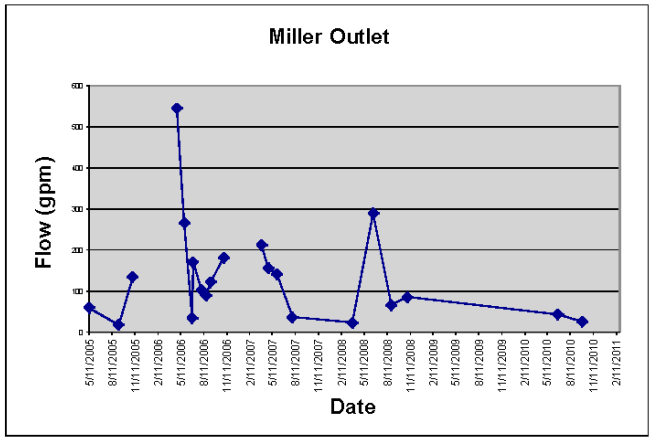
Elevation: **~7,632**

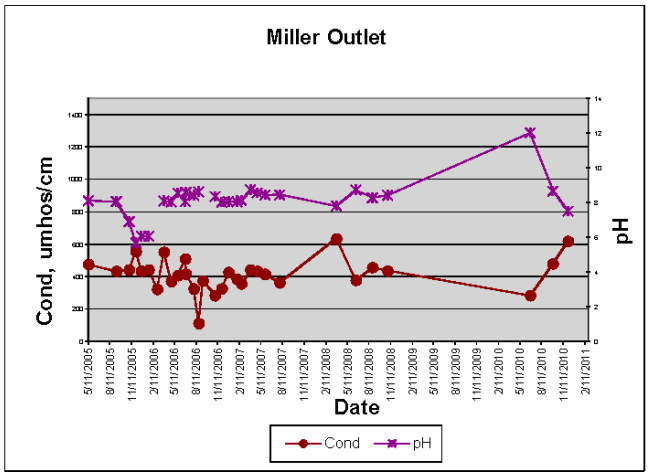
Date	Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/11/2005	59	8.09	6.9	474	10.4
9/6/2005	18	8.04	4.6	433	13.1
10/31/2005	134	6.89	7.2	440	4.8
11/28/2005		5.65	8.0	556	1.7
12/22/2005		6.06	6.8	435	4.2
1/22/2006		6.04	7.1	440	1.2
2/26/2006			4.6	320	14.0
3/27/2006		**8.1**		**550**	~1
4/26/2006	545	8.01	3.6	369	19.2
5/25/2006	266	8.53	4.0	408	30.2
6/29/2006	171	8.57	4.2	415	28.6
7/31/2006	103	8.41	4.4	326	27.6
8/20/2006	89	8.6	4.6	110	27.7
9/7/2006	122		7.4	375	13.0
10/30/2006	182	8.33	8.5	285	13.0
11/27/2006		8	5.1	327	10.0
12/26/2006		8.06	7.2	428	8.4
1/31/2007		8.01	5.3	387	8.6
2/19/2007		8.12	7.0	354	8.0
3/29/2007	212	8.7	9.9	440	13.3
4/25/2007	156	8.54	6.7	436	23.4
5/29/2007	142	8.42	7.9	417	22.9
6/25/2006	35	8.06	4.7	508	31.0
7/30/2007	36	8.45	4.9	362	27.7
3/25/2008	23	7.8	5.0	633	17.5
6/16/2008	289	8.7		377	30.4
8/26/2008	66	8.26	3.9	456	29.6
10/29/2008	85	8.41	9.6	434	12.3
6/23/2010	43	12	22.9	283	16.5
9/28/2010	25	8.7		480	12.5
12/1/2010		7.5		617	0.1
2/24/2011					

NOTE: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity. No flow indicates "frozen" conditions.
*Miller Outlet was initiallly misnamed "Eagle Outlet" and was once misnamed "Eagle Outlook". Samples collected from may 2005 to may 2006 were mislabled "Eagle Outlet" or "Eagle Outlook" and analyltic data are labled accordingly. From June 2006 to present the data are labled as Miller Outlet. Data labled Miller Outlet, Eagle Outlet, & Eagle Outlook represent samples collected at the same location.
Red Values are SUSPECT

FIGURE 17. FIELD DATA

Updated: February 2011





Carbon Resources LLC

Kinney II Baseline Water Sampling
Surface Water Field Measurements
Res-1 (Scofield Reservoir) *

Elevation: **~7,620** Revised Feb. 2011

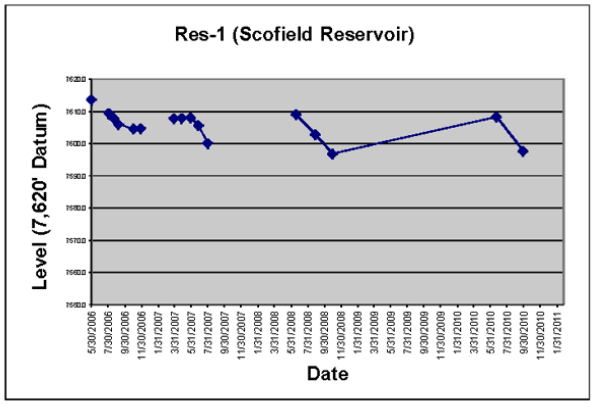
Date	Water Level (feet)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/30/2006	13.5	8.09	5.6	424	20.6
6/29/2006		9.03	10	287	31.9
7/31/2006	9.4	10.16	9.1	257	29.8
8/20/2006	7.7	9.82	9	108	35.7
9/7/2006	6.0	lab	5.2	365	15.5
10/30/2006	4.5	8.13	6.7	351	18.2
11/27/2006	frozen				
12/26/2006	frozen				
1/31/2007	frozen				
2/19/2007	frozen				
3/29/2007	7.8	8.43	9.7	408	14.9
4/25/2007	7.8	8.39	7.8	390	23.4
5/29/2007	8.1	8.48	8	350	24.9
6/25/2006	5.6	10.52	7.3	360	36.1
7/30/2007	0.1	8.02	5.9	616	28.0
3/25/2008		7.14	5.3	775	12.7
6/16/2008	9.1	8.69	4.6	341	31.4
8/26/2008	2.9	8.54	7.5	743	32.1
10/29/2008	96.8	7.98	7.6	605	17.0
6/23/2010	8.2	*12*	*38.2*	261	18.7
9/28/2010	97.7	9.22		867	23.1
12/1/2010	frozen				
2/24/2011	frozen				

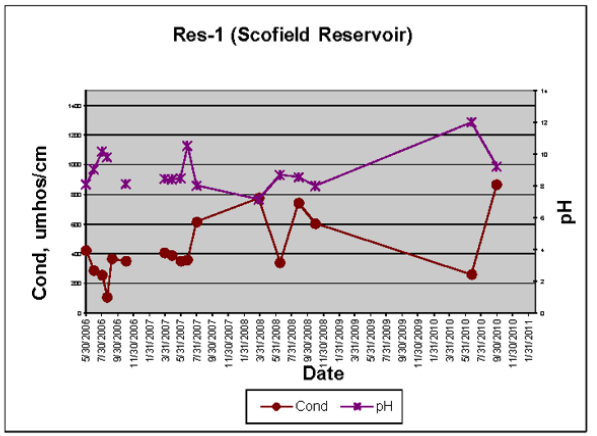
*The samples collected at Res-1 in June, July, & Aug 2006 were mislabeled "Scofield Res. 1" and analytic data are labeled accordingly. Data labeled Res-1 & Scofield Res. 1 represent samples collected at the same location.

Italicized Values are SUSPECT

FIGURE 17. FIELD DATA

Updated: February 2011





Carbon Resources LLC

Kinney II Baseline Water Sampling
Surface Water Field Measurements

FIGURE 17. FIELD DATA

Elevation: Updated: February 2011

Date	Water Level (feet)	
Eagles Canyon		
Monay Draw		
Blue Seal Draw		
Kinney Draw		
Columbine Draw		
Jones Draw		**Ben Grimes visited Scofield on each of the days listed and observed an absence of rain and an absence of running water in the seven ephemeral drainages within and adjacent to the Kinney # 2 Permit Boundary.**
UP Canyon		
5/26/2006	DRY	
10/16/2006	DRY	
10/27/2006	DRY	
5/8/2007	DRY	
9/20/2007	DRY	
9/21/2007	DRY	
10/27/2007	DRY	
9/22/2009	DRY	
9/23/2009	DRY	
9/29/2009	DRY	
9/30/2009	DRY	
10/1/2009	DRY	
4/26/2010	DRY	
4/27/2010	DRY	
7/3/2010	DRY	
8/19/2010	DRY	
9/7/2010	DRY	
9/14/2010	DRY	
9/16/2010	DRY	
9/30/2010	DRY	
10/20/2010	DRY	

Carbon Resources LLC

Kinney II Baseline Water Sampling
Ground Water Field Measurements

Eagle Spring * (Miller Spring)

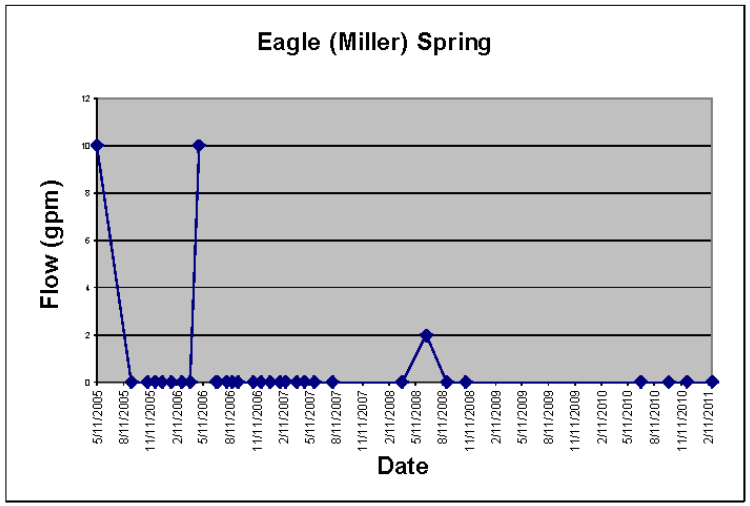
Elevation: **~7,700**

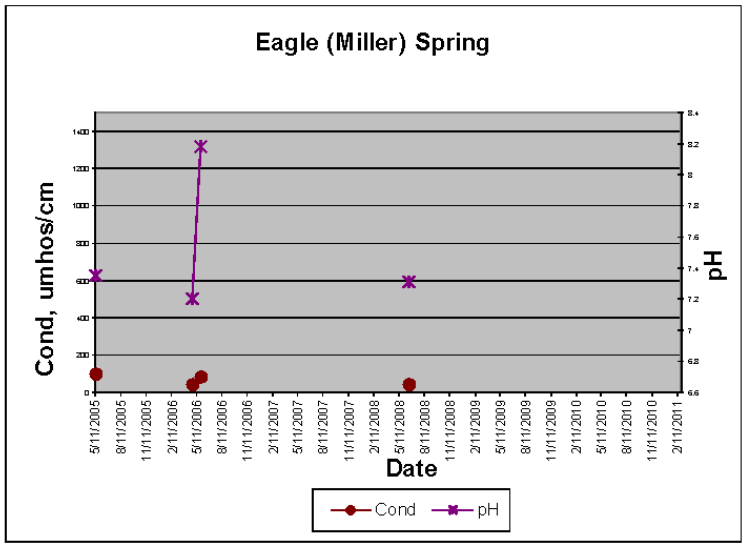
Date		Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/11/2005	<	10	7.35	6	98.9	18.0
9/6/2005		dried up				
10/31/2005		dried up				
11/28/2005		dried up				
12/22/2005		dried up				
1/22/2006		dried up				
2/26/2006		dried up				
3/27/2006		dried up				
4/26/2006	<	10	7.2	4.7	41.8	21.0
5/25/2006			8.18	5.9	83.7	28.9
6/29/2006		dried up				
7/31/2006		dried up				
8/20/2006		dried up				
9/7/2006		dried up				
10/30/2006		dried up				
11/27/2006		dried up				
12/26/2006		dried up				
1/31/2007		dried up				
2/19/2007		dried up				
3/29/2007		dried up				
4/25/2007		dried up				
5/29/2007		dried up				
6/25/2006		dried up				
7/30/2007		dried up				
3/25/2008		snow				
6/16/2008		2	7.31	5	44.1	23.5
8/26/2008		dried up				
10/29/2008		dried up				
6/23/2010		dried up				
9/28/2010		dried up				
12/1/2010		snow				
2/24/2011		snow				

*The sample collected at Eagle Spring in May 2005 was mislabled "Eagle Springs" and analyltic data are labled accordingly. Data labled Eagle Spring & Eagle Springs represent samples collected at the same location.
This same spring was later mislabled Miller Spring

FIGURE 17. FIELD DATA

Updated: February 2011





Carbon Resources LLC

Kinney II Baseline Water Sampling
Ground Water Field Measurements

Angle Spring

Elevation: **~7,940**

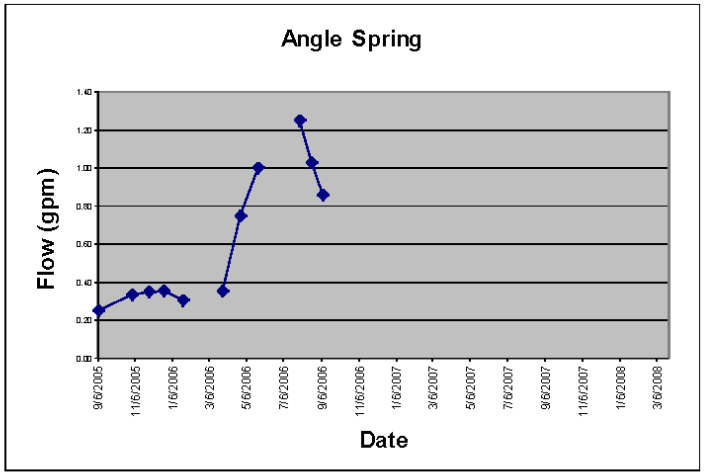
Date	Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
9/6/2005	0.25	7.35	3.7	358	22.0
10/31/2005	0.33	6.01	4.7	519	10.6
11/28/2005	0.35	6.46	4.7	428	22.2
12/22/2005	0.35	5.23	3.9	512	11.6
1/22/2006	0.31	4.36	8.4	469	8.9
2/26/2006		8.28	4.7	385	14.7
3/27/2006	0.35	**7.04**		**670**	~10
4/26/2006	0.75	7.28	5.1	361	18.0
5/25/2006	1.00	5.96	3.8	492	20.5
6/29/2006		7.5	6.3	522	20.9
7/31/2006	1.25	7.24	3.7	410	29.9
8/20/2006	1.03	7.26	3.5	156	22.3
9/7/2006	0.86		4	387	18.5
10/30/2006					
11/27/2006					
12/26/2006					
1/31/2007					
2/19/2007					
3/29/2007					
4/25/2007					
5/29/2007					
6/25/2006					
7/30/2007					
3/25/2008					

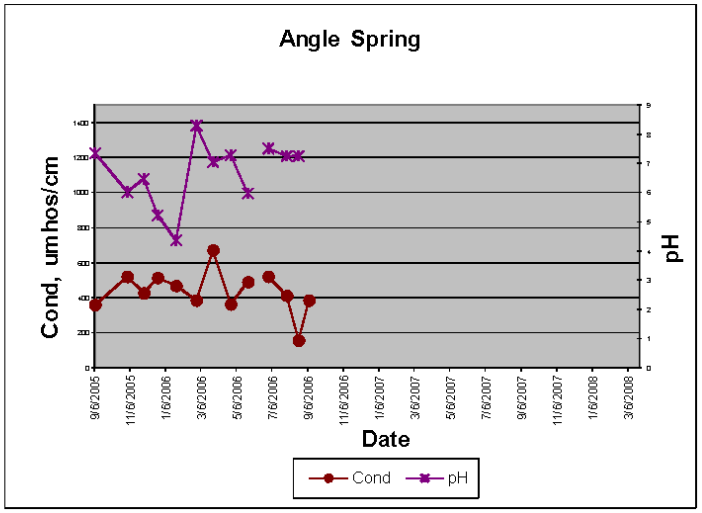
ACCESS DEINIED

NOTE: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.
Blank in Estimated Flow column indicates that the flow was "Not Measured"

FIGURE 17. FIELD DATA

Updated: February 2011





Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

Aspen Spring

Elevation:

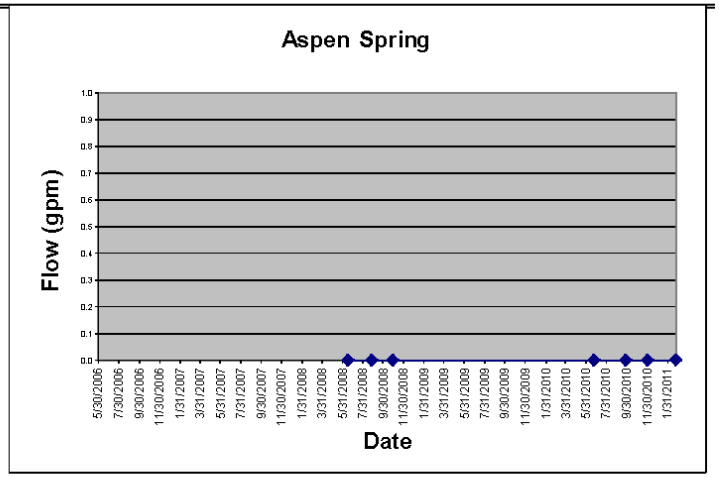
Updated: February 2011

Date	Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/30/2006					
6/29/2006					
7/31/2006					
8/20/2006					
9/7/2006					
10/30/2006					
11/27/2006					
12/26/2006					
1/31/2007					
2/19/2007					
3/29/2007					
4/25/2007					
5/29/2007					
6/25/2006					
7/30/2007					
3/25/2008					
6/16/2008	not meas	8.69	2.2	190	29.8
8/26/2008	not meas	7.91	4	496	32.8
10/29/2008	trickle	7.14	3.7	541	5.7
6/23/2010	not meas	12	20.4	295	24.6
9/28/2010	not meas	9.33		419	14.6
12/1/2010	snow				
2/24/2011	snow				

*The samples collected at Res-1 in June, July, & Aug 2006 were mislabled "Scofield Res. 1" and analyltic data are labled accordingly. Data labled Res-1 & Scofield Res. 1 represent samples collected at the same location.

Red Values are SUSPECT

FIGURE 17. FIELD DATA



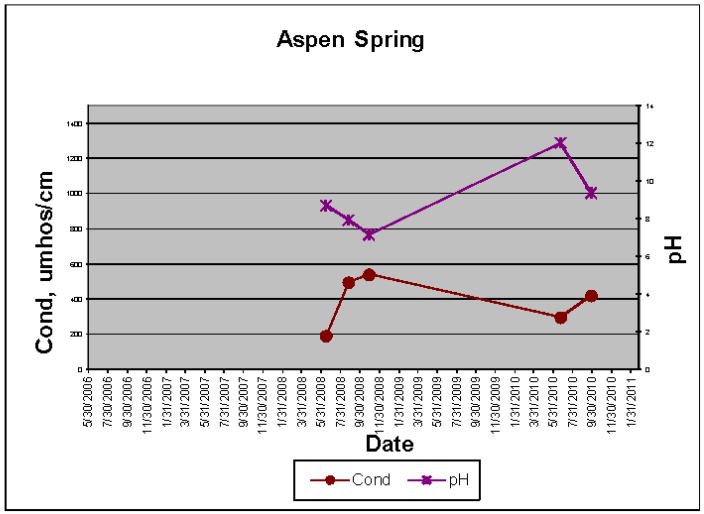


FIGURE 17. FIELD DATA

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

Updated: February 2011

Sulfur Spring *

Elevation: ~7,670

Date	Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/11/2005	73	6.76	0.7	603	13.6
9/6/2005	32	7.2	2.4	559	15.9
10/31/2005	90	5.69	2.6	541	13.2
11/28/2005	76	5.85	3.9	561	11.9
12/22/2005	69	5.64	3.5	490	17.4
1/22/2006	69	7.64	1.3	410	14.7
2/26/2006	69	8.08	4.3	383	23.9
3/27/2006	90	**7.38**		**710**	~14
4/26/2006	64	7.03	1.2	413	23.4
5/25/2006	79	7.46	2.4	503	28.2
6/29/2006	69	7.45	2.9	550	25.1
7/31/2006	74	7.27	2.0	446	24.1
8/20/2006	72	7.29	2.3	169	24.1
9/7/2006	86		2.2	473	22.0
10/30/2006	80	7.27	4.0	384	22.2
11/27/2006	90	7.02	1.8	389	20.0
12/26/2006	90	7.00	3.0	538	20.0
1/31/2007	90	7.01	5.1	682	17.4
2/19/2007	88	7.03	4.1	473	21.5
3/29/2007	72	7.39	4.4	544	21.7
4/25/2007	90	7.33	7.0	557	23.4
5/29/2007	91	7.41	5.5	523	22.8
6/25/2006	86	7.25	2.4	615	27.5
7/30/2007	136	7.33	4.0	507	22.7
3/25/2008	93	6.81	2.2	973	21.9
6/16/2008	93	7.68	1.9	341	31.4
8/26/2008	127	7.14	2.5	646	27.5
10/29/2008	88	7.28	4.4	595	17.1
6/23/2010	82	12.00	14.6	423	17.4
9/28/2010	75	7.4		715	14.8
12/1/2010	93	6.3		714	13.8
2/24/2011	83	6.3		710	13.7

NOTE: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

*Samples collected at Sulfur Spring have occasionaly been mislabled "Sulfur Springs", "Sulfer Spring", & "Sulfer Springs". From May 2005 to Nov 2006 sample names varied. From Dec 06 to present, samples have been labled Sulfur Spring. Analytic data are Labled accordingly. Data labled Sulfur Spring, Sulfur Springs, Sulfer Spring, & Sulfer Springs represent samples collected at the same location.

Red Values are SUSPECT

The available data indicate the surface hydrology is typical of high-mountain headwater watersheds with a pronounced seasonal variation in the flow regime. Stream flow in Mud Creek, Miller Canyon, and Long Canyon typically peaks with snowmelt in late spring/early summer. Unnamed drainages also have a potential for snowmelt runoff, especially during the spring period when rapid increases in air temperatures are experienced. Low flows in perennial

streams occur during late fall and winter months. Field data collected from Miller Canyon (named Miller Outlet in the data)are shown along with other surface and spring data in Figure 17 Field Data. During the "non frozen" period of record, high and low flows of 545 GPM (1.21 CFS) and 18 GPM (0.04 CFS) were recorded at the Miller Outlet station.

The Mud Creek data shows, and the Miller Outlet data suggest that flows within local drainages also respond to local precipitation events. Rapid runoff resulting from short-duration high-intensity precipitation events will cause relatively brief, high velocity flows. Most of the local ephemeral drainage channels contain flowing water only during rapid snowmelt or precipitation events. The steep slopes and numerous deep, narrow, drainages contribute to a storm-event driven flow regime. Many of the ephemeral drainages have thick vegetative covered bottoms which cause water to seep into the soil and prevent water from open flow altogether.

Surface Water Quality

The water monitoring program initiated in 2005 under the Utah coal program and Carbon Resource's ongoing monitoring activities provide relevant water quality information for the permit area. Generally, the objectives of surface water quality monitoring have included; 1) Definition of baseline water quality conditions; 2) Identification of any seasonal variations in water quality and correlation to flow levels; and 3) Identification of any mining related changes in surface water quality. Water monitoring activities for surface drainages have typically included measurement of flow and field parameters (temperature, pH, electrical conductivity, and dissolved oxygen) and collection of water samples for laboratory analyses.

Both field activities and laboratory analyses have been conducted according to standard protocol as defined by applicable regulations, guidelines, and technical standards. Water samples have been analyzed for specific parameters as defined by the regulatory authority. Water quality analysis and testing requirements are reflected in Table 20, Hydrologic Monitoring Schedule.

General Water Quality Characteristics

The chemical characteristics of surface water, based on major ion chemistry, are displayed on Map 10, Regional Water Quality. Surface waters are generally of a calcium-bicarbonate chemical type, although Mud creek shows higher portions of sodium, potassium, and sulfate than does Scofield Reservoir or Miller Outlet. Angle Spring, Sulfur spring, and well CR-06-03-ABV are also found to typically be of a calcium-bicarbonate type, and to have higher concentrations than surface water sources. However, Eagle Spring, is very different than other local sources having very low concentrations of basic anions-cations and being of a higher quality.

Surface water quality is summarized in Table 10, Surface and Ground Water Quality Summary, and in Exhibit 10, Surface and Ground Water Field Measurements. The following discussions summarize important information relative to existing surface water conditions in the proposed permit area.

pH – As shown in Table 10, measured pH values range from 7.04 to 8.5 for samples collected. The low pH values noted were collected from Sulfur and Angle Springs. With the exception of these two springs, pH levels generally indicate a neutral to moderately alkaline condition.

High pH values are relatively common in the arid western United States and are reflective of the geochemistry of the dominant stratigraphic units. It is believed that mining will show no impact on local pH data due to hydrologic considerations discussed within this permit.

Sulfate – A natural sulfur spring is located near the north end of the permit area adjacent to Highway 96. However, average sulfate levels of 44 in this spring are not significantly higher than those found within well CR-06-03- or Miller Outlet that average 38, 26 respectively. Scofield Reservoir and Mud Creek with average values of 63 and 169 respectively are clearly distinct from other samples taken and are likely impacted by upstream sources. High Mud Creek sulfate values appear to be diluted by Scofield Reservoir.

Total Dissolved Solids – With one exception, observed high TDS values are relatively consistent within the samples taken, ranging between 96 mg/l in Scofield Reservoir to 720 mg/l in Mud Creek. Eagle spring appears to have a distinctly different water source with an average recorded TDS of 152 mg/l than Angle, Aspen and Sulfur Springs which have respective averages of 304, 266, and 366 mg/l.
Total Suspended Solids - Given the topography and climate of the area, moderately high TSS values may normally be expected during spring runoff and following major thunderstorms. Steep natural slopes and channel gradients combined with short duration, high-intensity flows resulting from snowmelt and major thunderstorms can result in significant surface erosion and sediment transport. TSS variations at the sample points indicates site specific conditions which contribute to erosion and soil movement. Springs generally show very low TSS values as would be anticipated, whereas surface sources are shown to have significant variation. Low values for Miller Outlet, Mud Creek and Res-1 were found to be 18, 4 and 11 mg/l respectively, whereas high values for the three sources were 430, 320, and 1,600 mg/l respectively. These high values likely result from short duration, high-intensity rainfall events, or possibly wind/wave action in the case of Scofield Reservoir.

Temporal and Spatial Water Quality Characteristics

Figure 18, Basic Water Quality, plots pH, Conductivity, TDS and Sulfate data over time for each monitored station. The plots help identify the presence, or lack of, annual cycles or trends. Observations made from the data plots follows:

Miller Outlet	Some slight drop in TDS appears to be present during the May-June time frame, with a corresponding increase in TSS as would be expected for a surface water source. It is also noted that there appears to be annual increases in Iron and Manganese during high TSS events.
Eagle Spring	Insufficient data available for analysis
Sulfur Spring	TDS appears to show a possible annual low during the February-March time frame with peak TSS values occurring during May and June. Trends are not readily apparent for Iron and Manganese. These trends are masked however by larger fluctuations which are believed to be climatically induced.
Angle Spring	No annual or seasonal cycle identified.
Aspen Spring	Insufficient data available for analysis.
Mud Creek	A slight decrease in TDS appears to exist in the May- June period of each year with highest values occurring during the winter months of November through January. TSS, Iron and Sulfate values appear to be the highest in the May-June time frame and lowest in the winter period.
Res-1	Although a complete record of data is not available for this site during

winter months, TDS appears to reach annual lows during the May-June time frame with similarly corresponding peaks in TSS. No consistent trend is noted for Iron and Manganese.

Surface water quality variation plots versus flow for pH, Conductivity, TDS and Sulfate are shown for sampled locations on Figure 19, Water Quality vs. Flow. A unilateral clear and distinct pattern showing variation in quality versus flow in all stations is not apparent. A review of the figures does show what we believe to be improved water quality with increasing flow or storage volume for both Mud Creek and Scofield Reservoir for Conductivity, TDS and Sulfate. Decreased values for Conductivity and TDS may also be indicating some possible water quality improvement with increasing flow for Miller Outlet and Angle Spring although the trends are not as apparent. These water quality improvements with increased flow or volume are believed to result from high flow dilution of existing water quality bases.

As discussed earlier, water quality parameters are relatively consistent for the sites monitored with two basic exceptions, Eagle Spring which has very good water quality, and Mud Creek which has significantly higher values of TDS and Sulfate than other surface or spring sources. Surface waters associated with Miller Outlet for example have TDS and Sulfate values that are on the order of 200 - 620 mg/l and 19 - 48 mg/l respectively. Mud Creek TDS and Sulfate values generally range between 230 – 720 mg/l and 38 – 290 mg/l respectively, as approximate 15% increase over Miller Outlet for TDS, and a 250 to 600% increase for Sulfate.

Surface Water Rights and Use

Surface water rights within a 2 mile radius of the central mine area are included in Exhibit 13, Water Rights Information. The water rights are shown on Map 31, Surface Water Right Locations, and listed in Table 12, Surface Water Rights. Water right 91-3588 is a stream right on Finn Creek from approximately six miles south of the Kinney No. 2 Mine to a location as shown on Map 31 in Section 33. This water right is obviously located incorrectly in the Utah division of Water Rights records since Finn Creek ends approximately six miles south of the Kinney No. 2 Mine. This right may exist on Clear Creek (Mud Creek), which lies one half mile west of the Kinney No. 2 Mine site. Water right 91-4026, located in the eastern half of Section 33 is a stock watering right on an unnamed spring for a water amount of 10.76 Acre Feet. No ELU's (Equivalent Livestock Units) are listed in the water rights information. The period of use is listed as 05/01 to 11/30 of each year. Since no subsidence is anticipated as addressed in Chapter 5, there will be no impact to this spring. There are no other surface water sources or water rights directly above, or within any projected subsidence zone above the mine workings. Since the mine is projected to be dry, and is not anticipated to have a mine discharge, there are no anticipated additive effects upon the local surface waters. In a similar manner, no impacts are believed possible to surface waters located within or west of Pleasant Valley and Mud Creek since surface drainages are discontinuous east and west of the valley.

Table 12. Surface Water Rights

WRNUM	TYPE	STATUS	PRIORITY	CFS	ACFT	LOCATION	OWNER	SOURCE
91-1396	Point to Point	DIL	19020000	0.000	0.000	N660 W660 S4 34 12S 7E SL	CLARENCE ANDERSON	Hopkins Creek
91-1475	Point to Point	DIL	19020000	0.000	0.000	N660 W660 E4 27 12S 7E SL	CLARENCE ANDERSON	Hopkins Creek
91-3011	Point to Point	DIL	18690000	0.000	0.000	N660 W660 E4 05 13S 7E SL	FRED AND SHELIA JENSEN	Winter Quarters Creek
91-3514	Surface	DIL	18690000	0.011	0.000	S660 W660 E4 21 12S 7E SL	MILTON E. JACOB	Unnamed Spring
91-352	Point to Point	DIL	18600000	0.000	0.000	N660 E1980 W4 03 13S 7E SL	CLARENCE ANDERSON	Hopkins Creek
91-3644	Point to Point	DIL	18690000	0.000	0.000	N660 E660 S4 05 13S 7E SL	CARBON CO. REC. TRANS. SPECIAL SERVICE DIST	Clear Creek
91-3645	Point to Point	DIL	18690000	0.000	0.000	S660 W1980 E4 05 13S 7E SL	FRED AND SHELIA JENSEN	Clear Creek
91-3648	Point to Point	DILWUC	1869	0.000	0.000	S660 W1980 E4 32 12S 7E SL	BILL B. AND UTAHNA PACE JONES	Clear Creek
91-4026	Surface	PAC	1869	0.000	0.000	S660 W1980 E4 33 12S 7E SL	GEORGE TELONIS	Unnamed Spring
91-4107	Surface	PAC	1869	0.011	0.000	S660 E660 N4 27 12S 7E SL	MILTON E. JACOB	Unnamed Spring
91-3011	Point to Point	DIL	18690000	0.000	0.000	S1980 E660 E4 05 13S 7E SL	FRED AND SHELIA JENSEN	Winter Quarters Creek
91-3513	Point to Point	DIL	18690000	0.000	0.000	S660 E660 N4 26 12S 7E SL	MILTON E. JACOB	Unnamed Stream
91-3588	Point to Point	DIL	18690000	0.000	0.000	S660 E660 E4 32 13S 7E SL	CLEAR CREEK HOME ASSOCIATION	Finn Canyon Creek
91-3655	Point to Point	DILWUC	1869	0.000	4.200	S1980 E660 W4 32 12S 7E SL	BILL & UTAHNA JONES FAMILY TRUS1	Woods Canyon Creek
91-5069	Point to Point	DIL	18690000	0.000	1.400	S1980 E660 W4 32 12S 7E SL	RUDMAN LAND & LIVESTOCK L.L.C.	Woods Canyon Creek
91-640	Point to Point	DIL	18600000	0.000	0.000	N660 E660 E4 35 12S 7E SL	CLARENCE ANDERSON	Left hand Fork of Hopkins Creek
91-2978	Surface	DEC	18740000	0.683	0.000	N310 E510 S4 05 13S 7E SL	CARBON CO. REC. TRANS. SPECIAL SERVICE DIST	Clear Creek
91-2979	Surface	DEC	18740000	0.453	0.000	N310 E510 S4 05 13S 7E SL	FRED AND SHELIA JENSEN	Clear Creek
91-2980	Surface	DEC	18740000	0.100	0.000	N310 E510 S4 05 13S 7E SL	FRANK T. JR. & PAMELA G. HELSTEN	Clear Creek
91-2981	Surface	DEC	18740000	0.100	0.000	N310 E510 S4 05 13S 7E SL	ORSON MARSING	Clear Creek
91-2982	Surface	DEC	18740000	0.100	0.000	N310 E510 S4 05 13S 7E SL	LILLIE PEARSON	Clear Creek
91-2983	Surface	DECWUC	1874	0.100	0.000	N310 E510 S4 05 13S 7E SL	THOMAS BIGGS	Clear Creek
91-2984	Surface	DEC	18740000	0.100	0.000	N310 E510 S4 05 13S 7E SL	WAINO E. BURTON	Clear Creek
91-2985	Surface	DEC	18740000	0.100	0.000	N310 E510 S4 05 13S 7E SL	PHYLLIS M. CONOVER	Clear Creek
91-2986	Surface	DEC	18740000	0.015	0.000	N310 E510 S4 05 13S 7E SL	JAMES F. LEVANGER	Clear Creek
91-2987	Surface	DEC	18740000	0.100	0.000	N310 E510 S4 05 13S 7E SL	LEAH B. JOHNSON	Clear Creek
91-2988	Surface	DEC	18740000	0.000	0.000	N310 E510 S4 05 13S 7E SL	NOLAN G. AND LARUE H. DAVIS	Clear Creek
91-2989	Surface	DEC	18740000	0.100	0.000	N310 E510 S4 05 13S 7E SL	TOWN OF SCOFIELD	Clear Creek
91-2990	Surface	DEC	18740000	1.166	0.000	N310 E510 S4 05 13S 7E SL	DELLA L. MADSEN	Clear Creek
91-2991	Surface	DECWUC	1874	0.000	0.000	N310 E510 S4 05 13S 7E SL	JOHN B. JONES	Clear Creek
91-2992	Surface	DECWUC	1874	4.580	0.000	S120 W2230 E4 32 12S 7E SL	BILL B. AND UTAHNA PACE JONES	Clear Creek
91-2993	Surface	DECWUC	1874	4.580	0.000	S1200 E800 N4 32 12S 7E SL	BILL B. AND UTAHNA PACE JONES	Clear Creek
91-3008	Surface	DEC	18740000	0.693	0.000	N700 W1400 E4 05 13S 7E SL	FRED AND SHELIA JENSEN	Winter Quarters Creek
91-3622	Surface	DECWUC	1874	0.016	0.000	N310 E510 S4 05 13S 7E SL	MAE NICOLODEMAS	Clear Creek
91-4195	Surface	DEC	18740000	0.100	0.000	N310 E510 S4 05 13S 7E SL	SCOFIELD TOWN	Mud Creek & Green Canyon Springs
91-2495	Point to Point	DIL	1869	0.000	72.000	S1980 E660 N4 S31 12S 7E SL	MATTIE B. CORNABY FAMILY TRUST	Woods Canyon Creek
91-3516	Point to Point	DIL	1869	0.000	0.000	S660 W660 NE S27 12S 7E SL	MILTON E. JACOB FAMILY TRUST	Hopkins Creek
91-3910	Surface	DIL	1869	0.000	0.000	S660 E660 N4 S29 12S 7E SL	REED & LEON GUNDERSON	Scofield Reservoir
91-3911	Surface	DIL	1869	0.000	0.000	S660 E1980 N4 S29 12S 7E SL	DELLA L. AND MADSEN	Scofield Reservoir
91-3642	Surface	DIL	1902	0.011	0.000	S660 W660 E4 S30 12 7E SL	BILL & UTAHNA JONES FAMILY TRUS1	Unnamed Spring
91-3658	Surface	DIL	1902	0.000	0.000	S660 W660 NE S31 12S 7E SL	BILL & UTAHNA JONES FAMILY TRUS1	Unnamed Stream
a15120	Surface	DEC	1989	0.500	0.000	S1160 W580 N4 S32 12S 7E SL	GLADYS P. BUTLER	Woods Canyon Creek
91-2994	Surface	DEC	1874	0.012	0.000	S1410 W350 N4 S32 12S 7E SL	BILL & UTAHNA JONES FAMILY TRUS1	Woods Canyon Creek
91-3004	Surface	DIL	1874	0.433	0.000	N660 E660 N4 S32 12S 7E	LOUISE M. & HELEN L. WATTS	Woods Canyon Creek
91-2496	Surface	DIL	1902	0.000	0.000	N1160 E460 SW S32 12S 7E SL	MATTIE B. CORNABY FAMILY TRUST	Unnamed Stream
91-1403	Surface	DIL	1860	0.150	0.000	S1980 E660 N4 S3 13S 7E SL	CLARENCE ANDERSON	Unnamed Spring
91-354	Surface	DEC	1903	0.019	0.000	N388 E437 W4 S5 13S 7E SL	PIONEER DITCH CO #1	Two Springs Tributary
91-2975	Surface	DEC	1874	0.011	0.000	N420 W80 S4 S5 13S 7E SL	CARBON CO. REC. TRANS. SPECIAL SERVICE DIST	Unnamed Spring
91-2976	Surface	DEC	1874	0.011	0.000	N100 W10 S4 S5 13S 7E SL	CARBON CO. REC. TRANS. SPECIAL SERVICE DIST	Unnamed Spring
91-462	Point to Point	DIL	1860	0.000	0.000	N660 E660 W4 S6 13S 7E SL	EUREKA ENERGY	Winter Quarters Creek
91-201	Surface	AP	1953	0.068	0.000	S660 E660 NW S9 13S 7E SL	ALBERT B. & APRIL S. CORNABY	Unnamed Spring
91-4027	Surface	PAC	1869	0.011	0.000	N660 E660 W4 S4 13S 7E SL	GEORGE TELONIS	Unnamed Spring
91-3601	Surface	DIL	1869	0.000	0.000	N660 E660 W4 S9 13S 7E SL	DELLA L. MADSEN	Unnamed Spring
91-1412	Surface	DIL	1860	0.000	0.000	N660 E660 SW S11 13S 7E SL	HELPER STATE BANK	Right Fork Jump Creek
91-4143	Surface	PAC	1869	0.011	0.000	S660 W1980 E4 S9 13S 7E SL	GEORGE TELONIS	Unnamed Spring
91-2048	Point to Point	DIL	1869	0.000	0.000	S1980 E669 W4 S8 13S 7E SL	CARBON CO. REC. TRANS. SPECIAL SERVICE DIST	Pleasant Creek
91-3640	Point to Point	DIL	1869	0.000	0.000	N660 W660 S4 S10 13S 7E SL	GEORGE TELONIS	Hopkins Creek
91-2288	Surface	DIL	1869	0.011	0.000	S660 W1980 E4 S 31 T12S R7I	MATTIE B. CORNABY FAMILY TRUST	Unnamed Spring
91-2146	Point to Point	DIL	1869	0.000	0.000	N660 E660 W4 S5 T13S R7E	MATTIE B. CORNABY FAMILY TRUST	Winter Quarters Creek
91-483	Surface	DEC	1874	0.443	0.000	N700 W1400 E4 S6 T13S R7E	MATTIE B. CORNABY FAMILY TRUST	Winter Quarters Creek
91-3405	Surface	Dec	1874	0.500	0.000	N540 W1610 E4 S31 T12S R7E	MATTIE B. CORNABY FAMILY TRUST	Woods Canyon Creek

Surface Water/Ground Water Interactions

With the exception of the lowermost portions of Mud Creek, which is a gaining system due to sub-flow from the associated alluvial/colluvial deposits and contributions from tributary drainages, most of the drainages in the permit areas are believed to be losing systems.

Due to the geologic complexity of the area and significant local variations in topography, geology, and associated recharge conditions, any given drainage may exhibit gaining or losing characteristics over various portions of its drainage length. Recent monitoring indicates that most, if not all, of the surface water discharge from springs and seeps in the upper portions of the smaller drainages is lost to localized ground water storage, ground water recharge, and/or evapo-transpiration resulting in a net surface flow loss over the drainage length.

Discharge to the area stream systems occurs from the alluvial/colluvial aquifer system and from springs and seeps in the upper reaches of the drainages. Alluvial/colluvial deposits are recharged during periods of high stream runoff and later discharge stored water to the stream systems, extending the period of active stream flow. Springs and seeps contribute flow to local tributaries on a seasonal basis or intermittently in delayed response to local recharge.

Figure 18. Basic Water Quality

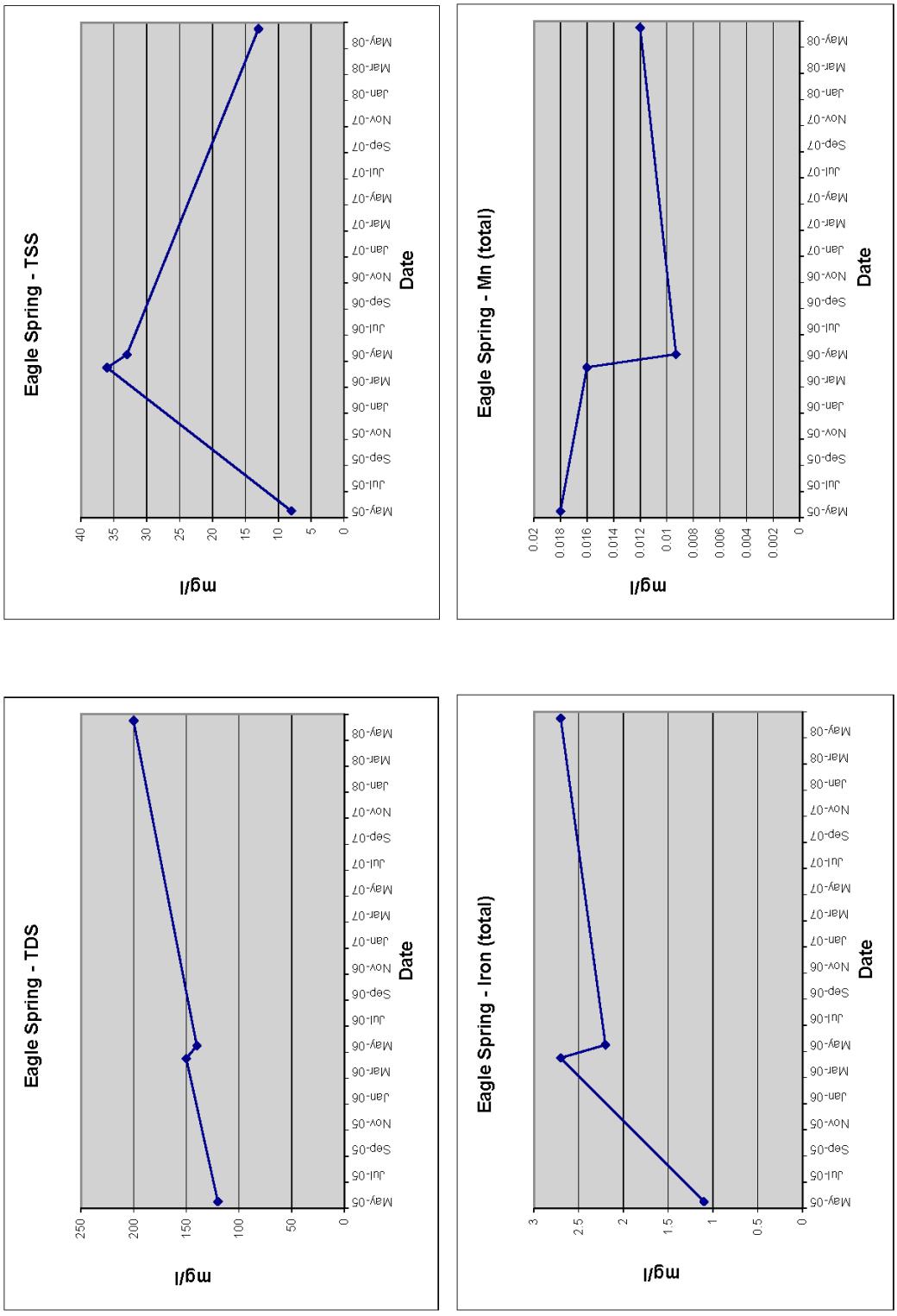


Figure 18. Basic Water Quality

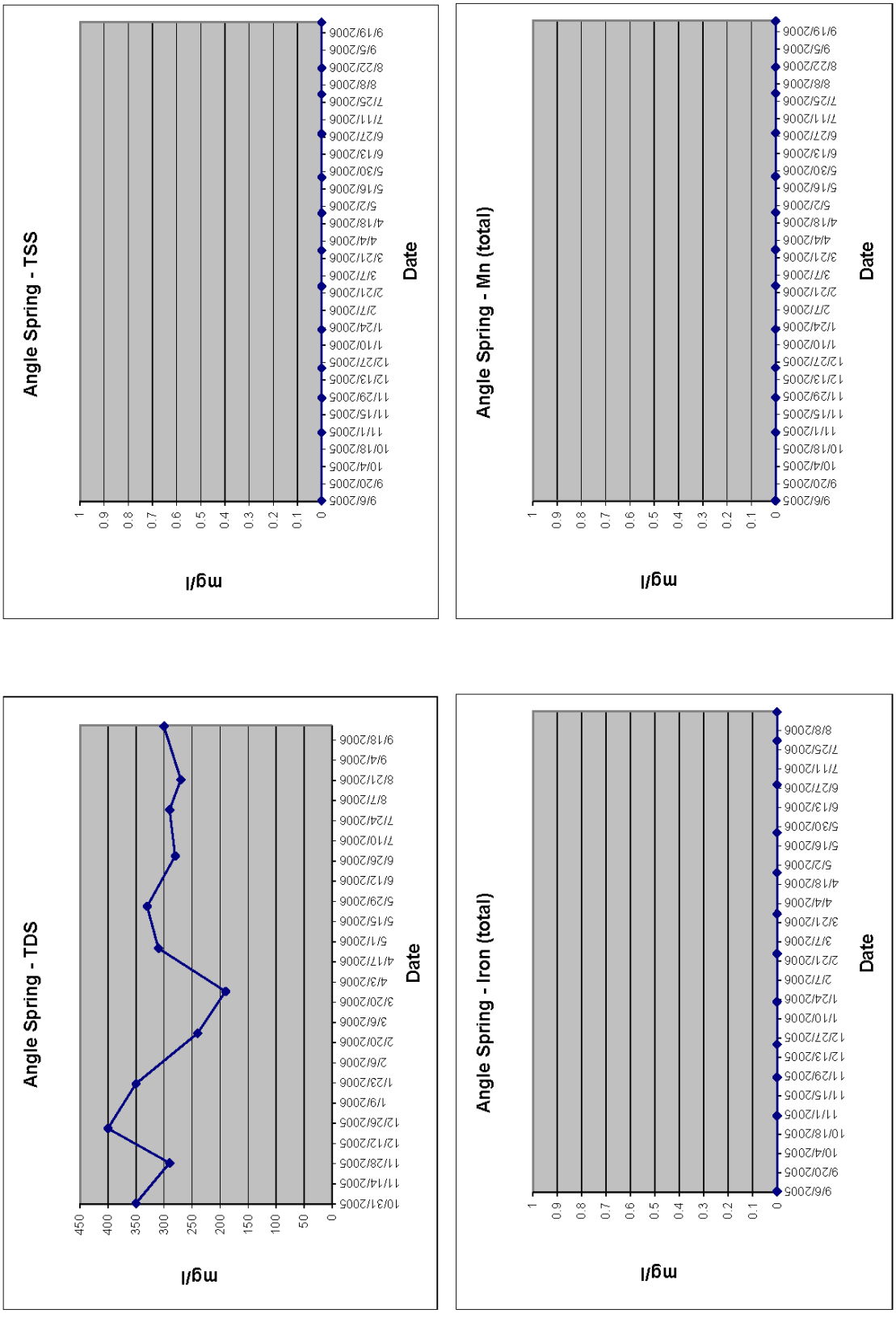


Figure 18. Basic Water Quality

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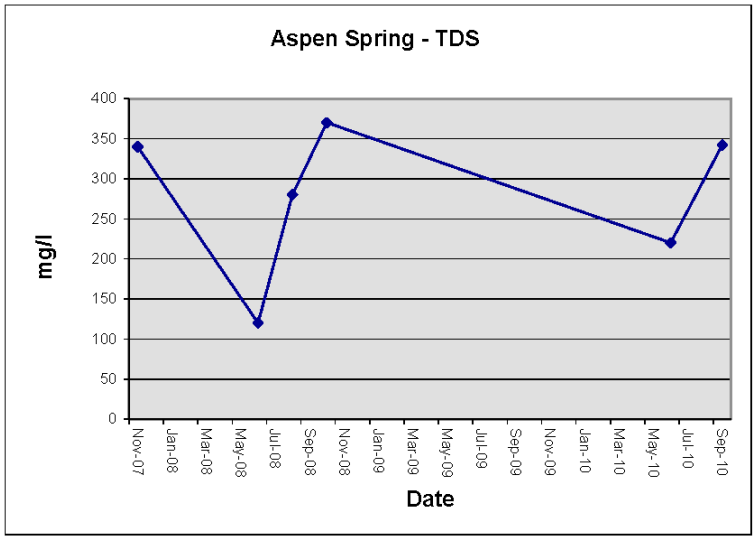
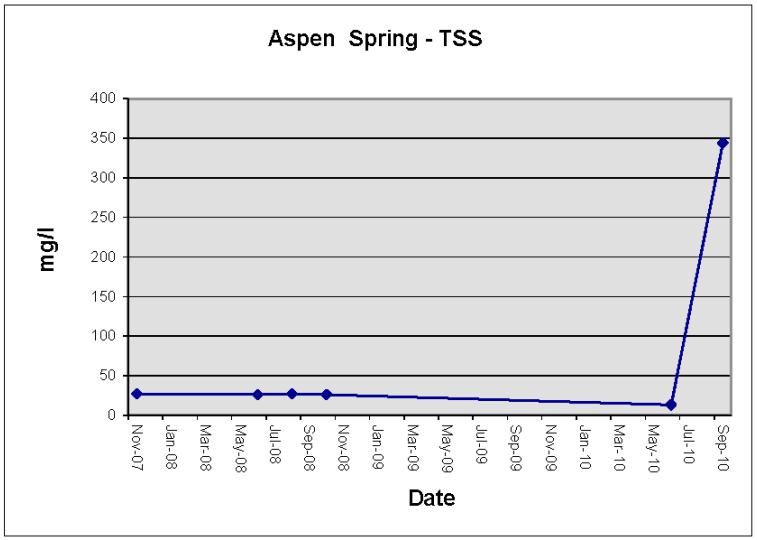
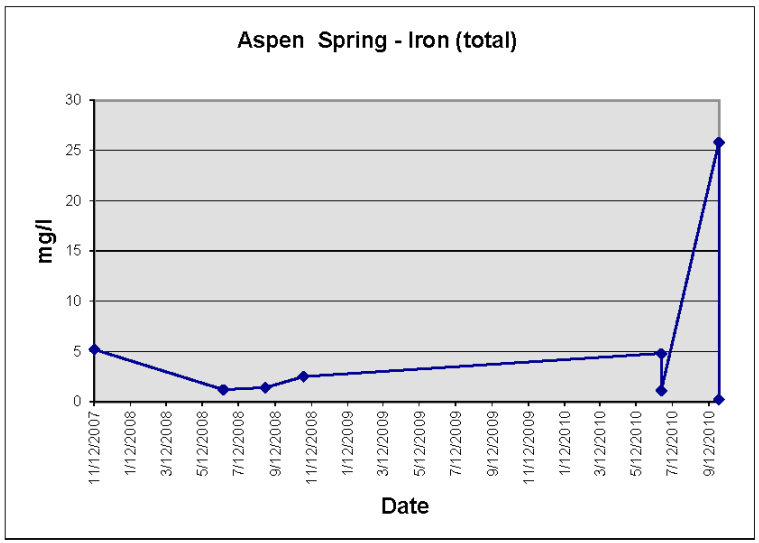






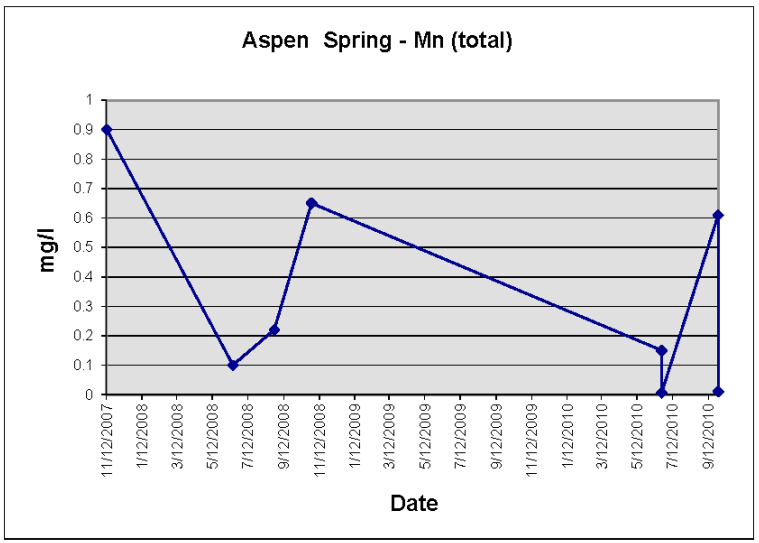
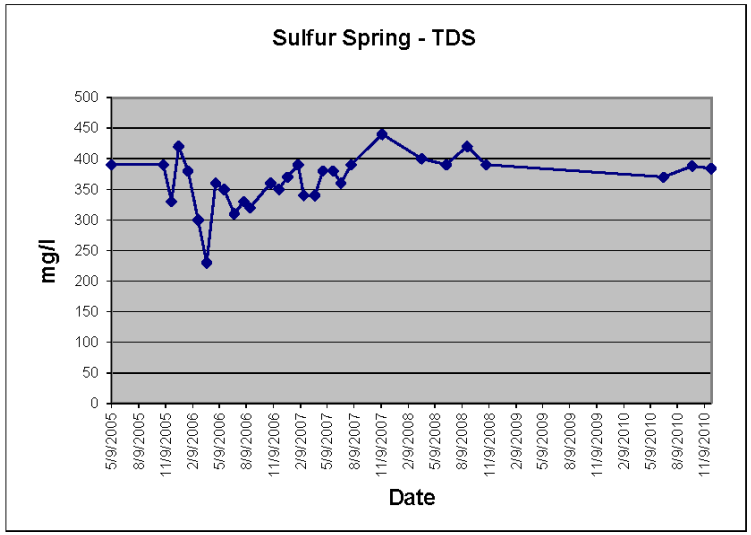
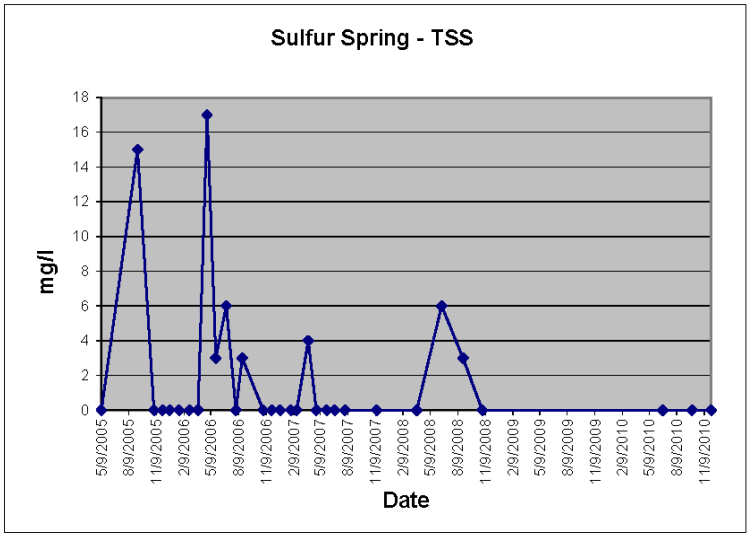
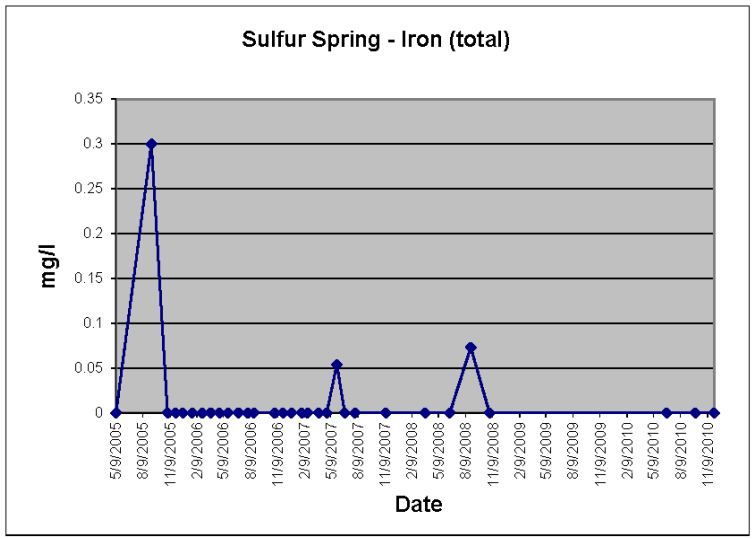


Figure 18. Basic Water Quality







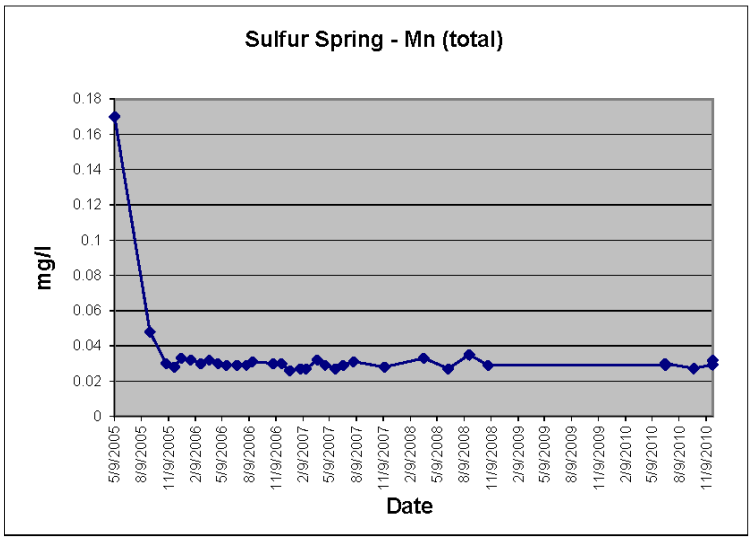
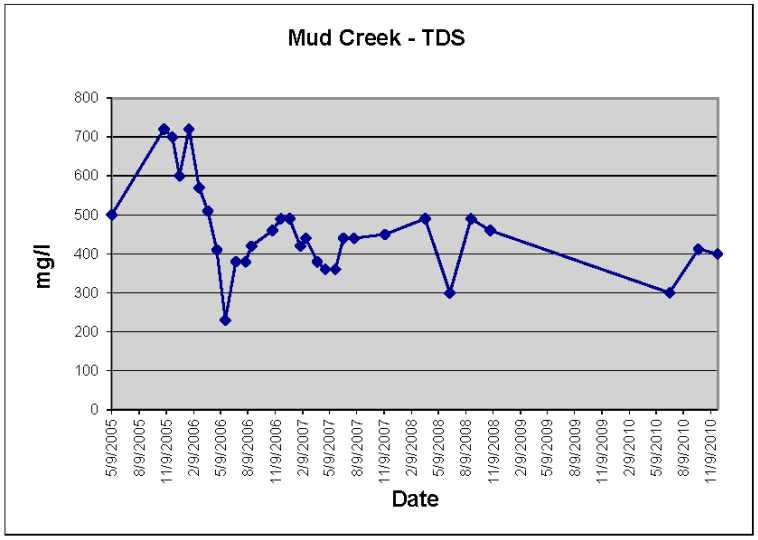
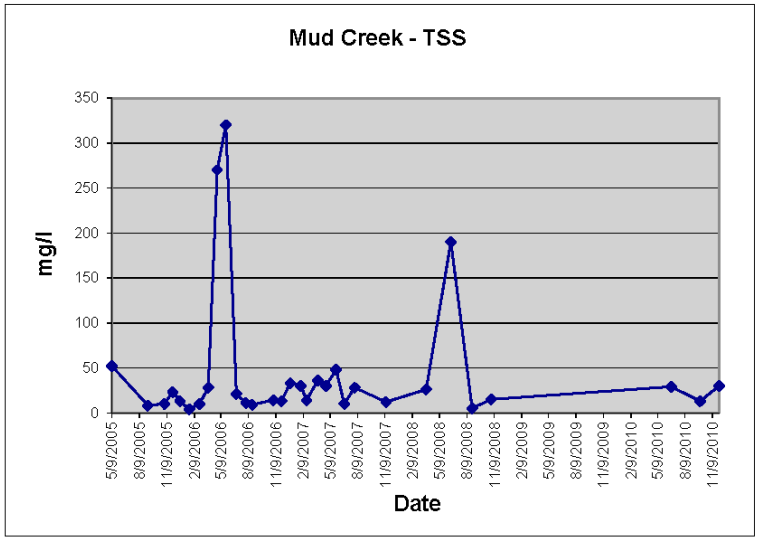
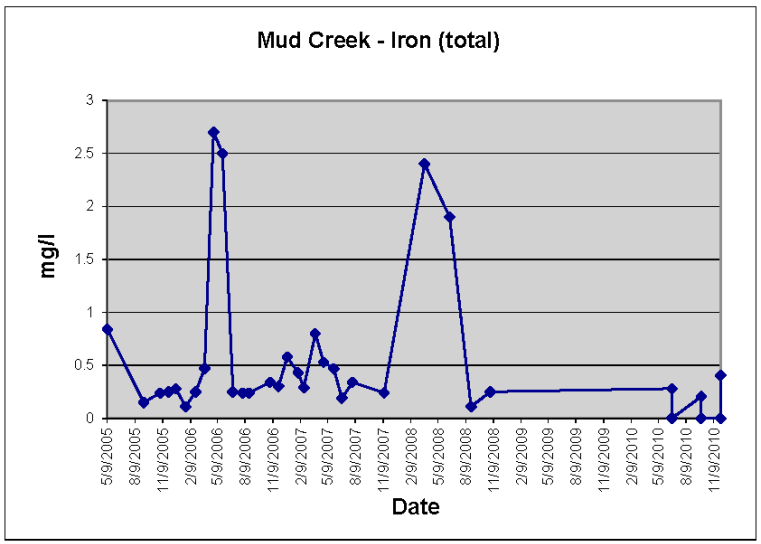
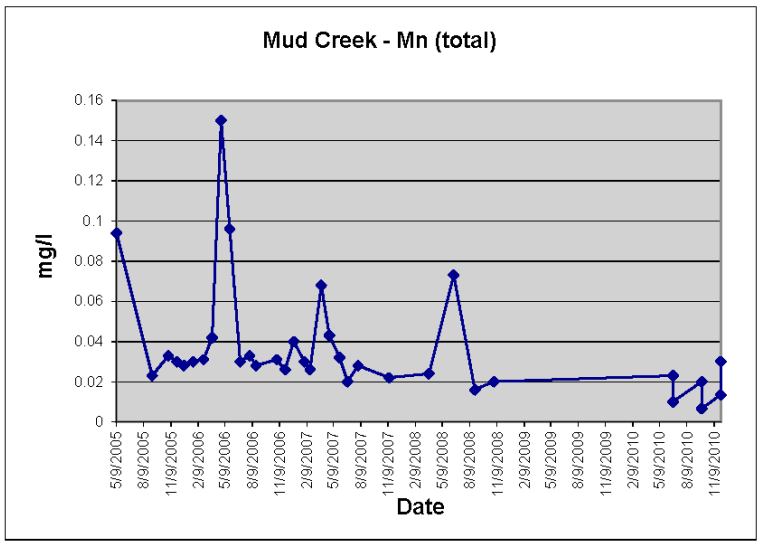


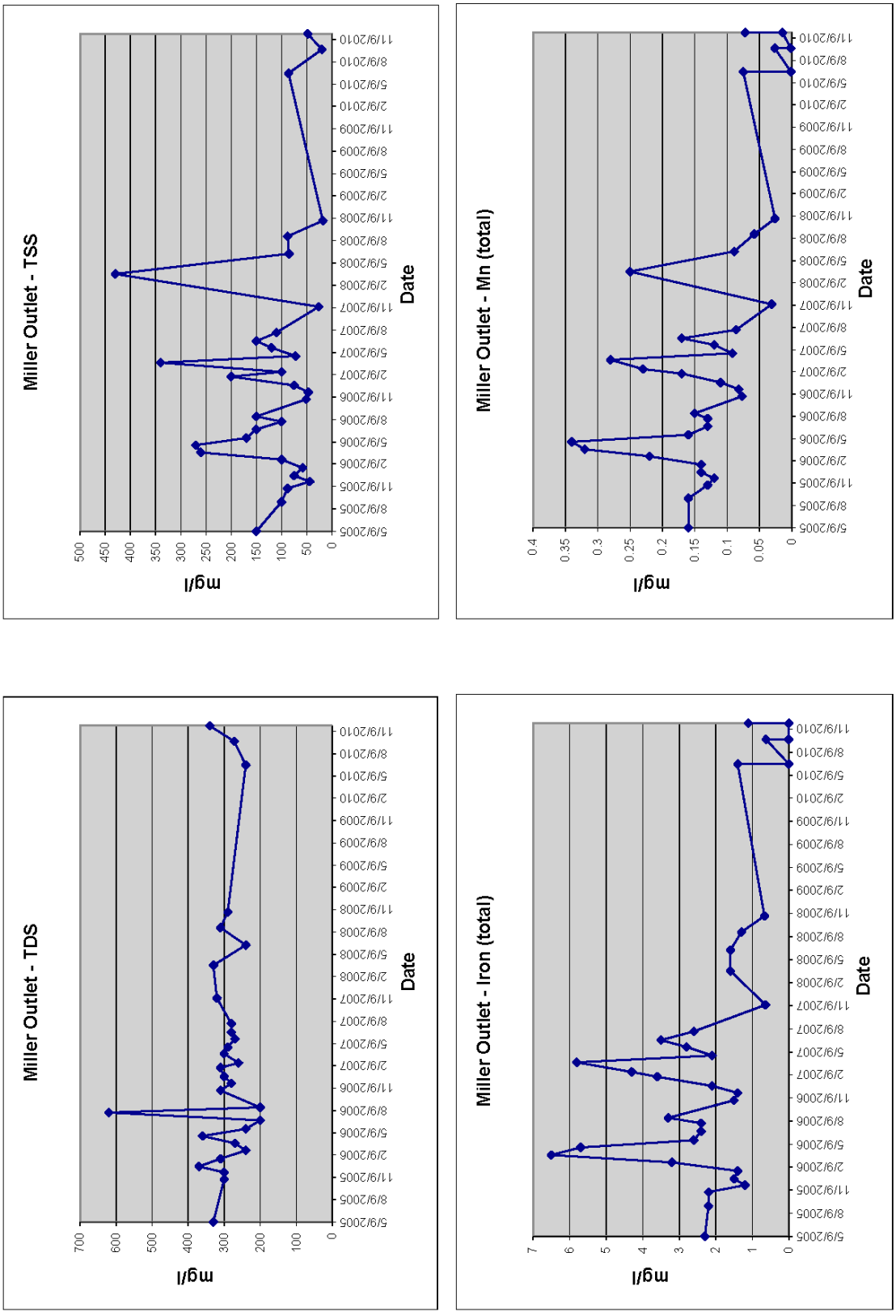
Figure 18. Basic Water Quality











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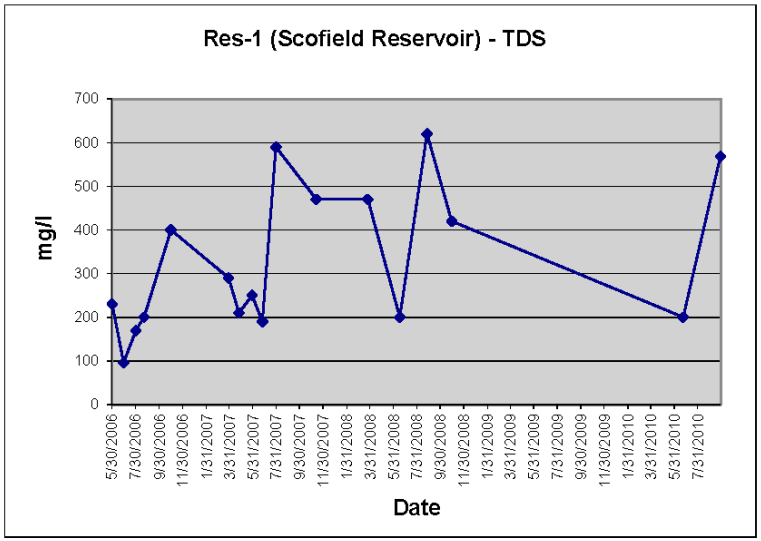

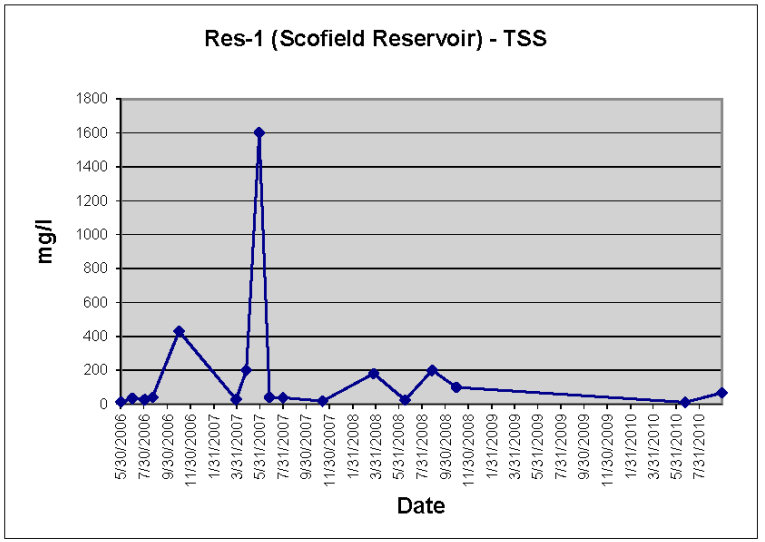

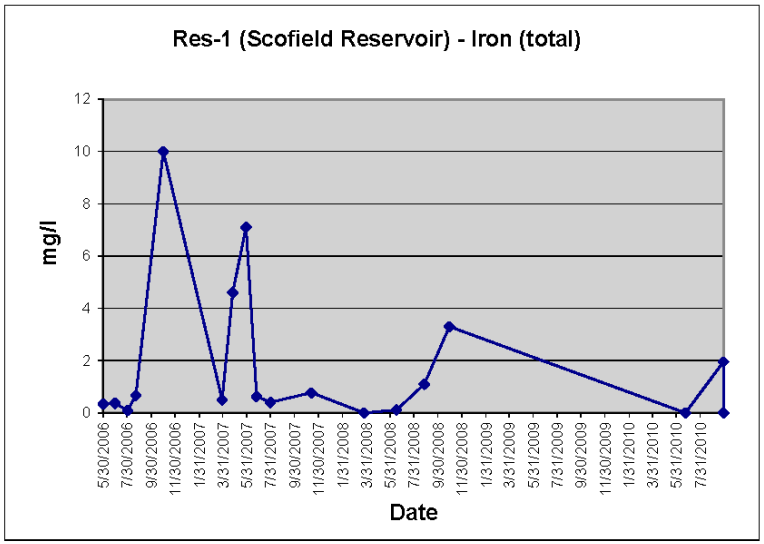

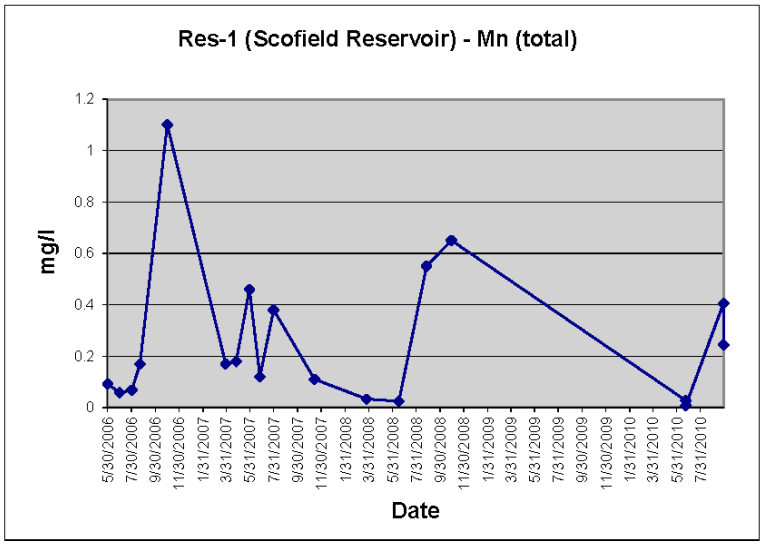

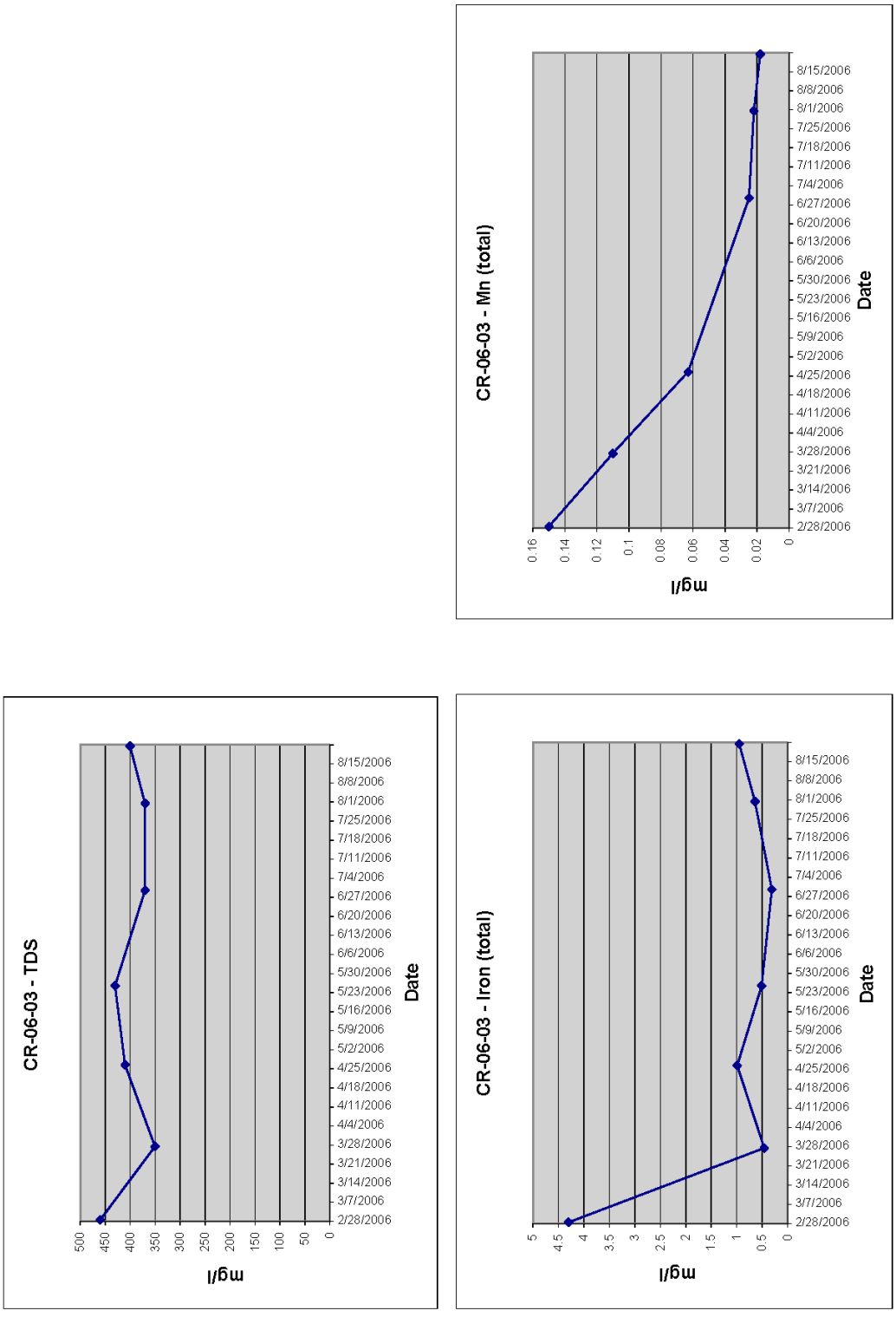

Figure 18. Basic Water Quality

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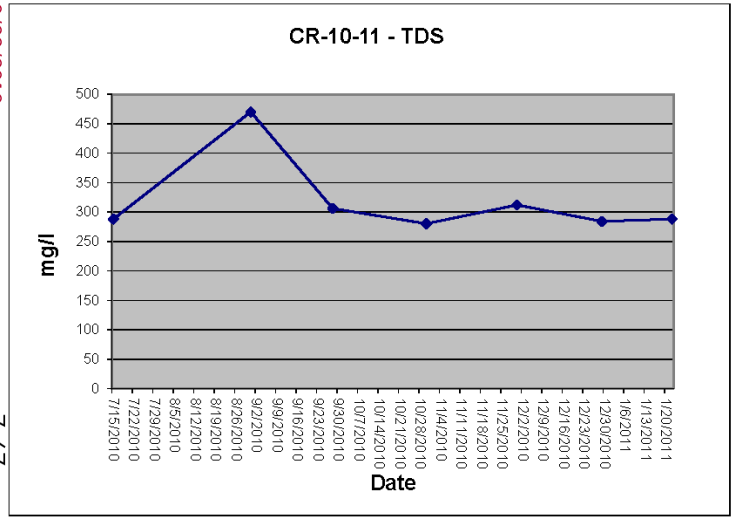

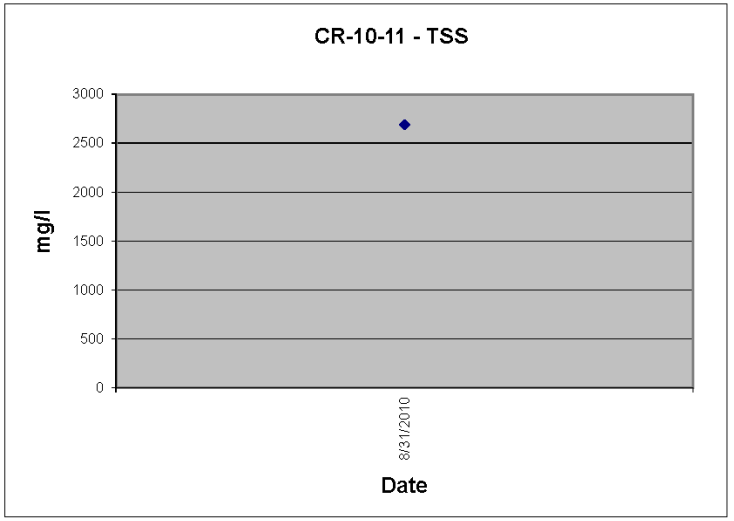

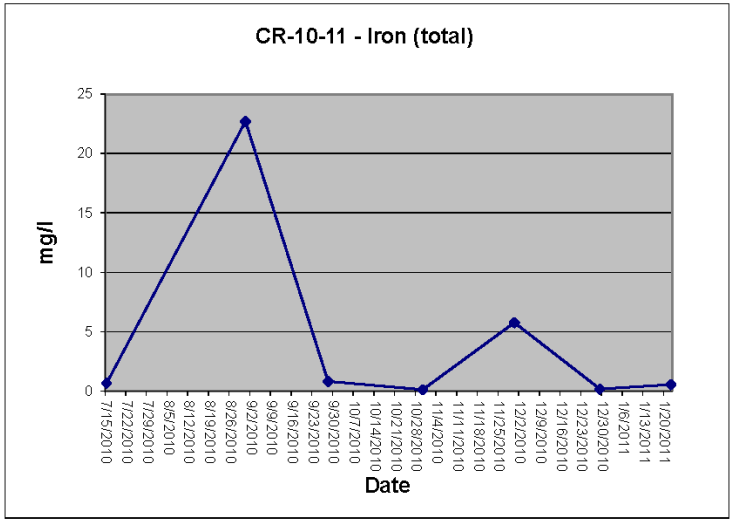

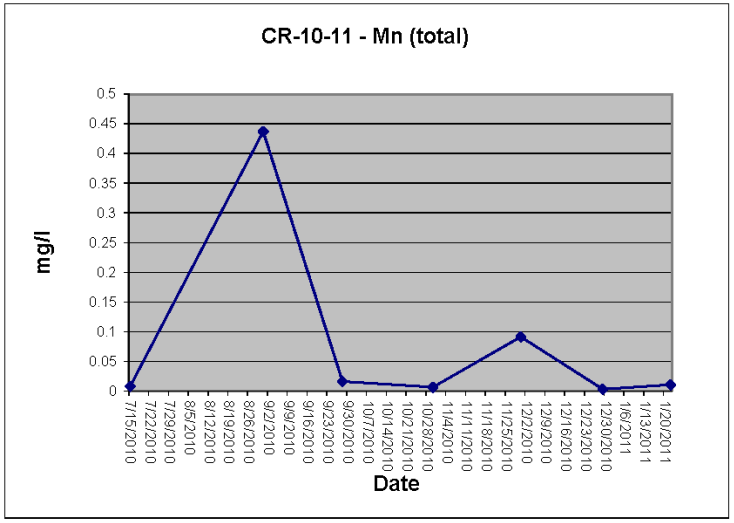

Figure 18. Basic Water Quality

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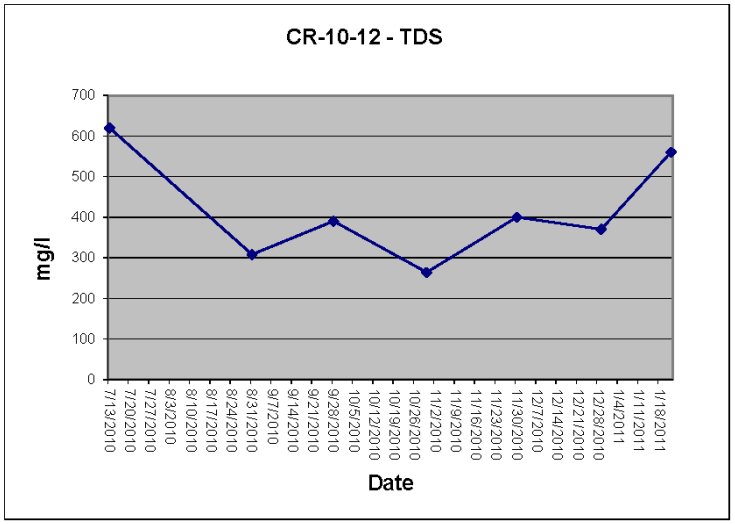
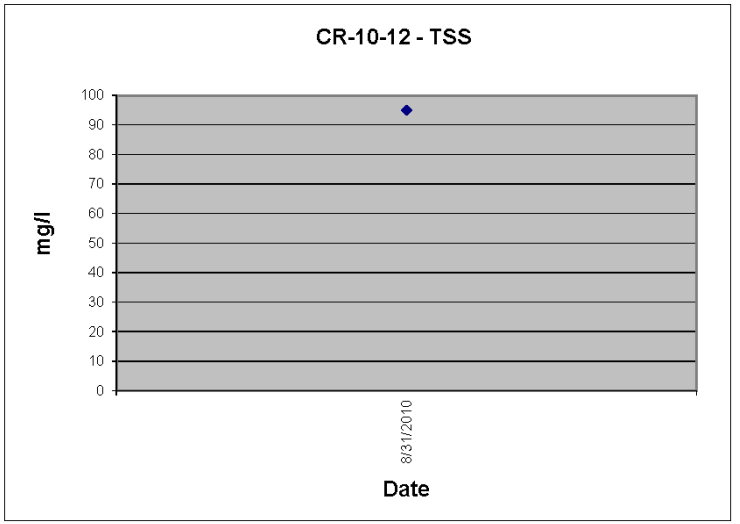
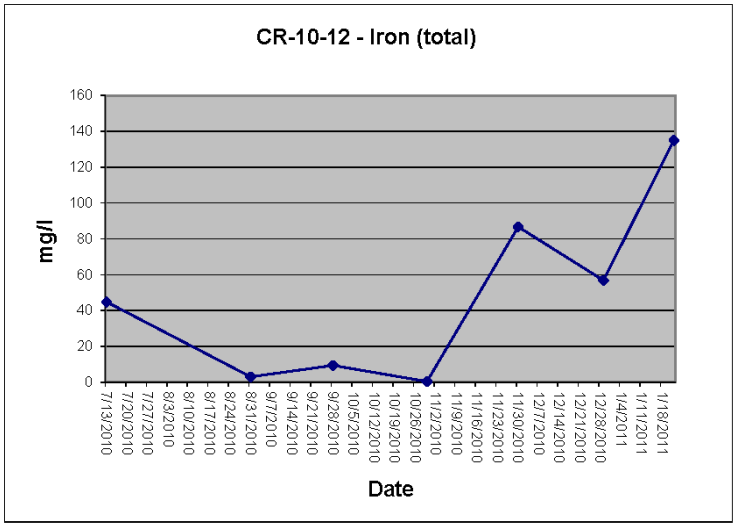






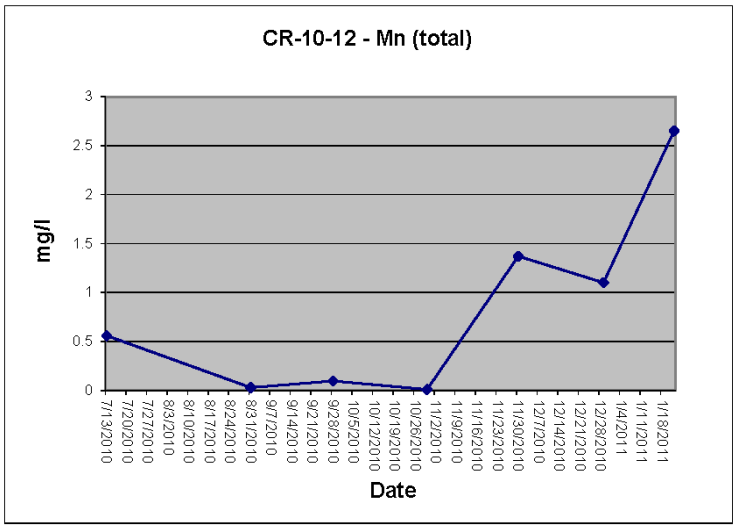
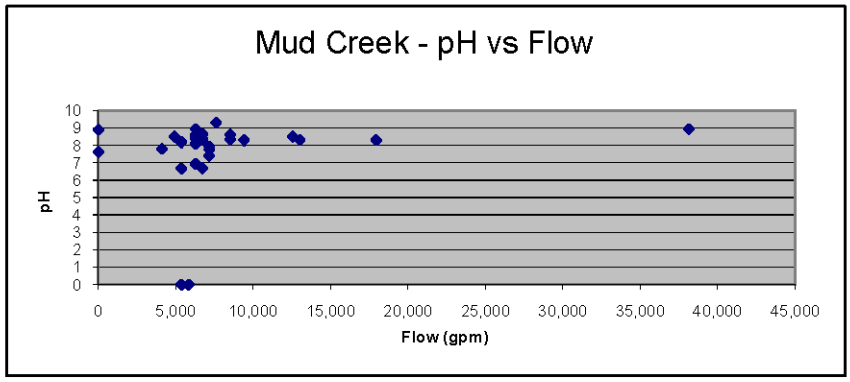
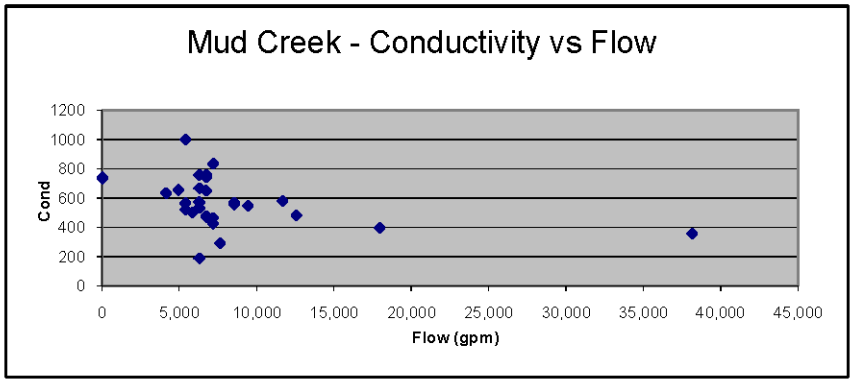
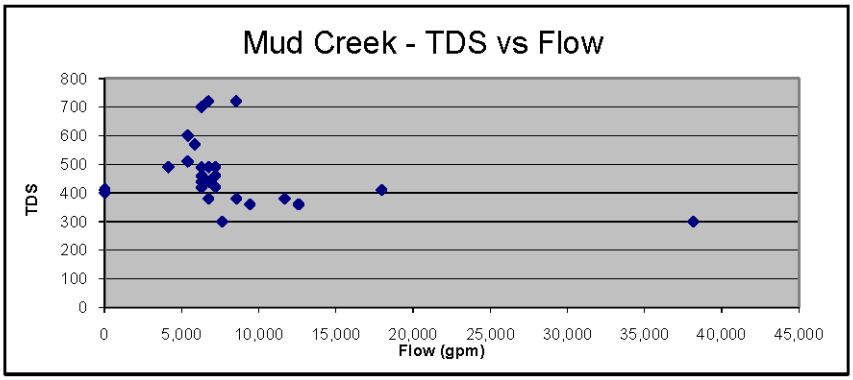


Figure 19. Water Quality VS Flow


Mud Creek - pH vs Flow
pH
10
9
8
7
6
5
4
3
2
1
0
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
Flow (gpm)


Mud Creek - Conductivity vs Flow
Cond
1200
1000
800
600
400
200
0
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
Flow (gpm)


Mud Creek - TDS vs Flow
TDS
800
700
600
500
400
300
200
100
0
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
Flow (gpm)

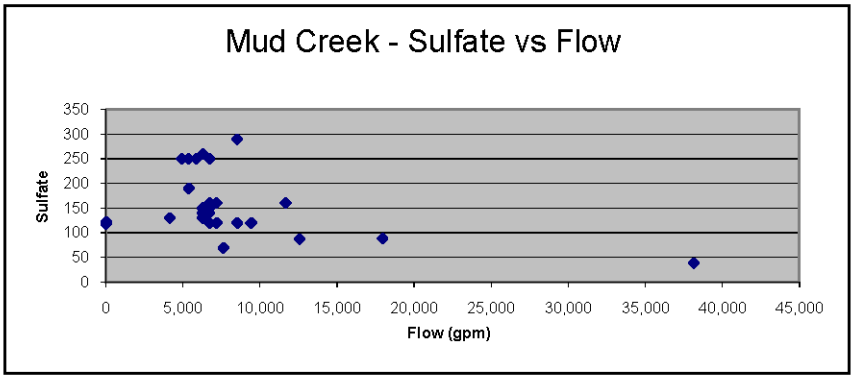

Mud Creek - Sulfate vs Flow
Sulfate
350
300
250
200
150
100
50
0
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
Flow (gpm)

Figure 19 (Continued)

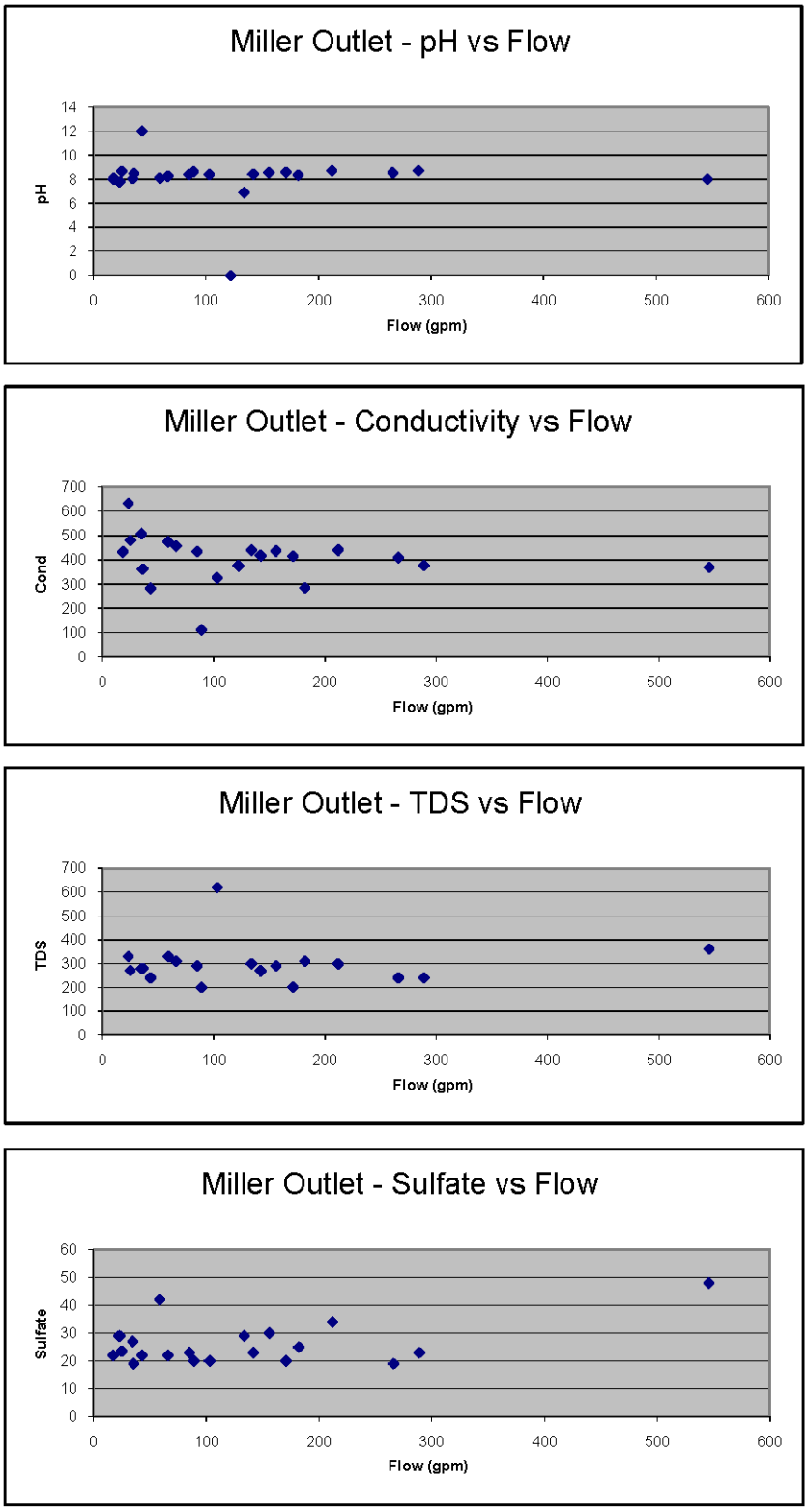
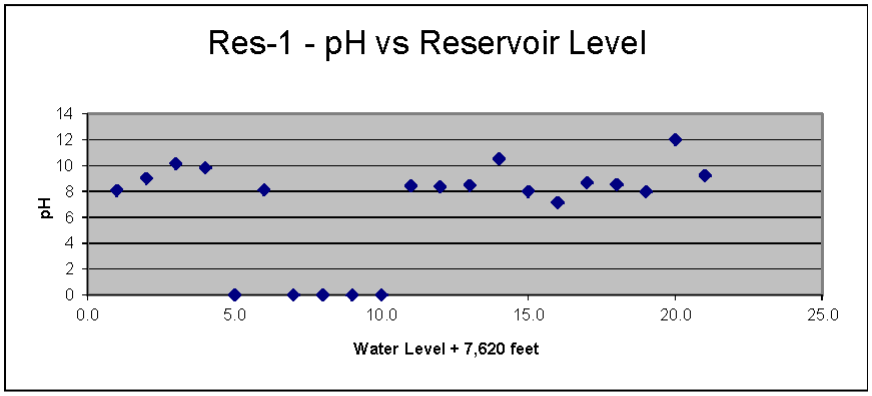
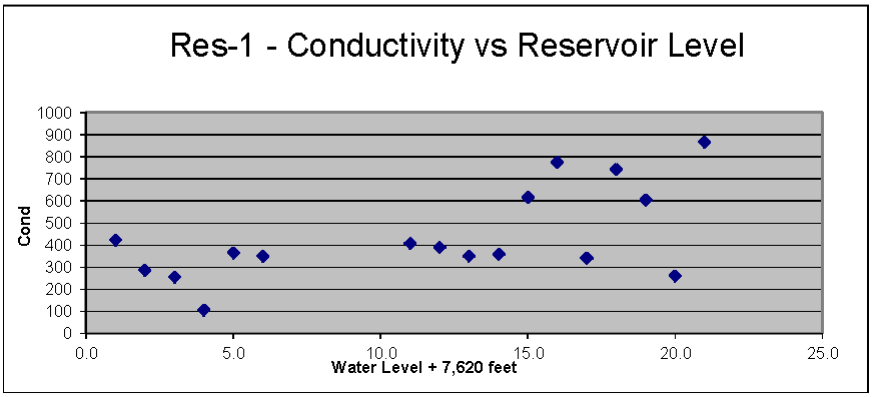
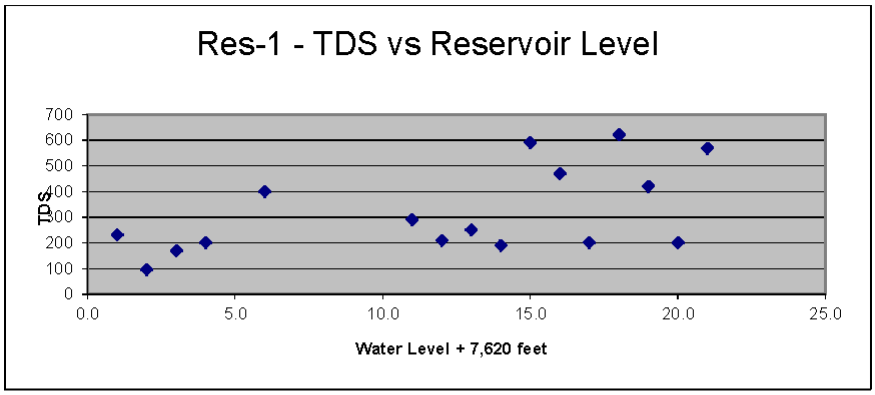
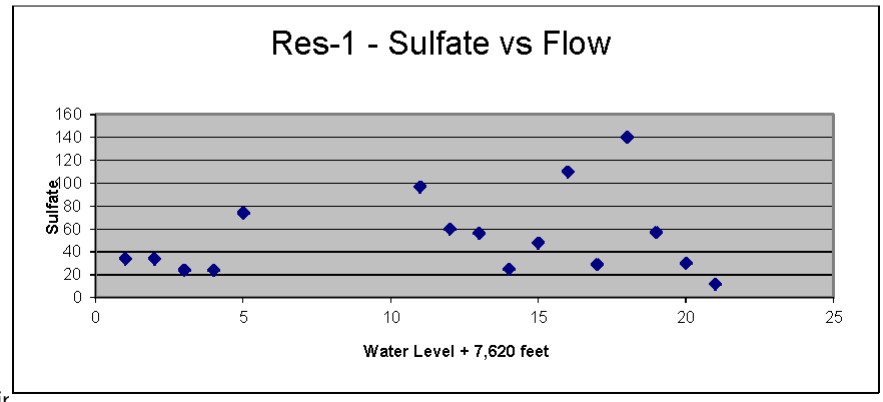


Figure 19 (Continued)









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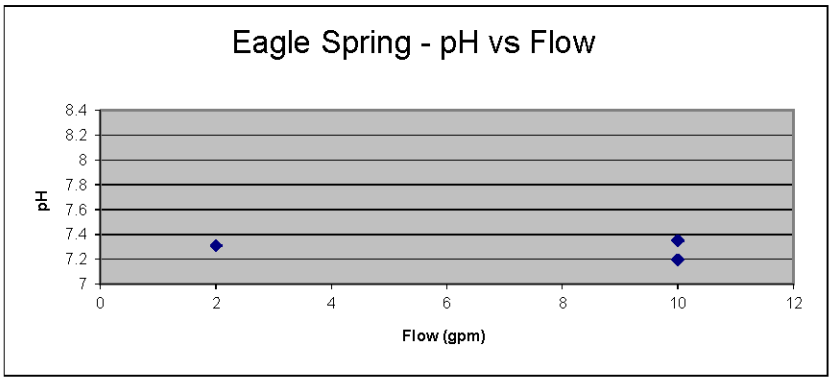

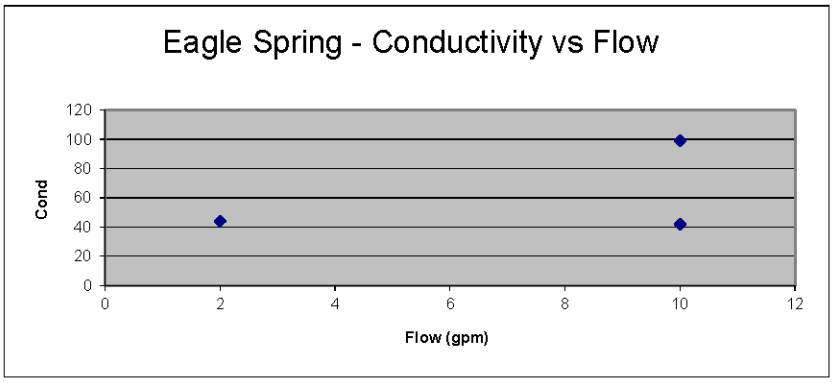

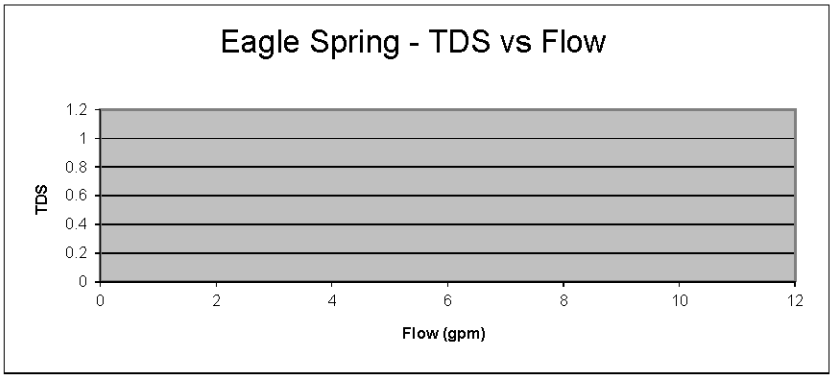

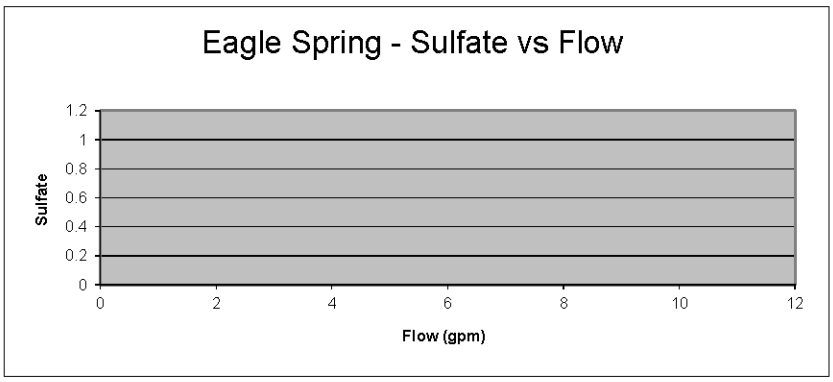

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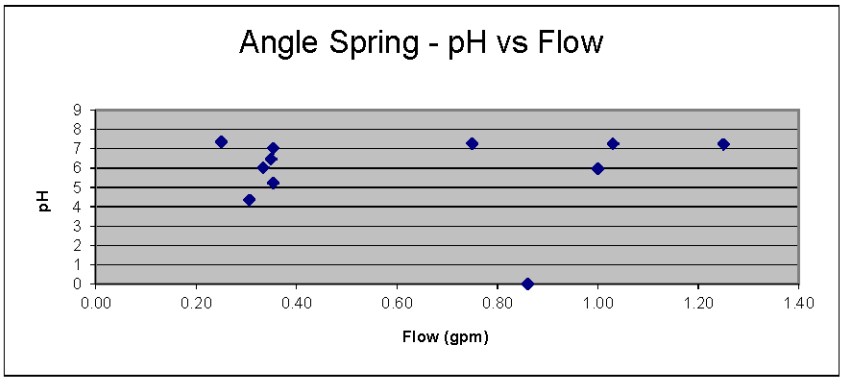

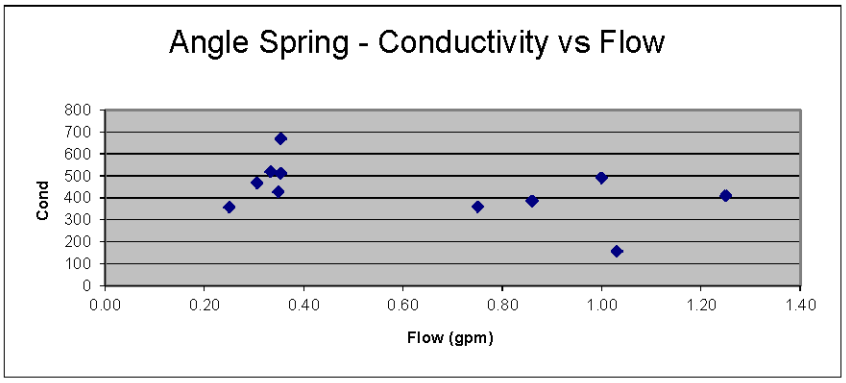

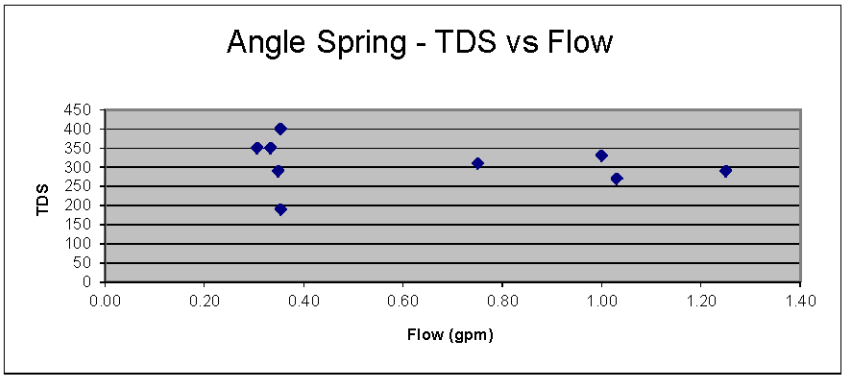

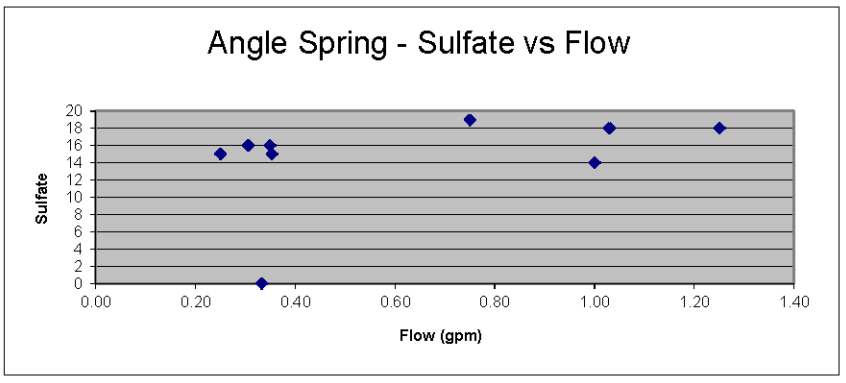

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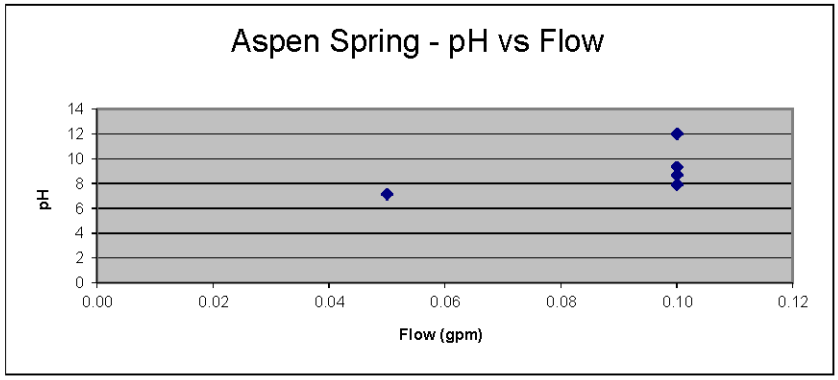

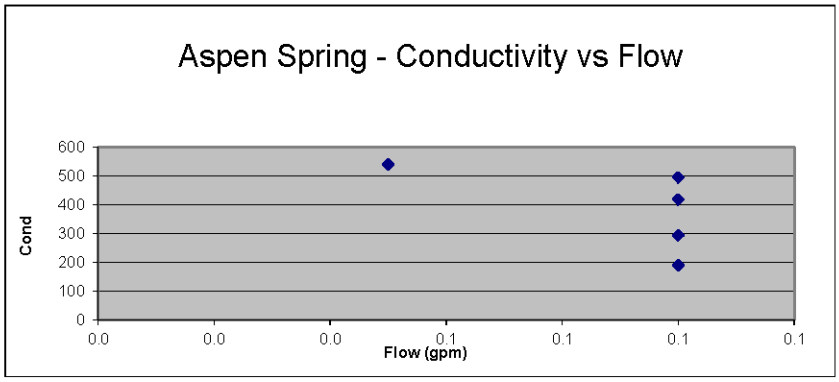

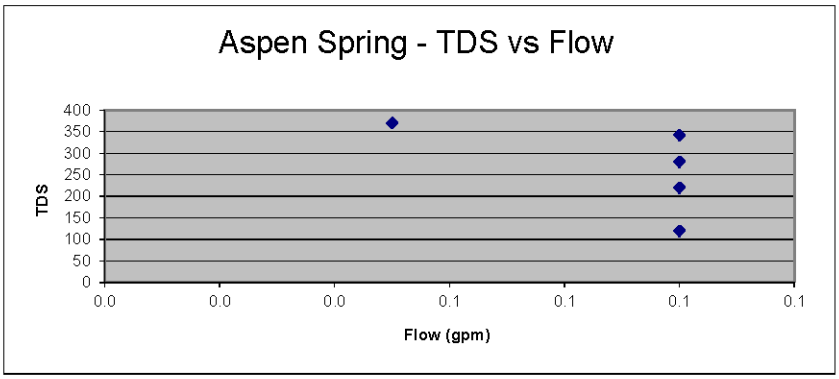

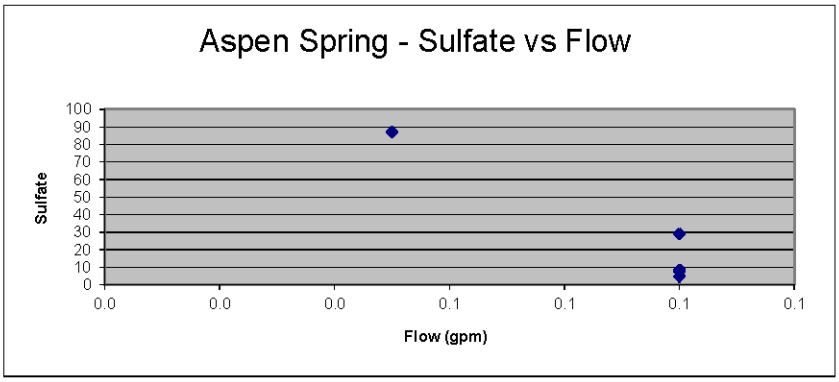

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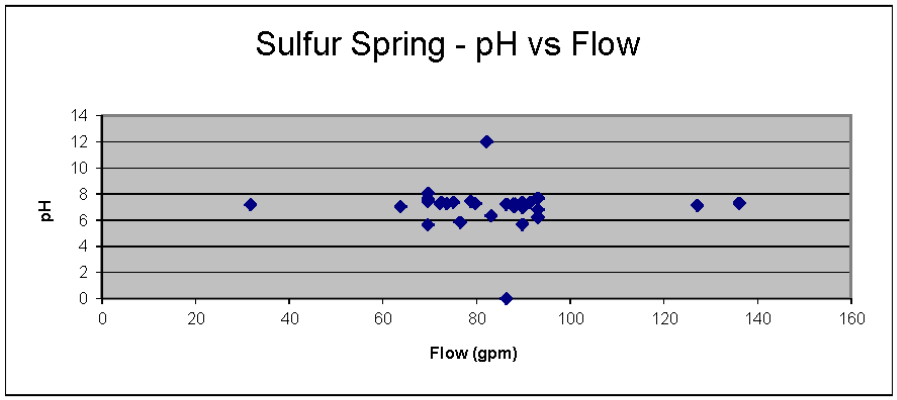
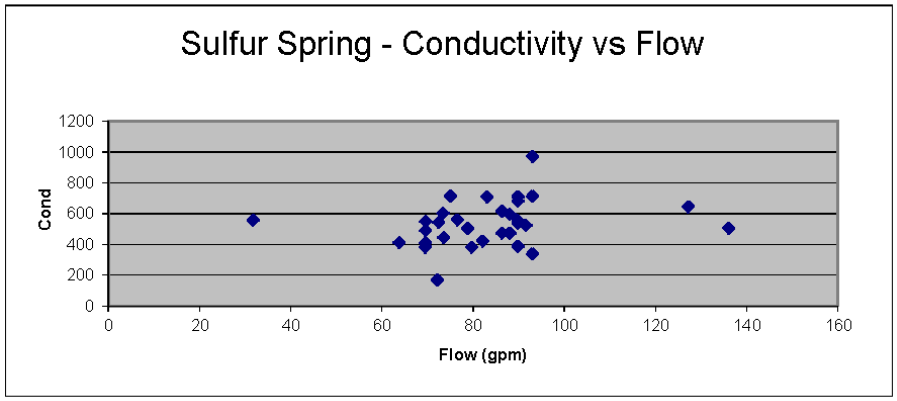
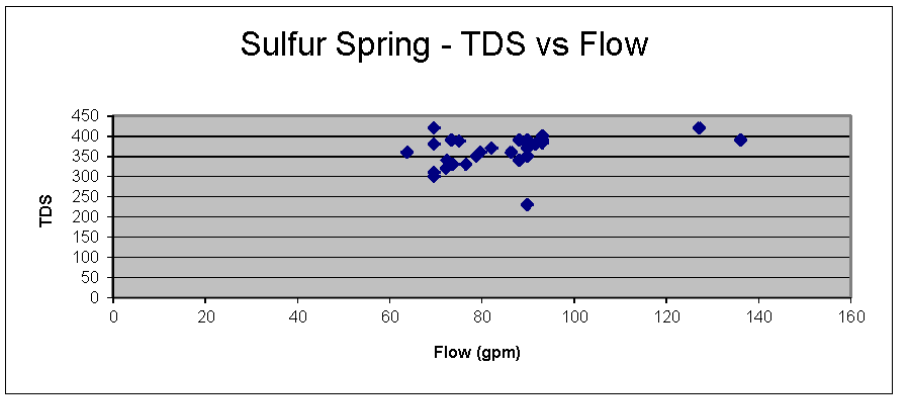
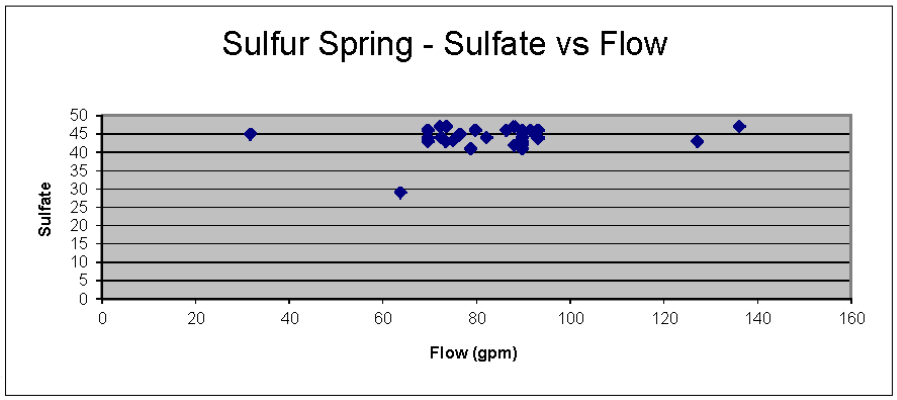








Surface Water Summary

Other than Mud Creek and Scofield Reservoir, surface water resources in the area adjacent to the proposed permit are limited. The principle perennial streams located within or adjacent to the permit area boundary include: 1) Mud Creek, the dominant drainage, and 2) Miller Canyon, both of which drain directly into Scofield Reservoir. Mud Creek drains areas not tributary to lands included within the permit area. Miller Canyon drains tributaries overlying future mining zones within Long Canyon. Limited ephemeral channels also drain the area, many of which normally exhibit short term continuous flow in response to spring snowmelt and/or high intensity thunderstorms.

The Major Perennial Streams

Major perennial streams within 5 miles radius of the permit area include the Price River and Fish Creek, Mud Creek, Miller Canyon. Smaller drainages in the area exhibit an ephemeral flow regime with sustained flows occurring only in response to spring snowmelt and high intensity thunderstorms. These drainages do not contribute significant quantities, or yields of stream flow to the Price River, except during high-intensity short-duration storm-generated events, and possibly during snowmelt runoff.

Presently, beneficial surface water use in the area includes domestic water supply, secondary recreations uses, cold water fame fish and aquatic life, and agriculture. As discussed in R645-301-724.200, Drainages and Surface Water Bodies, streams are classified as either 1C, "protected for domestic purposes with prior treatment by complete treatment processes", 3A, "protected for cold water species of fish and other cold water aquatic life", or 3C, "protected for non-game fish, and other aquatic life". 1C, Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water, 2B, Protected for secondary contact recreation such as boating, wading, or similar uses, 3A, Protected for cold water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain, and 4, Protected for agricultural uses including irrigation of crops and stock watering.

Although water quality is relatively consistent for monitored sources, some variation is noted to exist as a result of the composition of contributing water, and the flow regime, especially within Mud Creek where the source includes disturbed upstream areas. Overall, surface water conditions are typical of arid regions of the western United States and seasonal or storm-event peak flows tend to dilute geochemical constituent concentrations. However, during low-flow periods, constituent concentrations of surface waters tend to increase. For those constituents that appear to show elevated levels, it is reasonable to assume the elevated levels are a result of natural sources and the processes of weathering, oxidation, erosion, evaporative concentration and sediment transport.

R645-301-724.320 Reclamation & Prevention Material Damage

Reclamation as required by the R645 rules can be accomplished and the mining operation has been designed to prevent material damage to the hydrologic balance outside of the permit area.

~~Carbon Resources~~Coal Energy Group 3' planned mining and related activities have the potential to generate temporary impacts to surface water resources. These impacts will typically be localized, being confined to those segments of area drainages directly impacted by mining activities

In general, hydrologic consequences to surface water resources resulting from ~~CR's~~ CEG3's mining operations will be limited by the relatively small surface disturbance area, and will be effectively mitigated by operation of the drainage and sediment control system and ultimate reclamation of mine disturbance areas.

Proposed new mining related surface disturbance will be limited to the mine facilities areas and will involve removal of vegetation and soil materials and grading of disturbance areas for specific mining related uses. These disturbance activities will reduce infiltration potential and evapotranspiration due to elimination of vegetation and will increase surface runoff and erosion potential. In order to effectively control erosion and increased runoff from disturbance areas, ~~CR~~ CEG3 will divert runoff from undisturbed upgradient areas around the area of mining disturbance, grade disturbance areas to minimize runoff and erosion, and collect runoff as close as possible to its source and route it to the sedimentation pond for retention and settlement of suspended solids prior to discharge to natural drainages. ~~CR~~ CEG3 will control and mitigate potential increased runoff from surface disturbance areas using a number of commonly accepted surface management and drainage control practices. Specifically, disturbed areas will be graded to minimize runoff and to the extent operationally feasible surface flow velocities will be controlled through the use of appropriate surfacing materials and runoff will be collected as close to disturbance source areas as possible to minimize erosion and increased sediment loading.

In addition to specific drainage control practices, ~~CR~~ CEG3 will effectively minimize the area of surface disturbance by keeping all surface facilities within a relatively limited area. Provisions for minimizing mine related surface disturbance are detailed in Chapters 5 and 7. Increases in runoff from disturbance areas may result in a very minor increase in stream flow for the receiving drainage, however, any increase will not be significant given the very limited area of surface disturbance relative to total drainage basin areas for the potentially effected drainage. Potential flow increases will also be mitigated by operation of the sedimentation pond which will retain disturbed area runoff providing a buffering effect.

On completion of mining operations, disturbed areas will be reclaimed. Reclamation will involve backfilling and grading, reestablishment of natural drainage patterns, soil replacement, and revegetation. It is anticipated that reclamation will effectively restore infiltration and runoff patterns to approximate the baseline conditions currently existing for the surface disturbance areas.

The sediment pond has been designed such that discharge structures are above the design sediment level and any runoff accumulations in the pond below this discharge elevation will be retained in the pond as dead storage (note that dead storage will not affect pond capacity since the design sediment storage capacity is being utilized for dead storage). The design sediment storage volume available for temporary runoff storage represents a negligible amount relative to area stream discharge volumes and so does not constitute a significant potential flow reduction.

Changes in Surface Water Chemistry –
Exposure of surficial materials by mining related surface disturbance and contact of disturbed area runoff with these materials, infiltration and drainage from coal and operations areas may result in very minor changes in runoff water chemistry. ~~CR's~~ CEG3's proposed surface drainage and sediment control measures, specifically limitations on total surface disturbance and collection of disturbed areas runoff as close as reasonably feasible to the disturbance source area, will be effective in limiting runoff exposure to surficial materials and consequent leaching. While minor changes in runoff water chemistry may occur as a result of mining and related

operations, limited surface disturbance areas and corresponding limited disturbed area runoff volumes will minimize any potential for significant changes in water chemistry for the receiving drainage since disturbed area runoff flows will be buffered by significantly greater volumes of normal runoff from other drainage basin areas.

Potential temporary reduction of Mud Creek Flows during mine operations –
Since the mine operations area is relatively small, there will be very little impact to Mud Creek. Runoff flows from the mine site will be effectively contained in the sediment pond and released in a slow fashion to allow for deposition of suspended solids resulting from storm runoff. There will be only a minor delay in runoff due to the slow release of runoff water reaching Mud Creek. This delay will result in very minor impacts.

Reclamation impacts
Reclamation of the mine site will be accomplished as soon after mining as possible. The sediment pond will be left in place after the first phase of reclamation to contain the majority of runoff from the reclaimed area. Only the area south of the main access road will not flow to the sediment pond after the first phase of reclamation. Runoff from this area will be controlled with alternative sediment controls. The sediment pond and alternative sediment controls will remain in place until vegetation has been established and the area stabilized. When the area has been stabilized and is worthy of Phase II bond release, the sediment pond will be reclaimed. At that point the area will be reclaimed to the pre-mining condition. Reclamation can be accomplished and the operation has been designed to minimize impacts to the surrounding area, and to the hydrologic balance outside of the permit area. Refer to Chapter 5 and Chapter 7 for details of the operational designs that accomplish these goals.

R645-301-724.400 Climatological Information

The climate of the permit area is semi-arid with natural variations in climatic conditions due to the size of the area, rugged terrain, and significant elevation differences. Temperatures in the area reflect a typical seasonal pattern with gradual warming beginning in late March, high seasonal temperatures in July and August, a gradual cooling beginning in late August to early September, and seasonal lows in late December through mid-February. Due to fast moving storm fronts, wide temperature variances can occur over relatively short periods of time. More specific data relating to precipitation, temperature and wind speed and direction is provided in R645-301-724.410 – 420.

The general mine permit and surrounding area is characteristic of rugged terrain with significant elevation differences result in some natural variation in climatic conditions. Generally, temperatures are lower on the exposed high plateaus and upper slopes when compared with lower slope and valley areas. Temperature differences are usually pronounced between upper slopes with southern exposures, and deep valleys which can trap and hold cold air masses due to inversions during the winter. Local variations in precipitation amounts may be pronounced dependent on topography, exposure, and the direction of prevailing winds. Exposure may result in higher wind velocities on plateau and ridgeline areas when compared with more sheltered slope, basin, and valley areas, although natural down-valley airflow patterns can result in localized high winds in certain valley areas.

The closest SNOTEL meteorological reporting stations were identified as Clear Creek #1, Clear Creek #2, Scofield Dam, and Price, Utah. The Clear Creek and Scofield Dam sites provided

temperature, precipitation and snowfall data, and the Price, Utah site provided wind direction data. Climatic characterization of the permit area is based on historical climate data from these stations and general regional climatic information. Generally, the climate of the Project area is temperate with summer high temperatures in the range from 75° to 80°F (24° to 27°C) and winter lows from 0° to -5°F (-17° to -21°C). Annual average precipitation in the area is on the order of 14.6 inches.

The summer high temperature recorded at the Clear Creek #1 SNOTEL site between 1989 and 2006 was 90°F (32°C). The winter low during the same time period was -22°F (-30°C). Monthly mean, maximum and minimum data are shown in Table 13, Summary of Temperature Data.

Temperature

Temperatures in the area normally reflect a typical seasonal pattern with gradual warming beginning in mid to late-March, high seasonal temperatures in July and early August, a gradual cooling beginning in late August to early September, and seasonal lows in late-December through mid-February. Although recorded high and low temperatures of 90°F (32°C) and -22°F (-30°C) were recorded at the Clear Creek #1 station, the average high and low temperatures for the area are believed to be on the order of 77.7°F (25.4°C) and -1.4°F (-18.6°C) respectively as shown for the Scofield Dam station. The average frost-free period in this area ranges from approximately 60 to 120 days dependent primarily on elevation and exposure. Due to fast-moving storm fronts, wide temperature variances can occur over a relative short period of time. A summary of SNOTEL climatic data is provided in Table 13, Summary of Temperature Data.

Precipitation

Given a low average annual precipitation of only 14.56 inches, the permit area is classified as semi-arid. The majority of the precipitation received in the area occurs as snowfall during the months of December, January, February, and March. Rainfall typically occurs in the form of brief, high-intensity thunderstorms with most thunderstorm activity occurring during late summer and early fall, peaking in August. Monthly average precipitation ranges from 0.90 inches (June) to 1.65 inches (January) and the high average monthly snowfall is 26.2 inches (December). Average monthly precipitation and snowfall for the SNOTEL site located at Scofield Dam are summarized by Table 14, Summary of Precipitation Data. While a significant portion of the annual precipitation is captured in Scofield Reservoir (located immediately downstream and to the north of the permit area), some water is lost to evapotranspiration, sublimation, and local ground water recharge.

Table 14. Summary of Precipitation Data – Scofield Dam

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Avg Precipitation (in)	1.65	1.47	1.29	0.95	1.04	0.90	1.09	1.41	1.18	1.18	1.12	1.27	14.56
Avg Snowfall (in)	26.2	21.8	20.1	8.4	2.0	0.1	0.0	0.0	0.3	3.5	13.5	19.8	115.8
Avg Snow	18	20	14	3	0	0	0	0	0	0	3	9	6

Depth (in)													

Wind

Data is provided in Table 15, Summary of Wind Data - Price, Utah, for the closest wind SNOTEL monitoring site located near Price, Utah. As can be seen in the data, wind speeds average 6.8 mph with average highs and lows of 8.5 and 5.1 mph occurring in April and January respectively. For this station winds are generally out of the north.

Table 15. Summary of Wind Data - Price, Utah

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Avg Wind Speed (mph)	**5.1**	**5.8**	**7.9**	**8.5**	**8.4**	**8.2**	**7.0**	**6.6**	**6.9**	**6.7**	**5.8**	**5.2**	**6.8**
Avg Wind Direction	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**

General regional information taken from the Willow Creek permit indicates that prevailing winds are from the west and northwest with average wind velocities generally not exceeding 20 miles per hour. During the winter the prevailing wind direction can shift for extended periods, blowing predominantly from the northeast.

Locally, surface air movements are strongly affected by natural drainage patterns and daily temperature variations. As local air masses cool at night, the denser, cool air flows down valleys and other natural drainage channels. Generally, the winds associated with this downslope movement are low to moderate, however, if the drainage alignment is the same as the prevailing wind direction or if the natural topography tends to concentrate natural air movement, moderate to strong downslope winds and high-intensity gusts may result. As natural warming occurs during the morning and early afternoon, warm air masses begin to move up-valley. Differential heating and upper level winds tend to have a greater impact on the upward air movements resulting in greater mixing and instability with resultant variable winds and greater potential for gusty conditions.

R645-301-724.700 Including R645-302-320 Alluvial Valley Floors

R645-302-320 & 321 Alluvial Valley Floors Determination

Refer to Chapter 9, Special Categories for a discussion on AVF's.

R645-301-725 Baseline Cumulative Impact Area Information

In order to evaluate the potential cumulative hydrologic impacts which could result from the

proposed mining activities in combination with other unrelated activities, it is necessary to define a cumulative impact area and identify other activities which may contribute to any cumulative impacts within that area.

Generally, the surface disturbance associated with the mining operations will involve such a small area (Portal Block Permit Boundary) that the overall impact on surface water resources will be negligible. Any potential surface water impacts which may result from mining and related activities will also be effectively mitigated by a comprehensive drainage and sediment control plan and controlled discharge under specific effluent limitations and permit requirements of the mine UPDES Permit. Similarly, potential mining related ground water impacts will inherently be minimized by limited ground water occurrence and low overall permeabilities. While both mining related surface and ground water impacts are expected to be minimal, a complete evaluation of potential hydrologic impacts must consider the larger area over which any mine related impacts could combine with other unrelated environmental impacts to produce a cumulative adverse impact.

For potential ground water impacts, the cumulative impact area includes the permit area along with any upgradient areas which could be impacted by mining related drawdown and downgradient areas which could be impacted by any mining related changes in ground water flow volumes or ground water quality. Given the characteristic low permeability of the geologic sequence, the limited volume and flow of ground water, and the consistently flat dip of the geologic units to the northeast, the ground water cumulative impact area can reasonably be defined by Mud Creek on the west, Miller Canyon to the north, Long Canyon to the east, and the headwaters of UP Canyon on the south. Other activities which could result in possible contributing ground water impacts within this area are believed to be limited to contributions from existing abandoned underground mine workings.

Any drawdown of perched aquifers would occur either immediately above the underground mine workings or within the limits of subsidence, both of which are believed to be encompassed within the permit area boundary. Given the unconfined nature, overall low permeability, and limited storage and flow volume of the regional aquifer within mined zones, potential mining related drawdown is expected to be negligible. Interruption of groundwater flows should be minimal to non-existent based on the general lack of water encountered during exploratory activities associated with this mine permit. No known potential upgradient effects are projected for the direct permit area since 1) bedrock dips to the east-northeast with no upgradient source beyond the surface mine facilities themselves, and 2) potential mine impacted surface waters associated with Mud Creek flow west of the permit area and will bypass the mine without direct contact or impact.

Any potential downgradient mining related ground water impacts would be most pronounced within and immediately adjacent to the actual area of underground mining disturbance with these impacts becoming less pronounced with increasing distance from the impact source due to the effects of ground water contributions from adjacent areas and consequent mixing, dispersion, and dilution. The area which would be affected by the mining activities is relatively small when compared with the overall regional ground water basin and low permeability combined with relatively flat gradients will effectively limit downgradient ground water movement. Water quality should not be affected as a result of mine development because the existing stored mine water as well as water which will accumulate in new mine workings is regional groundwater. Potential downgradient mining related ground water impacts would, therefore, be confined to a relatively limited downgradient area which is expected to fall within the cumulative impact area as defined above.

R645-301-726 Modeling

Modeling techniques used for this permit application were used based on ground and surface water sampling data.

Modeling of the probable regional groundwater table was accomplished utilizing the available groundwater data that include SWL's from CR-06-09, CR-06-03ABV, CR-10-11, CR-10-12 and the limiting data provided by the elevation of screened intervals in the dry monitor wells CR-06-01BLW, and CR-06-05A. Additional data was gleaned from the 3D position of the perennial reaches of Mud Creek and Miller Creek, together with the baseline water level provided by Scofield Reservoir. It was assumed that the perennial reaches must be receiving flow from the regional water table.

Piezometric surface modeling was accomplished with SURVCAD software using the triangulation interpellator and a 500 ft. grid size. This large grid size was required to span the large distances between data points which produced a very smooth surface (Following the rule of the larger the gaps the smoother the maps.) Using the perennial reaches of the two streams as primary data, the first pass surface from those data fit the SWL's from the monitor wells rather nicely. However, it did not account for the obvious warps in the surface created by the partitioning effect of the gouge in the major faults. In an attempt to construct a rough approximation of the complexity introduced by faulting, the model had to be made in two parts. One; east of the west boundary fault of the Eagles Canyon Graben, and Two; west of that same fault. This allowed accommodation of the upper elevation limits provide by CR-06-01 BLW and CR-06-05A west of this fault. Synthetic data had to be created in the form of 3D lines to force the model to butt against the fault in an appropriate manner rather than create a bulls eye at the two dry monitor wells. The approximation worked reasonably well but, accommodating all of the available data and modeling the partition formed by the western boundary fault of the Eagles Canyon Graben. Clearly this model is a crude approximation of the real piezometric surface may be an apparent coincidental fit when in fact the piezometric surface is actually more strongly partitioned than the model shows. Of course there are other faults as large as the Western Boundary of the Eagles Canyon Graben that should have similar effect on the model. Data are simply insufficient to detect those nuances.

This model requires that only certain large faults have sufficient gouge to partition the peizometric surface and that others leak ground water allowing it to flow from high gradient, near Long Canyon recharge area to Scofield Reservoir. The model also requires that there are no stratigraphic units in the local packet that are capable of acting as true aquacludes, but only aquitards.

The only other obvious competing model of groundwater flow would be a flow to the North North-East down the regional dip. This model would require that several stratigraphic units in the local packet must act as aquacludes, and the groundwater to flow beneath higher elevations that might be recharge area. This model would also require a complicate, thus far unknown, mechanism to account for the perennial reach of Miller Creek. It is difficult to visualize how a North East dipping confined water table could provide enough recharge to the perennial reach of Miller Creek to account for the flow. As additional monitor wells are completed, particularly south and east of monitor well CR-06-09, the model will become much better understood.

R645-301-727 Alternative Water Source Information

The surface mining activities are not expected to cause proximate contamination, diminution or interruption of any underground or surface source of water. As discussed previously, mining operations are not expected to have any significant adverse impacts on the prevailing hydrologic balance, existing water resource or water rights. Furthermore, the potential impacts of mining on ground water systems (dewatering of accumulated water, solute leaching, and solute transport) will not result in any measurable effect on surface water or ground water rights nor will the potential impacts of mining on surface water systems (increased runoff, erosion and sediment load, salt loading and changes in ion balance) cause measurable injury to surface water rights. In the unlikely event that proximate contamination, diminution, or interruption does occur, ~~CR~~ CEG3 will acquire or purchase surface and or ground water rights or supplies from local sources including Scofield Reservoir to replace impacted water rights.

R645-301-728 Probable Hydrologic Consequences Determination

In order to assess the probable hydrologic consequences of the planned mining and related activities ~~CR~~ CEG3 has reviewed and evaluated all available information on baseline hydrologic conditions as presented and described in R645-301-711 - 727, Hydrologic Information, in order to accurately characterize the existing surface and ground water environments. Within the context of the existing hydrologic conditions, ~~CR~~ CEG3 then considered potential hydrologic impacts, both positive and negative, which could occur as a result of the planned mining and related activities based on the operation and reclamation plans presented in R645-301-230 – 252, 330, - 358, Operating Plans and Design Criteria, and R645-301-323– 400, 327, 240 – 244, 341, 342, 352, 353, 356, 357, 358, 511, 512, 515, 541, 542, 553, 760 - 765, Reclamation Plans. Both direct and indirect mining related impacts were identified and evaluated and the effectiveness of operational protection and control measures and reclamation activities in mitigating potential impacts were considered in the assessment of probable hydrologic impacts. The following sections present summary descriptions of the probable hydrologic consequences of the planned Kinney mining and related activities.

Detailed discussion of surface and ground water occurrence, quality, use, and relationships is presented in R645-301-710, 721, 724 - 728, Hydrologic Information. The following briefly summarize general surface and ground water conditions as a reference for the discussions of probable hydrologic consequences which follow in the subsequent sections.

Ground Water Baseline Conditions

Ground water resources in the permit and adjacent areas are limited in both extent and quantity. Ground water occurrences are limited to; 1) Shallow alluvial/colluvial valley fill deposits in valley areas west of the mine and in area drainages overlying mining zones east of the surface disturbance area; 2) Potential perched ground water occurring in thin laterally discontinuous sedimentary units in the Blackhawk Formation, and adjacent to faults 3) Ground water which has accumulated over time in existing underground mine workings; and 4) a regional water table aquifer occurring in the deeper portions of the Blackhawk Formation and extending into the underlying Star Point and Mancos Formations.

Ground water movement is limited by generally low transmissivities, the lack of significant secondary permeability, and limited recharge due to arid conditions, limited outcrop exposures, and relatively mountainous terrain. While volumes of water may have accumulated over time in abandoned underground mine workings, mine inflow rates are expected to be relatively low.

Only limited ground water quality data is available due to the general dry nature of the explored geologic units. Three of the four groundwater monitor wells completed in the Hiawatha Seam, the seam to be mined, are dry and one of the two groundwater monitor wells completed below the seam to be mined (CR-06-01BLW) is dry demonstrating that the Hiawatha Seam is over 150 feet above the regional groundwater table in the permit area Table 6, Kinney #2 Mine Baseline Monitoring Stations. Data from Sulfur Spring, Angle Spring and Well CR-06-03-ABV show similar calcium bicarbonate water qualities (see Map 10, Regional Water Quality), a moderately alkaline pH, and moderate to low TDS concentrations. Ground water use is limited to isolated use of perched ground water issuing from springs or seeps for stock watering.

Surface Water Baseline Conditions

Other than Mud Creek and Scofield Reservoir, surface water resources in the permit and adjacent areas are limited. The principal perennial drainages located adjacent to the permit area include; 1) Mud Creek, the principal drainage in this area and Miller Canyon, both tributary to Scofield Reservoir. Some ephemeral drainages occur within the permit area, most if not all of which normally exhibit flow only in response to spring snowmelt and high intensity thunderstorms.

Surface water quality is typical of mountainous regions of the western United States exhibiting chemical characteristics including calcium bicarbonate types with neutral to moderately alkaline pH, and moderate to moderately high TDS and TSS values. Quality of Mud Creek does not fit this profile well and It is believed that water quality within Mud Creek is influenced by surface mine operations and mine discharges within Eccles Canyon (Map-10). Seasonal flow increases or peak flow resulting from storm events tend to dilute geochemical constituents concentrations while during low flow periods these concentrations tend to increase. Surface water uses in the general area are mostly used for agricultural and recreational use, however surface waters are also used downstream for culinary and industrial purposes. All surface water use is outside the permit area boundaries except for water right 91-4026 located at the extreme eastern edge of the permit area. This right is a pond with associated spring source and is used for domestic stock watering during the limited summer and fall seasons. More information on surface water resources is presented in R645-301-724 - 728, Surface Water Information.

Given the general absence of both aquifers within the permit or adjacent areas which can be characterized as significant water supplies and significant recharge areas, the potential for adverse water supply impacts due to mining related subsidence is negligible. Mining may result in drainage of small perched ground water occurrences and localized increases in mine water storage, however, the depth of mining, limited coal seam thickness and specific mine design which calls for first mining only provides effective protection for area drainages and associated alluvial/colluvial aquifer systems.

The hydrogeologic characteristics of the coal-bearing Blackhawk and overlying formations will effectively limit the extent of impacts to the hydrologic system as a result of new mining. Therefore, impacts from the mines will be of local, as opposed to regional, significance. Potential impacts to the hydrologic resources are discussed further below.

Mining activities may result in the following potential localized, temporary effects on the surface and ground water environments:

Stream Flows and Surface Water Quality

Mine related surface development will result in removal of vegetation and soils, grading, paving and other surface alterations which may increase surface runoff and sediment transport from the disturbed areas. During construction, development, and active operations, runoff and sediment will be controlled through the use of temporary diversion and collection ditches, berms, sedimentation ponds, and appropriate alternative sediment control measures. Increased runoff amounts will be buffered to some extent by temporary containment in sedimentation ponds but some minor temporary increases in discharge to stream reaches downgradient of surface disturbance areas is anticipated. Following completion of active operations, surface disturbance areas will be reclaimed with the objective of reestablishing baseline drainage conditions. Runoff and sediment control structures will remain in place until this objective is achieved.

The only site available for construction of the required mine facilities is a very limited area adjacent to and east of Highway 96. As a component of the overall mine development plan, ~~CR~~ CEG3 proposes to convey one short segment of "Jones Draw "an ephemeral drainage near the south end of the mine site beneath the mine surface facilities via the construction of a bypass culvert. The diversion will protect natural drainage flows upstream of the disturbed area, thus preventing or minimizing potential runoff degradation. Upon mine abandonment, the culvert will be removed, the area regraded, and the stream channel restored as closely as possible to current conditions within the constraints of site conditions and practical construction capabilities.

With the exception of the temporary conveyance of the "Jones Draw" channel discussed above, underground mining activities are not expected to result in any impact on the alluvial/colluvial aquifer system. Recharge areas for the alluvial/colluvial system will not be affected, and ~~CR~~ CEG3 plans to avoid full extraction under any of the local drainages. Underground mine development and mining operations may intercept perched aquifers, but are not expected to intersect the regional ground water system. Resulting impacts on stream flow are not anticipated since flow contributions from the perched ground water systems represent only very small flow potentials.

Surface runoff from mining related disturbance areas has the potential to impact surface water quality. As noted in the preceding section, surface runoff and associated sediment loading will be effectively addressed through operation of engineered drainage and sedimentation control structures and site reclamation. During active mining operations, the limited underground mine drainage encountered will be controlled using sumps at the face, transfer pumps and pipelines wherein the water will be pumped to a section sump where the water will be allowed to settle and it will either percolate back into the groundwater system or be reused for dust suppression. The surface discharge of mine water is not anticipated.

Given that the proposed mine workings will be down-dip from the mine portals, any upgradient workings will drain to the lower workings. History has also shown that there has been no direct surface discharge from inactive mine workings locally. Given the anticipated mining depth and configuration of the proposed mine workings, it is anticipated that the ultimate equilibrium water level in the mine workings (if any) will be below any potential mine discharge point.

There have been some indications in other local and regional mines that the interception and accumulation of ground water in underground mine workings limits percolation of the water through the underlying sediments, preventing further contact with underlying shales and resultant increases in TDS. Given this consideration, mine water accumulations and any associated lateral ground water movements through the geologic sequence to a surface

discharge point may actually result in an overall enhancement of downgradient water quality. Since the coal seams dip to the northeast and become increasingly deep with no outcrops on the east side of the mining area, there is little or no potential for mine water to impact water users.

Ground Water Occurrence, Movement, Discharge, and Quality

Underground mine development and operations, and related surface disturbances are not expected to significantly impact ground water recharge areas given the limited extent of anticipated surface disturbance. There is also little to no potential for minor, localized, mining-related impacts on the alluvial/colluvial ground water system (as discussed previously), localized impacts on the perched ground water system, increases in the amount and areal extent of stored ground water, and limited short-term impacts on the regional ground water system.

Mine development entries may intercept limited water-bearing members of the perched ground water system. These activities could increase vertical permeability and result in localized drainage of perched ground water resources. However, given the limited thickness and areal extent, storage capacity, and transmissivity of most of the perched ground water occurrences, direct mining-related impacts resulting from interception by development or mine workings are anticipated to be very localized with relatively low flow rates and total flow volumes. Similarly, loss of ground water from the perched ground water system due to rock fracturing would be a localized phenomenon.

Development of mine workings and subsequent coal removal is not expected to directly impact the regional ground water system. If the regional system is encountered during mining, the void spaces and resultant mine inflows created would provide for the accumulation of storage of ground water. Impacts on the regional ground water system in this case would be expected to include a localized, temporary, depression of the potentiometric surface and localized reduction of ground water volumes and flow rates in effected portions of the regional aquifer zone as the mine workings are flooded to the level of the regional piezometric surface. As noted in the previous section, ground water accumulations are not expected to result in direct mine water discharges. Instead, under such conditions, gradual accumulations of ground water would reach an equilibrium point with the regional ground water system with no significant long-term effects.

The primary potential mining-related impact relative to ground water quality would be an increased oxidation potential in the void spaces resulting from mine development and coal extraction.

Potential for Adverse Impacts

Ground Water Impacts

Unlike many local mines, ground exploration in and around the proposed Kinney No. 2 Mine has encountered only limited amounts of water, indicating the presence of very limited ground water resources. Although some limited water was reported during drilling, it appears that all but three of the wells drilled within the proposed Portal Block permit boundary are dry. This

conclusion was reached based on the observation that the reported water levels within many of the wells remained below the top of the lowermost blank section following bailing. The lack of water level change since that time has shown that there have been no inflows into most of the wells, thus indicating that wells CR-06-01 CR-06-01-BLW, CR-06-02, CR-06-02-ABV, and CR-06-05A are dry. Table 8, Well Conditions as of December 2010 and February 2011 (CR-10-11 & 12) March 2011 (CR-06-02), has been inserted to show the location of the water level in each well in reference to the bottom of the lowermost screen. The locations of these wells are shown on Map 7, Regional Hydrology.

Data within Table 8 also show that only minor water level variations have been noted for well CR-06-09-BLW for water that was encountered within zones below the coal seam. Mining is not anticipated to impact any water or aquifer zone below the coal seam.

Five wells (CR-06-03-ABV, CR-06-09, and CR-06-09ABV, CR-10-11, CR-10-12) show the presence of water above the Hiawatha Coal Seam. The first of these wells is located within the Eagle Canyon drainage, and was abandoned due to property and easement restrictions. The CR-06-09 wells are located along the ridgeline between Eagle and Long Canyons. It will be noted that CR-06-03-ABV encountered water above the Hiawatha Coal Seam only because this hole is located in the Eagle Canyon Graben which dropped the Hiawatha Seam below the regional water table. CR-06-09 lies nearly a half mile NE of the permit boundary and in an area where the elevation of the Hiawatha Seam is lower than the elevation of the peizometric surface Map 7, Regional Hydrology. Similar to CR-06-03AVB, monitor wells CR-10-11 and CR-10-12 are completed above the Hiawatha Seam because the Hiawatha Seam has been dropped down nearly 600 feet by faulting. Water encountered within the mine is expected to be limited to the draining of localized perched zones.

It is fully anticipated that mining operations will have little if any impacts on the ground water hydrologic balance. This conclusion is reached based on the fact that limited ground water was encountered during drilling and that a significant number of the wells are dry. The area appears to be strongly influenced by localized confining layers that have the ability to create perched aquifers which overly the regional ground water aquifer shown on Map 7.

It is unlikely that the limited water encountered within well drilling operations is sufficient to provide any significant source for the local seeps and springs identified in the survey completed by Rock Logic, Consulting, LLC in 2006.

Noting that Monitor Wells CR-06-01, CR-06-01 BLW, and CR-06-02 are dry and that the base of the well screen in the lowermost of these holes, CR-06-01-BLW is 7,697.1 feet msl thus providing an upper bracket of maximum water elevation that, with the exception of Sulfur Spring, is greater than 200 feet below the lowermost spring elevation (Angle Spring ~7,940 ft msl) in near enough proximity to be affected. The fact that well levels are so much lower than the springs, that the wells are dry, and that the springs are located in the Eagle Canyon Graben where no mining is planned supports the "no impact" by mining conclusion.

The majority of water resources including seeps, springs and ponds noted within the seep and spring survey are located east of the permit area within Long Canyon and its tributaries. Three small seeps, one small spring, and two ponds are located within the eastern portion of the permit area are located within Eagle Canyon. A review of the mine portal elevation and the location of these springs indicates that there will be in excess of 500' of cover over mine workings, and hence there will be little potential for spring disturbance. As indicated earlier, mine workings dip to the east, increasing cover as the mine advances. As such, mine workings will have even less

potential to impact surface water resources further east in Long or Miller Canyons.

It is further anticipated that no impact to the local surface or ground water systems west of the mine will occur due to 1) the general lack of water encountered during drilling and 2) the fact that the regional ground water aquifer is located beneath the majority of all proposed mine workings.

Surface and ground water hydrologic systems may potentially be impacted by mining, processing, and related operations. These impacts are not expected to be significant, will not affect either surface or groundwater users, and are expected to be localized and temporary in nature. Operational mitigation measures and reclamation of disturbance areas will result in effective restoration of surface and ground water conditions similar to those existing prior to initiation of the Kinney mining and related disturbance.

Ground Water Consequences

~~CR's~~ CEG3's planned mining, processing, and related activities have the potential to cause localized and temporary impacts to ground water. These potential, although likely limited ground water hydrologic consequences include:

- Alterations of local ground water flow patterns
- Drainage of seeps/springs (If this occurs it is likely to be temporary)
- Alterations of recharge/storage/discharge relationships
- Localized increases in concentrations of TDS and certain individual chemical constituents

Mining related probable hydrologic consequences for ground water resources in the Kinney Mine permit area will be limited by the lack of significant ground water recharge in the area, the general lack of ground water identified during exploratory drilling, the presence of low permeability geologic strata between the coal seams to be mined and the ground surface, the general lack of significant regional ground water movement, and very limited beneficial ground water use in the permit and adjacent areas. Probable ground water consequences are discussed in the following sections.

Based on known and projected hydrogeology, there appears to little potential for encountering significant volumes of in-mine water. Because in-mine waters are anticipated to be small, the mining operation anticipates using said water for dust suppression without mine discharge. However, to plan for a contingency of larger flows, the following potential alternatives will be reviewed and evaluated. The most appropriate method will then be proposed to the regulatory agencies for review and approval.

Discharge to Abandoned Mine Workings. Plans and permits would be filed to the regulatory agencies for approval to discharge encountered in-mine waters to remote or abandoned mine workings. This might involve the drilling of a conveyance system from new mine workings to remote or abandoned workings, or the connection of said workings through conventional mining methods.

Shallow or Deep Well Injection, Shallow or Deep Well Injection alternatives for the disposal of in-mine waters will be considered, but is not anticipated to be a selected alternative due to time required for investigations and regulatory constraints.

Treatment and Discharge to Mud Creek. The option to treat and discharge waters to Mud Creek will be considered. If chosen, plans and permits will be coordinated with the appropriate regulators before implementation.

Discharge to Holding/Evaporation Ponds. Discharge to surface holding and evaporation ponds will be considered, but is believed to be a non-viable alternative due to climatic conditions at the mine site, and the likely required size of said pond.. If chosen, however, plans and permits will be coordinated with the appropriate regulators before implementation.

Alterations to Ground Water Flow Patterns - Although mining is not expected to enter a regional aquifer system, alterations of ground water flow patterns will occur as a result of underground mining excavation and consequent drainage of localized perched aquifer systems resulting from subsidence fracturing. Mining operations therefore have the potential to induce ground water flow into the underground workings as the hydrologic system adjusts to mining. A shift in ground water flows toward the mine workings will occur when perched aquifers are intercepted, thus altering existing ground water storage and flow patterns. This may result in partial or full drainage of the perched aquifers and may affect the discharge of springs and seeps. Impacts on perched aquifers and associated springs and seeps due to secondary subsidence effects are not expected to be significant since only very limited ground water was encountered during exploratory drilling, and the perched aquifers are believed to be very limited in aerial extent. Captured flows will thereafter flow down dip within the mine, and serve as a source of recharge within mined sections to the adjacent environment.

Upon completion of operations and final mine reclamation and closure, it is expected that the underground workings may partially fill with water encountered during mining, resulting in the re-establishment of a stable and ongoing hydrologic environment. No significant changes (if any) in the regional potentiometric surface are expected to occur since the regional ground water aquifer is believed to be below target mining zones. Reductions in the quantity and availability of ground water as a result of alterations to the ground water flow patterns are expected to represent only a minor percentage of total ground water flows within the region or basin and will be limited in areal extent.

In addition, reductions in groundwater flows are not expected to adversely impact ground water users since, as is shown on Map 30, Ground Water Right Locations, there are no ground water rights shown in the vicinity of the mine permit area. Primary beneficial ground water uses in the vicinity of the permit area are all concentrated along the south eastern shoreline of Scofield Reservoir, and likely take water from the shallow ground water - surface water interface adjacent to the reservoir. With stratigraphic units dipping to the east, these locations are effectively hydraulically isolated from potential mining impacts. Potential impacts to springs and seeps discharging from the perched aquifer system are discussed below.

Drainage of Seeps and Springs - Kinney No. 2 Mine mining activities may result in some drainage and dewatering of overlying perched ground water aquifers as a result of vertical seepage through mining related fractures. Consequently, springs and seeps discharging from the stratigraphic units containing the perched ground water may be effected. ~~CR~~ CEG3 will attempt to minimize fracturing to the extent possible while maximizing recovery of available coal resources. Fracturing will be controlled through the maintenance of barrier pillars, limiting extraction to first or development mining, and proper mining and roof control design and operations practices. Effective control of fracturing will limit stress on the overlying strata and the consequent potential for drainage through fractures. Additional discussion of potential mining

effects is presented in R645-301-522, 523, and 525, General Description of Mine Plans, Mining Methods, and Related Design Requirements, under the subheading of Subsidence Control.

If discharge from seeps or springs is documented to decrease below historic conditions as a result of mining related activities, ~~CR~~ CEG3 will mitigate these impacts through the purchase of and subsequent augmentation of effected water rights, monetary compensation, development of alternative watering facilities such as guzzlers, or other appropriate mitigation measures.

Alterations to Recharge/Storage/Discharge Relationships - ~~CR's~~ CEG3's planned mining, processing, and related activities are not expected to have any significant long-term effect on recharge, storage, or discharge relationships. As described in R645-301-710, Hydrology Information, recharge within the ground water basin occurs primarily as a result of direct precipitation and infiltration. ~~CR's~~ CEG3's operations are both limited in areal extent and are not located within any major recharge area, nor are mining operations expected to interfere with existing stored mine water in adjacent abandoned mines. Upon completion of operations and mine reclamation and closure, ground water will accumulate in the mine workings, thereby increasing localized ground water storage. Discharge relationships are also expected to be minimally effected with some temporary reduction in downgradient ground water flows during filling of the underground mine workings and re-establishment of a hydrologic balance, as well as localized alterations in ground water flow patterns. The quantity of ground water discharge which will be effected is a relatively small percentage of the total volume within the ground water basin.

Increases in Chemical Constituents - As ground water encounters freshly exposed subsurface materials in the mine, oxidation and weathering will cause changes in ground water chemistry including increases in TDS and the concentrations of individual chemical constituents. Over time these increases will stabilize and start to decrease as available soluble chemical constituents are depleted and chemical concentrations in the mine water and the exposed rock reach equilibrium. Any filling of the mine workings by perched ground water would also have a beneficial water quality effect, displacing oxygen and reducing the oxidation potential in any flooded abandoned workings.

As described in R645-301-710 - 724, Hydrology Information, ground water in both the Kinney Mine permit and adjacent areas is a calcium bicarbonate chemical type. Increases in both sodium and sulfate may occur within the mine, although they are not expected to change the ground water type. While various chemical constituents of the ground water may increase as a result of mining, these increases will not affect ground water use. Due to the limited volume of ground water drainage relative to total flows within the ground water basin, minor changes in ground water chemistry and levels of certain constituents are not expected to significantly effect overall ground water quality.

Surface Water Impacts

The proposed Kinney No. 2 Mine and related surface facilities are confined to a very small area or footprint. The surface facilities plan has been developed to consolidate the disturbed surface area into as small a space as possible, utilizing a series of pads to contain needed infrastructure. Impacts are limited to:

- Control of runoff and erosion within the disturbed permit area. When it occurs, historical runoff is generally noted as either sheet flow or small concentrated flow within

ephemeral channels. Because of decreased vegetation which results in higher runoffs, it is anticipated that total runoff volume will increase slightly from historic conditions. Operational runoff will be contained and controlled via a series of ditches, culverts, a sedimentation pond, and alternate sediment control methods. In general, it is anticipated that better runoff controls, resulting in less sediment leaving the site, will exist during mining than pre mining.

- Surface water from undisturbed areas historically ran downhill to the highway, then flowed parallel to the highway until culvert(s) were encountered wherein the water could cross the highway and continue its path toward Scofield Reservoir. Runoff during operational mining will work in very much the same way with only minor exceptions. First, runoff from areas immediately above the permit area will be diverted by a non-mine access road and two undisturbed area drainage ditches (UDD-1 and UDD-2) which will parallel the eastern permit boundary. Water collected by UDD-1 will flow to the north until it joins UDD-2 which directs water from the north. Water from both undisturbed drainage ditches are then combined and conveyed via culvert UDC-2 through the mine area and discharged to an inlet of an existing highway culvert. From there, undisturbed drainage water is combined with pond discharge water, and conveyed via an existing 36" culvert (CP2) beneath the highway before continuing toward Scofield Reservoir.

- The last minor change involves the construction of an undisturbed area bypass culvert UDC-1 which will convey potential runoff from upland areas, beneath surface mine facilities and the highway, into the Scofield Reservoir drainage system west of the highway.

- Water quality impacts are projected to be similar to other local mine working operations. Historical runoff, and hence quality impacts has been sporadic as evidenced by limited and weathered upland channels. In similar nature, it is anticipated that impacts to water quality will be minor, and limited to major runoff events wherein runoff is sufficient to result in a water discharge from the sedimentation pond. Discharges during these potential extreme events are expected to be in compliance with regulations thus resulting in minimal, if any, negative water quality impact due to mining.

Surface Water Consequences

~~CR's~~ CEG3's planned mining and related activities have the potential to generate temporary impacts to surface water resources. These impacts will typically be localized, being confined to those segments of area drainages directly impacted by mining activities, although in some cases impacts may have the potential to also effect downstream drainage areas. The primary mining related activities which may specifically impact surface water resources include:

- Temporary increases in runoff from surface disturbance areas
- Minor reductions in surface flows and alteration of surface flow patterns due to operation of the sedimentation structure
- Changes in surface water chemistry
- Increases in the levels of TDS, TSS, and certain individual chemical constituents

In general, probable hydrologic consequences for surface water resources resulting from ~~CR's~~ CEG3's mining operations will be limited by the relatively small surface disturbance area near the town of Scofield, and will be effectively mitigated by operation of the drainage and sediment control system and ultimate reclamation of mine disturbance areas. R645-301-521, Affected Areas and Timing of Disturbance, describes the extent of proposed mining related surface disturbance. Probable surface water impacts and their significance relative to the hydrologic system are discussed in the following sections.

Temporary Increases in Runoff from Surface Disturbance Areas - Proposed new mining related surface disturbance will be limited to the mine facilities areas and will involve removal of vegetation and soil/substitute materials and grading of disturbance areas for specific mining related uses. These disturbance activities will reduce infiltration potential and evapotranspiration due to elimination of vegetation and will increase surface runoff and erosion potential. In order to effectively control erosion and increased runoff from disturbance areas, ~~CR~~ CEG3 will divert runoff from undisturbed upgradient areas around the area of mining disturbance, grade disturbance areas to minimize runoff and erosion, and collect runoff as close as possible to its source and route it to a sedimentation pond for retention and settlement of suspended solids prior to discharge to natural drainages. ~~CR~~ CEG3 will control and mitigate potential increased runoff from surface disturbance areas using a number of commonly accepted surface management and drainage control practices. Specifically, disturbed areas will be graded to minimize runoff and to the extent operationally feasible surface flow velocities will be controlled through the use of appropriate surfacing materials and runoff will be collected as close to disturbance source areas as possible to minimize erosion and increased sediment loading.

In addition to specific drainage control practices, ~~CR~~ CEG3 will effectively minimize the area of surface disturbance by keeping all surface facilities within a relatively limited area. Provisions for minimizing mine related surface disturbance are detailed in R645-301-521, Affected Areas and Timing of Disturbance. Increases in runoff from disturbance areas may result in minor increases in stream flows for the receiving drainages, however, any increases will not be significant given the very limited area of surface disturbance relative to total drainage basin areas for the potentially effected drainages. Potential flow increases will also be partially mitigated by operation of the sedimentation pond which will retain disturbed area runoff providing some buffering effect.

As documented in R645-301-731 and on Figure 35, Pond 1 Stage-Volume Curve, total runoff volume for the 10-year, 24-hour storm event for mine facilities disturbance areas is approximately 2.03 acre feet (3.15 acre-foot – 1.12 acre-feet sediment storage). Comparing this runoff volume with a calculated total average annual runoff volume of 6,500 acre feet for the receiving drainage of Mud Creek, it is evident that total runoff from the disturbed area, even under storm conditions, constitutes a relatively small portion of total watershed runoff.

On completion of mining operations, disturbed areas will be reclaimed. Reclamation will involve backfilling and grading, re-establishment of natural drainage patterns, soil/substitute replacement, and re-vegetation. It is anticipated that reclamation will effectively restore infiltration and runoff patterns to approximate the baseline conditions currently existing for the surface disturbance areas.

Minor Reductions in Surface Flows and Alteration of Surface Flow Patterns Due to Operation of the Sedimentation Structure - Although sedimentation ponds are integral to mitigating mining related impacts on the surface hydrologic system, operation of sedimentation ponds tends to reduce discharge flow volumes and extend the period of effective flow for runoff from both

snowmelt and thunderstorm events. In effect, sedimentation ponds function as limited capacity flood control structures reducing the effective discharge rate for large volume flows through temporary storage and flow routing. The sedimentation pond is designed to gradually release impounded runoff following required retention for sediment control. Given provisions for retention and gradual discharge of retained storm flows, most of the runoff is returned to the surface drainage system with only a short lag time corresponding to the design retention time for the pond.

Operation of the drainage and sediment control network, and specifically the sedimentation pond that retain runoff from disturbance areas, has the potential to alter flow patterns in receiving drainages. Because the Kinney Mine operations are located in a relatively arid climate, runoff contributions to most of the drainages occur only as a result of snowmelt and large storm events. As previously noted, the retained runoff volume for the sedimentation pond represents a relatively small percentage of normal flow volumes for the receiving drainage, and should not adversely impact flow volumes even during low flow periods. Additionally, operation of the sedimentation structure will not result in significant discharge delays since the maximum design detention time is only 24 hours for the design storm runoff volume and discharge will be occurring continuously once the pond level reaches the discharge orifices.

The pond has been designed such that discharge structure is above the design sediment level and any runoff accumulations in the pond below this discharge elevation will be retained in the pond as dead storage (note that dead storage will not effect pond capacity since the design sediment storage capacity is being utilized for dead storage). Similar to the pond capacity comparison discussed previously, the design sediment storage volume available for temporary runoff storage represents a negligible amount relative to area stream discharge volumes and so does not constitute a significant potential flow reduction.

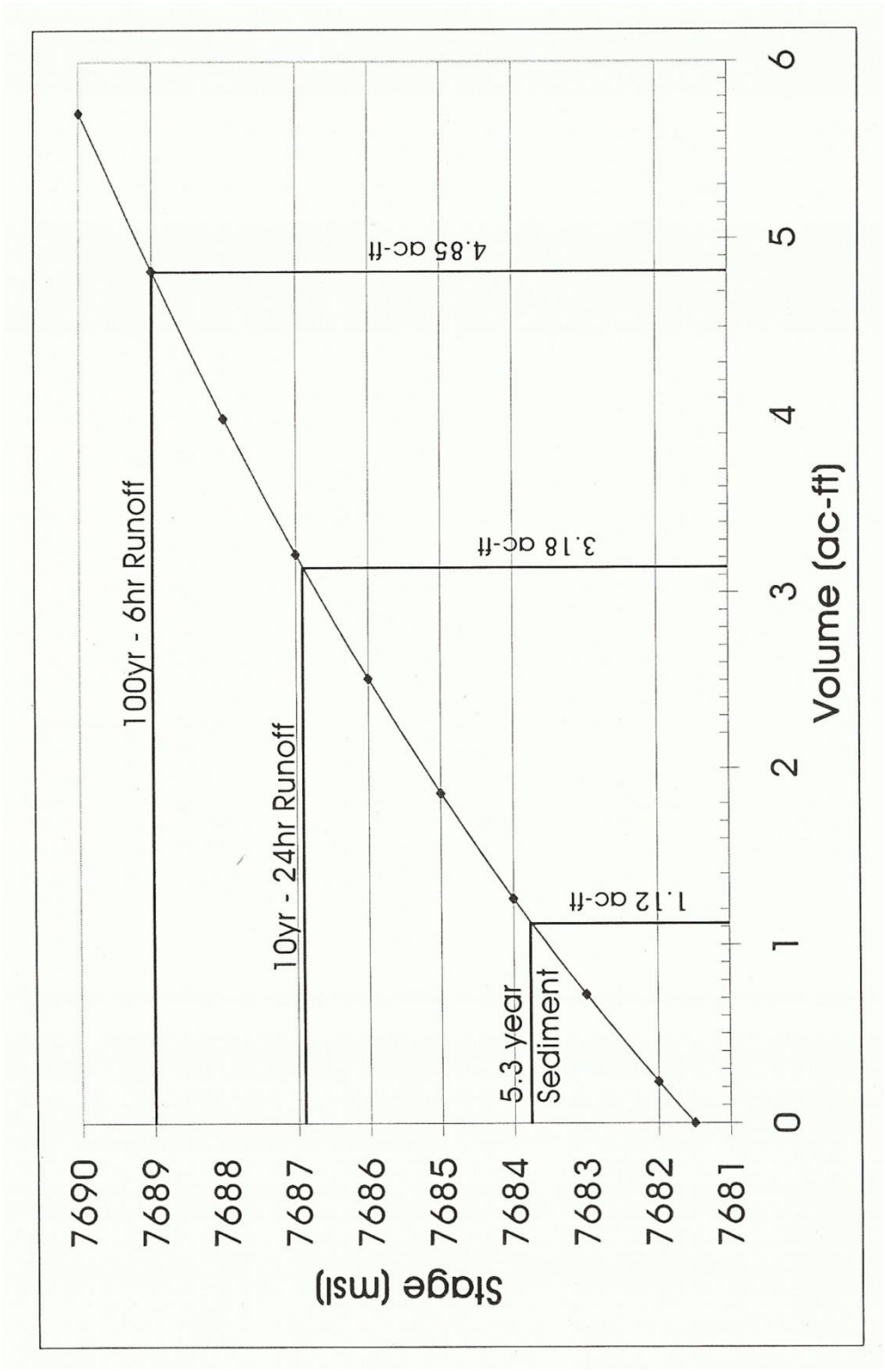
Changes in Surface Water Chemistry - Exposure of surficial materials by mining related surface disturbance and contact of disturbed area runoff with these materials may result in changes in runoff water chemistry. Surface water in the mine area is almost exclusively a calcium bicarbonate type. The most probable potential change in runoff water chemistry would be a shift from a strong calcium bicarbonate type toward a sodium sulfate type due to the weathering and leaching of exposed surface coal materials.

~~CR's~~ CEG3's proposed surface drainage and sediment control measures, specific limitations on total surface disturbance, and the collection of disturbed areas runoff as close as reasonably feasible to the disturbance source area, will be effective in limiting runoff exposure to surficial materials and consequent leaching. The fact that none of the materials which will be exposed, including overburden, soils, coal refuse, and mine waste materials, have been conclusively documented to be potentially acid or toxic forming is an important factor which will also limit the potential for any significant changes in surface water chemistry. While minor changes in runoff water chemistry may occur as a result of mining and related operations, limited surface disturbance areas and corresponding limited disturbed area runoff volumes will minimize any potential for significant changes in water chemistry for the receiving drainages since disturbed area runoff flows will be buffered by significantly greater volumes of normal runoff from adjacent drainage basin areas.

Increases in the Levels of TDS, TSS, and Individual Chemical Constituents - Similar to the potential mining related impacts discussed above relative to surface water chemistry, contact between disturbed area runoff and surficial materials exposed to weathering and oxidation, may result in increases in TDS and individual chemical constituents in surface runoff flows. In addition, one of

the natural consequences of surface disturbance and the minor erosion which results will be increases in sediment loading and TSS levels for the disturbed area runoff. Surface water in the mine area is generally neutral to moderately alkaline with low to moderate levels of TDS, TSS, sulfate, iron, and phenols. Mining and related activities will probably not result in any significant change in surface water pH although TDS, TSS, and sulfate levels may increase slightly in the disturbed area runoff. The same considerations and mitigation measures previously discussed for potential changes in surface water chemistry are also applicable for potential increases in TDS and individual chemical constituents. Potential increases in TSS levels will be effectively addressed on a short-term basis by establishment and operation of the drainage and sediment control system and compliance under the required UPDES permits with applicable monitoring requirements and discharge effluent limitations. Reclamation and restoration of effective surface drainage conditions will address all potential mining and related surface water impacts over the long-term.

Figure 35. Kinney Mine Sedimentation Pond 1 Stage-Volume Curve



R645-301-729 Cumulative Hydrologic Impact Assessment

Ground water impacts resulting from the planned mining and related activities will be minimal due to limited ground water occurrence, low overall permeabilities and consequent limitations on the effective area of influence, and the lack of beneficial ground water use in the area. Similarly, surface disturbance associated with the Kinney mining and related operations will involve such a small area that potential mining related surface water impacts will be negligible. Any potential surface water impacts will be effectively mitigated through effective control of mine water supply withdrawals, operation of a comprehensive drainage and sediment control system, compliance with applicable monitoring requirements and discharge effluent standards under the required UPDES permits, and reclamation of surface disturbance areas and restoration of surface drainage characteristics. In order to fully evaluate potential hydrologic impacts, the cumulative impact of any mining related ground or surface water impacts when combined with potential impacts resulting from other development or land use activities must be considered. Utilizing the information presented in this mining and reclamation plan submittal along with other available information for the general mine area, UDOGM will complete a Cumulative Hydrologic Impact Assessment (CHIA), which on completion will be inserted in Exhibit 17, From UDOGM.

A cumulative impact area for evaluation of potential cumulative ground water impacts will include the permit area along with any upgradient areas which could be impacted by mining related drawdown and downgradient areas which could be impacted by any mining related changes in ground water flow or quality. Given the characteristic low permeability of the geologic sequence, the limited volume and flow of ground water, and the downward dip of the geologic units to the north-east, the ground water cumulative impact area can be defined by the surface disturbance area associated with the mine on the west, UP canyon on the south, Miller Canyon on the north, and Eagle Canyon on the east. Beyond that distance, we believe impacts would be undeterminable. Other activities which could result in possible contributing ground water impacts within this area are believed to be limited to possible contributions from existing abandoned underground mine working in the area.

A cumulative impact area for evaluation of potential cumulative surface water impacts will include the permit and adjacent areas and downstream waters which could be impacted by mining related changes in surface water flows or quality. Given these constraints and the nature of general surface drainage patterns in the area, the surface water cumulative impact area can be defined as a boundary extending on the west from Scofield Reservoir to Eagle Canyon on the east, and from UP canyon on the south to Miller Canyon on the north. There are a number of activities within the cumulative impact area which could result in potential contributing surface water impacts including public access to wildlife and fishing areas, community impacts from the Town of Scofield, private cattle operations and recreation within Eagle, Miller, and other tributary canyons, railroad operations that run along the western border of the permit area, surface runoff contributions from U.S. Highway 96, and mine discharge and surface runoff from historical mining operations in the area.

R645-301-730 Operation Plan

This section describes plans for protection of hydrologic resources, including surface and ground water quantity and quality, and recharge, storage, and discharge relationships, for the permit and adjacent areas that could potentially be affected or impacted by the proposed mining and reclamation activities. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-700) for coal mine permitting in the State of Utah.

Mining and related activities may result in temporary changes in runoff and infiltration characteristics for surface disturbance areas; additional contributions of sediment to surface runoff; ground water drainage to and storage in underground mine workings; some dewatering of perched aquifers and localized dewatering of the regional water table aquifer due to direct mining and indirect subsidence related effects; minor modification of infiltration and recharge characteristics in subsidence areas; and limited localized changes in surface and ground water chemistry and quality. Based on available information, the potential mining related impacts will be localized, temporary, and will not involve any significant long-term adverse impacts. The hydrologic control and mitigation measures proposed in conjunction with mining and related activities should effectively mitigate any potential adverse hydrologic impacts.

As described in R645-301-710 - 724, Hydrologic Information, ~~Carbon Resources~~Coal Energy Group 3 (~~CR~~CEG3) both researched the extensive existing information on the hydrologic environment of permit and adjacent areas and collected additional supplemental hydrologic information in order to accurately characterize existing conditions and develop an overall understanding of hydrologic systems and relationships. The hydrologic protection plans have been developed with consideration of the resource values and relationships described in R645-301-710 - 724 and CR plans for mining and related activities, as outlined in R645-301-201 - 203, 225, 231, 240 – 244, 312 – 358, 421 – 422, 515, 521 – 537, 632, 642, 700, 760 – 765. Operating Plans and Design Criteria. The plans, therefore, reflect site-specific conditions and the nature and extent of anticipated mining related impacts in order to assure effective compliance with the following applicable regulatory requirements and consistency with overall environmental objectives:

- Minimize disturbances to the hydrologic balance
- Prevent material damage outside of the permit area
- Support the approved post-mining land use(s)
- Comply with applicable provisions of the Clean Water Act
- Meet applicable Federal and State water quality regulations

Detailed discussions of specific potential impacts and proposed control and mitigation measures are presented in the following sections.

R645-301-728.320 Presence of Acid or Toxic Forming Materials

This issue is dealt with in Chapter 6, R645-301-624.

R645-301-731.400 Transfer of Wells

Before bond release, exploration holes or monitoring wells will be sealed in a safe and environmentally sound manner as discussed in response to R645-301-738, and 765 in the document. If any well is proposed to be transferred to any other person or entity, ~~CR~~ CEG3 will seek approval of the Division prior to any transfer. Any transfer will comply with all Utah and local laws, and ~~CR~~ CEG3 will be responsible for the wells until bond release in accordance with R645-301-529, 551, 631, 738, and 765.

Contamination, Diminution, or Interruption of Ground or Surface Water Sources with Current Beneficial Use Within the Permit and Adjacent Areas

Within the Kinney Mine area, only the off-site alluvial/colluvial aquifer system and the perched aquifer systems yield adequate quantities of ground water of suitable quality for beneficial use, and use within the permit area is limited to small scale seasonal stock watering. As discussed in R645-301-710 - 724, Hydrology Description, under the subheading Water Rights and Replacement, and in R645-301-728.310, Potential for Adverse Affects, ~~CR's~~ CEG3's mining and related operations are not expected to adversely impact any surface or ground water rights. Consequently, there is no need to explicitly address provisions for replacement of impacted water rights at this time. In the unlikely event, however, that proximate contamination, diminution, or interruption does occur, ~~CR~~ CEG3 will mitigate these impacts through the purchase and augmentation of effected water rights, monetary compensation, development of alternative watering facilities such as guzzlers, or other appropriate mitigation measures. The amount of water owned by ~~CR~~ CEG3 (two shares of Scofield reservoir water rights)is believed adequate to mitigate any potential impacts to beneficial water use as a result of potential consequences to the hydrologic balance. The primary postmining land use in the mine, loadout, and adjacent areas will be wildlife habitat, requiring minimal supporting water requirements, consistent with existing demands. The discussions presented in R645-301-710 - 724, Hydrology Information, indicate that while surface and ground water resources are limited in areas affected by the Kinney Mine operations, they will be adequate in terms of both quantity and quality to support the proposed postmining use.

R645-301-731 Hydrologic-Balance Protection

Components of the Hydrologic Protection Plans

The hydrologic protection plans outline specific measures for the Kinney Mine that will be taken to:

- Avoid acid or toxic drainage
- Prevent additional contributions of suspended solids to area drainages
- Control runoff and erosion
- Protect or replace affected water rights
- Restore approximate pre-mining recharge capabilities

Specific prevention, control, and mitigation measures will include limiting the area of surface disturbance; construction, operation, and maintenance of an effective drainage and sediment control system; controlled collection, storage, use, and recycling of mine drainage; and effective reclamation of surface disturbance areas and restoration of surface drainage patterns. In addition to descriptions of specific hydrologic control and mitigation measures, compliance with specific applicable design standards and requirements are addressed, and potential adverse hydrologic consequences specific to the site are identified in the Probable Hydrologic Consequences (PHC) determination prepared under R645-301-728.

In order to minimize potential mining related impacts to existing hydrologic systems in the permit and adjacent areas, ~~CR~~ CEG3 has incorporated specific monitoring, operational, and mitigation measures into the mining and reclamation plans for the Kinney Mine. These measures are based on historic and baseline monitoring information for the site, modeling of hydrologic systems, the experience of similar mining operations in controlling hydrologic impacts, applicable regulatory requirements, and the results of ongoing monitoring programs. Historic and baseline monitoring data have been used to characterize current hydrologic conditions as described in R645-301-710 - 724, Hydrologic Information. During the operation of the mine, monitoring will be

performed to determine if any mining-related impacts to the hydrologic balance have occurred and remedial actions taken, if necessary. Measures that may be taken to remediate any mining-related impacts to the hydrologic balance are addressed in the hydrologic restoration plans presented in R645-301-700 - 765, Hydrologic Resource Restoration.

Operational plans for the Kinney mine include standard hydrologic controls and mitigation measures that are designed to prevent significant changes in the quantity and quality of surface and ground water resources, preserve existing hydrologic functions, comply with regulatory requirements, and limit adverse impacts to surface water or ground water users. These measures include:

- Limiting surface disturbance areas
- Proper design, construction, and grading of facilities areas and roads
- Construction of drainage and sediment control structures to divert undisturbed runoff around disturbance areas, collect and route disturbed area runoff to sedimentation ponds to allow settlement of suspended solids, and provide any treatment which may be necessary to meet applicable discharge effluent limitations
- Interim re-vegetation of disturbed cut and fill slopes not used for operations and re-vegetation of topsoil stockpiles, pond outslopes, alternate sediment control areas, and other unused areas.
- Utilization of localized erosion control measures, as appropriate, in any areas having high erosion potential
- Initiation of reclamation operations as soon as practical following completion of mining
- Effective reclamation to minimize gradients, re-establish surface drainage patterns, restore pre-mining runoff and infiltration characteristics, and establish an effective and self-sustaining vegetative cover.
- Post-reclamation land use management

~~CR~~ CEG3 has incorporated specific control and mitigation measures in mining, processing, and reclamation plans in order to prevent any significant impacts on surface or ground water quantity and quality. All mining related activities including soil/substitute removal, mine development, coal recovery, mine sealing, backfilling and grading, soil/substitute replacement, and re-vegetation are designed and sequenced to minimize disturbance and progress in a logical manner towards effective restoration of disturbed areas to a condition and configuration consistent with conditions which existed prior to development of the Kinney Mine and applicable regulatory provisions for remining of previously disturbed areas. The following sections discuss the details of the various components of the hydrologic protection plan.

R645-301-731.110 Ground Water Protection

~~CR~~ CEG3 has incorporated specific control and mitigation measures in the proposed mining, processing, and reclamation plans to effectively prevent or minimize significant mining related impacts on groundwater quantity, quality, and recharge, storage and discharge relationships. Ground water systems will be protected by limiting surface disturbance and mining related subsidence both of which can alter runoff and infiltration characteristics; controlling mine drainage and recycling any significant mine inflow volumes in the operational mine water system; handling earth materials, mine drainage, and runoff in a manner that minimizes acidic,

toxic, or other harmful infiltrations to groundwater; and managing excavations and other disturbances to prevent or control discharge of pollutants to the ground water system.

~~CR's~~ CEG3's mining operations and related activities have the potential to effect ground water quantity through limited inflows to the mine workings from the subsidence of local perched aquifer systems, and the alteration of surface infiltration characteristics. Mining within a regional aquifer is not anticipated. Although believed to be minor (due to the general lack of water identified within the planned mining area) mining and related operations may also effect ground water quality by modifying ground water chemistry, altering pH, and increasing concentrations of TDS and specific chemical constituents. Specific activities which may potentially impact ground water quantity and quality include the following:

- Underground coal removal
- Retention of drainage in sedimentation pond structures

Operational measures that will be implemented to mitigate these impacts are discussed below.

Underground Coal Removal

~~CR's~~ CEG3's planned underground mining operations may result in passive drainage requiring handling of mine inflows from proposed mine workings. Potential ground water inflow sources include the stratigraphic units directly disturbed by mining, and the overlying perched aquifer system due to downward leakage through fractures. According to information available, historic mining operations located within the general Kinney mine permit area did not encounter significant quantities of water, and it is anticipated that mine inflows may be limited. Any significant mine inflows encountered will be collected and routed to either abandoned (inactive) mining areas or temporary underground storage areas for recycling to the operational mine water system. As mining proceeds, any significant disturbance has the potential of fracturing the natural seals supporting local perched aquifers, resulting in the localized release of perched water. Following the cessation of mining, mine inflows and outflows will stabilize as water collects within down gradient abandoned mine sections.

Specific mine design and operation including layout and sizing of mine openings based on retention of barrier pillars and first mining only, with no pillar extraction, is projected to prevent subsidence. Mine design and operational control measures, when combined with mining depth should eliminate fracture propagation at or near the ground surface in areas overlying the underground workings, effectively prevent the drainage of perched aquifers and alteration of surface infiltration characteristics.

Underground mining operations will expose coal, floor, and roof materials to oxidation and increased leaching as mining is completed and working areas are abandoned. Natural caving will also expose substantial quantities of broken coal and roof material to oxidation, and although not anticipated, by the leaching of local groundwater. It is anticipated that pH may increase slightly and the local ground water chemistry may evolve toward a sodium sulfate water type with increases in TDS and certain mineral constituents including iron and manganese. A similar evolution appears to have occurred within Mud Creek as upstream mining and transport has advanced. In order to effectively prevent or mitigate these impacts, underground mining operations will be limited to development and disturbance of the minimum area necessary to provide for effective coal extraction. ~~CR~~ CEG3 will also keep all development (except ramping and overcasts) in the minable coal seams to the extent operationally practical.

While there will undoubtedly be some impacts on localized ground water quality, these impacts will generally be confined to the mine and immediately adjacent areas by the relatively low flows and volumes of water historically encountered as we as due to the low permeability of the geologic units and the limited hydrologic connection with other more permeable units.

Minor changes in ground water quality will not affect any ground water users since all existing ground water use in the immediate area is limited to units which are stratigraphically above the interval to be mined, and since no mine water discharge is anticipated following the closure and sealing of the mine. It should be noted that anticipated changes in ground water quality are anticipated to be relatively small and localized, and not so significant as to preclude beneficial use of affected ground water resources. This contention is supported by historic monitoring data for other Central Utah mines which receive some mine water drainage from old mine workings while showing no significant adverse long-term effects.

Surface Placement of Coal, Mine Waste

Surface placement of coal has the potential to affect ground water quantity and quality as a result of increased runoff from the associated disturbance areas and from the subsurface infiltration and leaching of the stockpiled materials. The great majority of leachate from the stockpile will be conveyed via the surface water runoff control system to the sediment pond located at the downstream end of the disturbed mine area.

Coal mine rock from fault crossings will be placed in developed entries and cross cuts specifically designated for that purpose. There is no mine rock anticipated to be placed on the surface other than that which comes out with the coal stream and will be shipped as part of the coal product. No wash plant is planned and therefore no coal refuse will be generated as part of the mining operation. However, per the Divisions Request a "Small Mine Development Rock Waste Pile" as shown on Map 13 (Surface Facilities) has been designed to accommodate the possibility that a small amount of rock waste may be generated during development and make it to the surface coal handling facilities. This "Small Mine Development Rock Waste Pile" will be drained to the sediment pond.

Analyses of both actual existing and potential future coal materials, including incidental roof and floor rock, are described in R645-301-623 - 627, Coal and Overburden/Interburden Characteristics. Based on analyses of coal, roof, and floor samples, in a washability study, overall sulfur content is moderate to low with organic sulfur as the dominant form. Buffering capacity is relatively high due to the presence of significant quantities of calcium carbonate. Consequently, the overall acid-producing potential from this mine is low. Similarly, chemical analyses indicate low concentrations of most potentially toxic components, including a low alkalinity potential.

Available analysis results for existing surficial mine waste and stockpiles, which have been in place a number of years and have had ample opportunity to weather and oxidize, offers an expanded and probably more accurate perspective of potential water quality impacts than chemical analysis results for fresh coal, roof, and floor samples. The weathered reclaimed coal samples show no significant acid. alkaline, or toxicity potentials. Leaching of mine waste and coal refuse materials has the potential to cause a shift in the ground water chemical type towards a sodium sulfate water type and may also cause minor increases (quantify) in concentrations of iron, manganese, and TDS.

With reference to the potential impacts of surface coal placement on ground water quantity and quality, similar considerations apply to coal stockpiling in the mine, process, and loadout areas. Stockpile areas will be constructed to provide effective drainage of both runoff from stockpile surfaces and infiltration through coal stockpiles. Runoff from stockpile areas will be collected and routed to nearby sedimentation ponds. ~~CR~~ CEG3 will also limit stockpiled coal inventory for operational and environmental reasons.

Limited inventory results in rapid stockpile turnover, which minimizes the potential for weathering or leaching of coal materials.

Retention of Drainage in Sedimentation Pond Structures

~~CR~~ CEG3 will utilize a single sedimentation pond and associated drainage structures to intercept and route runoff from disturbed areas, retain runoff for sediment control, and to control discharges to stream drainages. Map 23, Drainage and Sediment Control Plan – Undisturbed Drainage Areas, Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas, and Map 25, Sedimentation Pond 1 – Section and Details, provide information related to the identification and control of surface water runoff. The regional drainage basins identify those undisturbed areas not tributary to the mining operation and their discharge locations. The drainage and sediment control plan provides specific ditch, culvert, erosion control, and pond design information and locations used to controls runoff within the active surface mining area. Operation of the sedimentation pond has some limited potential to affect both ground water quantity and quality by altering the timing and volume of discharge flows, providing additional recharge to alluvial/colluvial ground water systems, causing changes in water chemistry, increasing TDS levels, decreasing TSS levels and increasing the concentrations of specific mineral components.

Disturbed area runoff flowing into the sedimentation pond will be retained to allow suspended sediment to settle out prior to discharge to the downstream natural drainage. During the time that water is retained in the sedimentation structure, some evaporation will occur, resulting in reduction of overall water volume and inherently increasing concentrations of TDS and individual chemical constituents. Since the proposed sedimentation pond is located in lowland areas, any infiltration losses through the bottom of the ponds will have similar effects on surface discharge volumes and chemical characteristics. Any changes in surface water quality or chemistry have the potential to effect groundwater resources since surface flows are a component of the limited down-gradient groundwater recharge.

Effects of evaporation will be minimized by limiting detention time in the sedimentation structure to that interval required for effective reduction of suspended solids. Because runoff typically occurs only in response to snowmelt and major storm events, evaporation will be further limited by cold temperature during spring when the majority of snowmelt occurs. Pond design, as outlined in Exhibit 16, Runoff Control Design Details, provide for both minimal detention times and effective pond routing so any delay in discharge to the receiving drainages will be limited to the maximum detention time of 24 hours. With pond routing, discharge will occur continuously once the water reaches the discharge orifice and 25-Year overflow discharge elevation so effects on downstream flows will likewise be minimal.

Infiltration will similarly be limited by minimal detention times, by compaction of the pond base during construction, and accumulations of fine suspended solids which tend to further limit overall base permeability. In addition, the pond bottom will be covered by a reinforced

concrete floor as shown on Map 25 to allow equipment to clean the pond without bogging down in the base materials. Both TSS, and TDS and various chemical constituents tend to accumulate in the sediment in the bottom of sedimentation ponds due to natural settling and chemical precipitation. Regular periodic removal of sediment accumulations from the sedimentation ponds will eliminate a significant source of concentrated TDS and other constituents, minimizing TDS and chemical buildup. ~~CR~~ CEG3 will monitor sedimentation pond discharge in order to detect any significant changes in surface water quality. If significant changes are noted, ~~CR~~ CEG3 may, with consultation from the UDOGM, develop and implement appropriate water treatment plans.

Upon completion of mining, all mine disturbance areas will be reclaimed. Reclamation and establishment of effective vegetative cover will minimize disturbed area runoff to the sedimentation pond, limiting potential effects of surface leaching and evaporation. Reclamation will also result in restoration of natural drainage and direct discharge to the receiving drainages once the sedimentation pond is removed at the end of the extended liability period. Given this consideration, any potential ground water impacts will be both limited in scope and of a temporary nature.

R645-301-731.120 Surface Water Protection

As a surface water reservoir located adjacent to the mine surface disturbance area, special protection measures will be required relative to Scofield Reservoir to prevent or mitigate potential adverse impacts on associated hydrologic, aquatic, fisheries, and riparian habitat and resource values. It is important to note that Mud Creek, the major perennial surface water drainage, does not come into direct contact with any portion of the mine permit area. Surface runoff from mined or disturbed areas are not directly tributary to Mud Creek, but are tributary to Scofield Reservoir. The existing Scofield Reservoir and the associated environmental conditions and values reflect the effects of the previous historic disturbance.

Specific protection measures to be implemented for Scofield Reservoir within and adjacent to the surface facilities area will include establishment and maintenance of runoff control ditches and culverts, grading of surface disturbed areas, the installation of erosion protection in appropriate ditches and hillslopes, and the construction of a runoff control sedimentation pond. Scofield Reservoir will be protected from direct or indirect mining construction, operation, and maintenance or impacts via an effective drainage and sediment control system.

Mapping of Hydrologic Resource Protection Information

Information presented on mapping included within this permit addresses hydrologic protection issues including:

- Receiving surface water drainages
- Diversion, collection, treatment, storage, and discharge facilities and structures
- Water monitoring locations and elevations
- The proposed sedimentation pond impoundment and coal processing waste embankments
- Cross-sections for sedimentation ponds, impoundments, and coal processing waste embankments

~~CR~~ CEG3 has incorporated specific control and mitigation measures in the proposed mining, processing, and reclamation plans to effectively prevent or minimize significant mining related impacts on surface water quantity and quality. Surface water systems will be protected by limiting surface disturbance; controlling surface runoff and erosion; handling earth materials, any ground water discharges, and runoff in a manner that minimizes the formation of acidic or toxic drainage, prevents additional contributions of suspended solids to stream flow outside of the permit area, and otherwise prevents pollution of surface water. Surface water treatment facilities needed to protect surface water are not anticipated.

~~CR's~~ CEG3's mining operations and related activities have the potential to effect surface water quantity through modification of surface runoff characteristics and increased sediment contributions from surface disturbance areas; consumptive use of surface water for mining and processing operations; and discharge of sediment and other potential pollutants from mining related surface activities. Mining and related operations may also effect surface water quality by modifying surface water chemistry, altering pH, and increasing concentrations of TSS, TDS, and specific chemical constituents. Specific activities which may potentially impact surface water quantity and quality include the following:

- Removal of vegetation and soil materials from disturbance areas
- Surface placement of coal
- Mine water supply withdrawals
- Operation of drainage and sediment control structures

Operational measures that will be implemented to mitigate these impacts are discussed below.

Removal of Vegetation and Soil Materials from Disturbance Areas

In order to conserve available soil resources, vegetation and soil materials will be removed from all mine facilities areas prior to disturbance. While beneficial in terms of soil conservation and provision of a suitable growth medium to support final reclamation and revegetation efforts, this practice exposes underlying materials to potential erosion and loss, can increase suspended sediment levels in the runoff water, and may increase sediment contributions to area drainages. To maintain effective surface drainage, mitigate erosion, prevent loss of surficial materials, and minimize additional contributions of suspended solids to area drainages ~~CR~~ CEG3 will route undisturbed drainage around disturbance areas, grade and stabilize disturbed areas to provide for effective drainage control, establish a drainage and sediment control network to collect and retain runoff from disturbed areas, reclaim disturbance areas as soon as operationally practical, and utilize other specific localized drainage and erosion control methods as necessary. These activities are discussed further in the following sections.

In conjunction with mine development, facility installation, and ongoing coal refuse placement, ~~CR~~ CEG3 will grade, stabilize, and maintain all disturbed areas to provide for effective drainage and minimize potential erosion. Where appropriate, ~~CR~~ CEG3 will utilize localized grading and stabilization measures to effectively control and route drainage and minimize flow velocities. Examples would include graveled surfaces and the yard area drainage system in the mine facilities area; temporary sumps and ditches in active coal refuse placement areas; and the placement of drainage control berms which will isolate disturbed area drainage in the Kinney Mine loadout area.

Localized drainage control and grading measures will be supplemented by ~~CR's~~ CEG3's drainage and sediment control network. This network consists of diversion ditches which route undisturbed runoff around or through disturbance areas, collection ditches which intercept disturbed area runoff and route it to the sedimentation pond, the sedimentation pond, and associated discharge structures. Design information and calculations are provided in Map 23, Drainage and Sediment Control Plan Map – Undisturbed Drainage Areas, Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas, Map 25, Sedimentation Pond 1 – Section and Details, and by Exhibit 16, Runoff Control Design Details. Design details regarding runoff hydrology, ditches, culverts, energy dissipation, and the sedimentation pond are included within Exhibit 16, Runoff Control Design Details. The drainage and sedimentation control network will collect and retain disturbed area runoff allowing settlement of suspended solids and any necessary treatment prior to release to natural drainages. The sedimentation pond will be operated under applicable provisions of ~~CR's~~ CEG3's UPDES discharge permit. Compliance with the terms of these permits will assure that downstream water quality impacts are minimized.

Basic components of the drainage and sediment control plan follow:

- Undisturbed area runoff within the main drainage channel located toward the south end of the operation area will be conveyed beneath the mine surface facilities and across Highway 96 via culvert UDC-1.

- Undisturbed area runoff control ditches (UDD-1 and UDD-2) located along the eastern edge of the disturbed area is part of a property access road constructed for the property owner. A check of the road cross section shows that discharges from the up-gradient undisturbed area can be safely conveyed to a culvert (UDC-2) that conveys the undisturbed area runoff beneath the mine site to an existing 36" culvert located beneath Highway 96. Water conveyed beneath Highway 96 is then discharged onto an energy dissipation pad before continuing toward Scofield Reservoir.

- A series of operation pads and runoff control ditches and culverts. In general terms, storm water tributary to each operation pad is controlled and directed to the back of the pad, then conveyed toward a runoff ditch or culvert which in turn conveys the water to a downstream pad, ditch, or culvert. Specifics related to each runoff segment and any variances follow. A visual reference for the runoff system described is shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas.

- Portal Pad (Pad A) runoff flows to ditch DA-1, to the Coal Pile Pad (Pad B). Water enters culvert CB-1, goes beneath the coal stockpile, then enters a junction box connected to culvert CB-2. Culvert CB-2 discharges to ditch DC-2, to ditch DC-3, joins with ditch DC-4, is conveyed under the adjacent property owner access road via culvert CC-1, to ditch DC-5, then goes into Pond 1 via ditch DC-6.

- Storage Pad (Pad D) runoff combines with road ditch DD-1 and road ditch DD-2, goes through culvert CD-1, to ditch DD-3, joins with Pad D runoff, enters culvert CD-2 to Pad E and ditch DE-1, joins with road ditch DE-2, enters culvert CE-1, then enters Pond 1 via ditch DE-4.

- Office Pad (Pad F) drainage enters ditch DF-3 where it joins with road ditch DF-1 before entering culvert CF-1, joins with road ditches DF-2, goes to ditch DF-4, joins with road drainage and road ditch DF-5 via the cattle guard, goes to ditch DE-3, joins with culvert CE-1, then enters Pond 1 via ditch DE-4.

- Surface runoff flows from the small area between ditch DE-3 and the highway along the north side of the main access road P1, flows in ditch ALT C-1 into the sediment trap and then north, in the existing highway ditch. Runoff from the small area along the south side of the main access road below Pad F flows in ditch ALT B-1 into the sediment trap and then south in the existing highway ditch. This flow combines with additional flows from the topsoil stockpile area (conveyed in ditches ALT A-1 and ALT A-2 along the berm and passing through a silt fence) which are conveyed across the highway through an existing culvert.

- Topsoil stockpile areas (west of the Sediment Pond No. 1 on the west side of the highway) drainage is not enough to require ditches. Silt Fences will be installed around these stockpile areas.

- Irrigation bypass culvert IBC-1 will be installed under the topsoil stockpile area located between the highway and Pad F. The downstream culvert that historically conveyed the corresponding irrigation and runoff flows across the highway, is a 24-inch diameter pipe. The new irrigation culvert IBC-1 was conservatively designed to be a 30-inch diameter pipe. The capacity of the new 30-inch diameter culvert IBC-1 was verified for both inlet and barrel control conditions, to be greater than the capacity of the existing 24-inch diameter pipe downstream.

- Ditch and culvert design details including design criteria, flows and other appropriate information is provided in Table 18, Ditch Design Details and Table 19, Culvert Design Details. Figure 35, Pond 1 Stage-Volume Curve provides data regarding pond volume. Map 24, Drainage and Sediment Control Plan – Undisturbed Drainage Areas and Map 26, Drainage and Sediment Control Plan – Disturbed Drainage Sub Basins, have been prepared to show runoff drainage areas represented in Table 19, Culvert Design Details.

All areas disturbed by mining and related operations will be reclaimed as soon as operationally practical following completion of mining. Reclamation will involve removal of mine structures and facilities, backfilling and regrading disturbance areas, replacement of soil and substitute materials, and revegetation. These activities are designed to re-establish drainage patterns similar to those which existed prior to development of the Kinney Mine and develop a self-sustaining vegetative community. As a result of effective reclamation, infiltration and runoff relationships will be restored, limiting the time interval over which water quality impacts may occur. Where appropriate, ~~CR~~ CEG3 will utilize drainage control measures to prevent or mitigate potential impacts from ongoing operations. Such measures may include use of surface binders and dust suppressions agents on haulage roads, soil/substitute stockpiles, and in active working areas the placement of straw bales, sediment fence, erosion netting, mulch berms, stilling basins, sumps and other small structures to control and route drainage, limit surface erosion, minimize flow velocities, and reduce suspended sediment levels.

Surface Placement of Coal, Mine Waste

Surface placement of coal, mine waste, may effect surface water quantity and quality in several ways. Surface runoff from the related disturbance areas may increase resulting in increased erosion and sediment loss, and surface flows may infiltrate through stockpiled materials generating leachate with both sediment laden runoff and leachate potentially discharging to surface drainages. Although believed to be of minimal impact, Leachate not

collected by an underdrain system may impact ground water, which may later discharge to the sedimentation pond or to the alluvial/colluvial aquifer.

Coal stockpile areas will be constructed to provide effective drainage of both runoff from stockpile surfaces and infiltration through coal stockpiles. Designed ditches will collect and route runoff from coal stockpile areas to the sedimentation pond. The locations of the designed ditches and sedimentation pond on disturbed mine areas are shown on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas, Map 25, Sedimentation Pond 1 – Section and Details, and detailed design calculations are presented in Exhibit 16, Runoff Control Design Details. ~~CR~~ CEG3 will also limit stockpiled coal inventory for operational and environmental reasons. Limited inventory results in rapid stockpile turnover, which minimizes the potential for weathering or leaching of coal materials.

Operation of the sedimentation pond for the coal stockpile area under ~~CR's~~ CEG3's UPDES permits will assure compliance with applicable water quality regulations and effectively mitigate any potential surface water quality impacts.

Coal stockpile areas will be reclaimed as soon as operationally practical after they are no longer required to support ongoing mining and related operations. The initial step in reclamation of coal stockpile areas will involve removal of stockpiled coal materials and any associated structures. Subsequent reclamation of the coal stockpile area will involve removal, re-grading of the disturbance areas to the final design configuration, replacement of soil and substitute materials, and re-vegetation. These activities are designed to establish effective surface drainage, stabilize the affected areas, and develop a self-sustaining vegetative community.

Discharge of Mine Water to Surface Drainages

No surface discharge of mine water is anticipated. Direct and/or indirect drainage from any perched aquifers intercepted by fractures may serve as potential sources of ground water inflow to the Kinney Mine workings. In order to facilitate ongoing mining operations and assure safe operating conditions, ~~CR~~ CEG3 will collect any significant mine inflows and transfer the resulting mine drainage to either abandoned mining areas or temporary underground storage areas. If sufficient quantities of mine drainage are available, stored mine drainage will be utilized to supplement the operational mine water supply. Plans for handling mine drainage are described in R645-301-521 - 531, General Description of Mine Plans, Mining Methods, and Related Design Requirements.

Drainage Ditch	10yr-6hr Design Flow (cfs)	Side Slope m1 (H:1)	Side Slope m2 (H:1)	Ditch Slope Max (%)	Ditch Slope Min (%)	Manning's n	Max Velocity (fps)	Flow Depth (ft)	Freeboard (ft)	Minimum Ditch Depth[1] (ft)	Bottom Width (ft)	Top Width (ft)	Riprap D_{50}[2] (inches)	Grout (yes/no)
DA-1	0.6	2	2	14.0	5.0	0.02	6.64	0.32	0.48	0.8	0.0	3.2	0.25	Yes
DC-1	1.0	2	2	0.5	0.5	0.02	1.90	0.32	0.48	0.8	1.0	4.2	n/a	No
DC-2	2.9	2	2	15.0	0.6	0.02	8.68	0.52	0.48	1.0	1.0	5.0	0.25	Yes
DC-3	2.9	2	2	0.8	0.8	0.02	3.05	0.48	0.52	1.0	1.0	5.0	n/a	No
DC-4	1.0	2	2	9.3	9.3	0.02	5.86	0.29	0.51	0.8	0.0	3.2	0.25	Yes
DC-5	2.9	2	2	0.8	0.8	0.02	3.01	0.49	0.51	1.0	1.0	5.0	0.25	Yes
DC-6	3.5	2	2	12.3	12.3	0.02	8.88	0.44	0.46	0.9	0.0	3.6	0.25	Yes
DD-1	0.2	2	2	3.8	3.8	0.02	2.8	0.19	0.51	0.7	0.0	2.8	n/a	No
DD-2	0.2	2	2	13.0	13.0	0.02	4.44	0.15	0.55	0.7	0.0	2.8	0.25	Yes
DD-3	0.3	2	2	3.8	3.8	0.02	3.10	0.22	0.48	0.7	0.0	2.8	n/a	No
DE-1	0.6	2	2	0.9	0.9	0.02	2.15	0.37	0.53	0.9	0.0	3.6	n/a	No
DE-2	0.2	2	2	2.0	2.0	0.02	2.18	0.21	0.49	0.7	0.0	2.8	n/a	No
DE-3	4.1	2	2	1.0	1.0	0.02	2.55	0.53	0.47	1.0	2.0	6.0	n/a	No
DE-4	4.2	2	2	1.0	1.0	0.02	2.57	0.53	0.47	1.0	2.0	6.0	n/a	No
DF-1	0.4	2	2	14.3	3.3	0.02	5.47	0.25	0.55	0.8	0.0	3.2	0.25	Yes
DF-2	0.4	2	2	6.1	6.1	0.02	3.97	0.22	0.48	0.7	0.0	2.8	n/a	No
DF-3	1.3	2	2	10.0	10.0	0.02	6.42	0.32	0.48	0.8	0.0	3.2	0.25	Yes
DF-4	1.7	2	2	5.7	5.7	0.02	5.56	0.39	0.51	0.9	0.0	3.6	0.25	Yes
DF-5	1.7	2	2	5.7	5.7	0.02	5.56	0.39	0.51	0.9	0.0	3.6	0.25	Yes
ALT A-1	0.4	2	2	4.7	4.7	0.02	3.60	0.24	0.56	0.8	0.0	3.0	n/a	No
ALT A-2	0.4	2	2	4.7	4.7	0.02	3.60	0.24	0.56	0.8	0.0	3.0	n/a	No
ALT B-1	0.2	2	2	14.3	5.3	0.02	4.60	0.18	0.52	0.7	0.0	2.7	0.25	Yes
ALT C-1	0.2	2	2	14.3	5.3	0.02	4.60	0.18	0.52	0.7	0.0	2.7	0.25	Yes
UDD-1	9.4[3]	50	4	7.0	7.0	0.02	5.18	0.26	0.00	0.26	0.0	15.0	n/a	n/a
UDD-2	9.4[3]	50	4	7.0	7.0	0.02	5.18	0.26	0.00	0.26	0.0	15.0	n/a	n/a

1 - Includes 0.5 foot freeboard.
2 - Maximum riprap size is 1.5 times D_{50}. All Riprap to be installed over 1.0 foot Type II Granular Filter.
3 - 100 Year, 6 Hour runoff.

Table 18. Ditch Design Detail

TABLE 19. Culvert Design Details

Culvert	Tributary Sub-Basins[1]	Area (acre)	Weighted CN	Peak Flow (CFS)	Total Design Flow (CFS)	Diameter (in)
CB-1	A1	4.09	83	0.9	2.0	18
	B1	3.50	86	1.1		
CB-2	A1	4.09	83	0.9	2.0	18
	B1	3.50	86	1.1		
CC-1	A1	4.09	83	0.9	2.9	18
	B1	3.50	86	1.1		
	C1	4.18	84	1.0		
CD-1	D2	1.97	79	0.2	0.4	18
	D3	1.34	80	0.2		
CD-2	D1	2.79	81	0.3	0.6	18
	D2	1.97	79	0.2		
	D3	1.34	80	0.2		
CE-1	D1	2.79	81	0.3	2.4	18
	D2	1.97	79	0.2		
	D3	1.34	80	0.2		
	E1	4.44	88	1.6		
	E2	1.68	82	0.2		
CF-1	F1	3.72	87	1.3	1.7	18
	F2	1.27	85	0.4		
UDC-1	UDC-1	99.37	75	14.3	14.3	30
UDC-2	UDD-1, UDD-2	64.96	75	9.4	9.4	24
CP-1	Pond 1 100 Yr, 6 Hr Discharge			22.5	22.5	24
CP-2	UDD-1, UDD-2	64.96	75	9.4	33.8	42
	Pond 1 100 Yr, 6 Hr Discharge			22.5		
	G1	4.56	78	1.9		
IBC-1[2]	N/A	N/A	N/A	N/A	10.4	30

1 - See Map 23, Drainage and Sediment Control Plan – Undisturbed Drainage Areas, and Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Sub Basins.

2 - Conservatively designed according to the capacity of the existing 24-inch diameter pipe crossing the highway and checked to verify adequacy under both inlet and barrel control conditions (see calculations in Exhibit 16 – Ditches and Culverts)

Based on preliminary estimates of anticipated mine inflow volumes and mine water use requirements, it is anticipated that all mine inflows can be either recycled through the operational mine water system or stored underground. The previous discussion in R645-301-731.110 - 112, Ground Water Protection Measures, indicated that based on available sampling data mine water, no mine water discharges are expected. If it becomes necessary to discharge any excess mine drainage to the surface, a revision to the mine permit will be made and coordinated with the Division.

Mine Water Supply Withdrawals

Mining, related coal processing operations, and support activities will require a consistent water supply with adequate capacity to meet all operational mine water supply requirements. Potable and sanitary water requirements will be provided through a water supply connection to the existing Scofield Town water system located adjacent to the mine site. Mine water requirements will be supplied from Scofield Town via Mud Creek, and from possible water sources encountered during mining, which are anticipated to be small.

Recycling of in-mine drainage to supplement the operational mine water system will help reduce water supply requirements. Dependent on the actual rate of mine inflows, mine drainage could provide the water required for dust control applications in the underground operations. ~~CR~~ CEG3 plans to construct a surface mine water storage tank and may be able to develop additional mine water storage capacity in inactive areas of the underground mine workings. This storage capacity may be utilized to good advantage during seasonal low flow periods to limit required stream withdrawals. ~~CR's~~ CEG3's existing water rights provide additional water supply capacity beyond that acquired from Scofield Town.

Coal Preparation Activities

No coal preparation activities are planned, only inadvertent, per narrow interpretation of the regulations, during stacking, transferring and loading coal.

Operation of Drainage and Sediment Control Structures

The Kinney Mine drainage and sediment control network is designed to function as the primary mitigation system to prevent significant impacts on surface water quality. Operation of the sedimentation pond may, however, result in some delay in water discharge to the receiving drainages potentially altering discharge volume and consequently streamflow entering Scofield Reservoir, and may increase concentrations of TDS and other constituents in the runoff retained in the pond due to evaporation. Both delays in discharge and potential evaporative effects and related mitigation considerations were previously discussed in R645-301-731.110 - 1124.7.2.1, Ground Water Protection Measures. Significant overall increases in TDS and other chemical constituents for the receiving drainages are not expected because runoff volumes from disturbed areas will be limited by upstream diversion of undisturbed drainage, surface disturbance areas will be of limited size, and reclamation of disturbance areas will be occurring. ~~CR~~ CEG3 will monitor all discharges from the sedimentation structure to ensure compliance with UPDES requirements. If problems are noted with TDS or any other discharge constituent, ~~CR~~ CEG3 will coordinate with the regulatory agency regarding acceptable solutions to effectively control and mitigate the problems.

Mine disturbance areas will be reclaimed on completion of mining or when they are no longer required to support ongoing mining and related operations. Reclamation, re-establishment of vegetative cover, and restoration of effective surface drainage will minimize disturbed area runoff to the sedimentation pond, limiting the potential effects of surface leaching and evaporation. Restoration of natural drainage and direct discharge to the receiving drainages once the sedimentation pond is removed at the end of the extended liability period will effectively eliminate any potential surface water impacts related to the sedimentation pond.

R645-301-731.200 Water Monitoring

~~CR~~ CEG3 currently maintains, and will continue, a program to monitor surface and groundwater quality and quantity for the duration of the proposed mining, processing, and reclamation operations. The Hydrologic Monitoring Plan consists of monitoring stations identified in Table 6, Kinney Mine Baseline Monitoring Stations, and Table 7, Kinney Mine Operational Monitoring Stations, according to the parameter sampling schedule shown in Table 20, Hydrologic Monitoring Schedule. Baseline monitoring has been conducted on a monthly basis and quarterly basis.

Operational monitoring is planned to be conducted on a quarterly basis as follows. Samples will be collected quarterly for parameters shown in Table 20, Hydrologic Monitoring Schedule, for all surface and ground water stations when the sites are accessible. At some sampling sites, winter conditions may create inaccessible or unsafe conditions. To help ensure as complete a data set as possible, first and fourth quarter samples will be collected during the time periods wherein there is the greatest likelihood of collecting a valid sample. This is believed to be in March and October respectively. Second and third quarter samples will be collected at a convenient time for the mine operator within the respective quarter.

As discussed in Section R645-301-731.800 of this MRP, some concerns as to the estimates of water rights replacement flow rates will be addressed by additional verification through monthly monitoring of flows for the springs and seeps in the area of Eagle Canyon. This effort will be coordinated with the Division Staff to ensure that the data collected will meet the concerns. These sites will include Eagle Seep 1, Eagle Seep 1a, Eagle Seep 3, Eagle Spring 2, Eagle Pond 2, and Aspen Spring (Eagle Pond 1). A minimum of 12 months, excepting months when sources are frozen over and not accessible, of verification data will be collected to more precisely determine the true volume of water needed for replacement. Additionally, ~~CR~~ CEG3 agrees to monitor these sites for 2 additional years on a quarterly basis to allow the average flows to be determined to account for wet and dry years. During this period, each of the spring/seep sites will be checked and a flow determination made. For the Aspen Spring site, efforts will be made to work with the land owner to see if there would be a way to modify/adjust the site to allow collection of water flow measurements. If not, then a staff gauge will be installed to record the level of the pond and this data along with a stage-capacity curve for the pond will be used to generate an estimate flow. Additionally, to add to the water quality database for potential future expansion plans, ~~CR~~ CEG3 will collect water quality data for any water sources where sufficient flow is available on a quarterly basis for the first 12 months.

The monitoring program thus instated serves as an integral part of ~~CR's~~ CEG3's efforts to protect the hydrologic balance by providing an accurate and timely method of identifying and quantifying any possible concerns with respect to surface and ground water resources. The monitoring network is shown on Map 28, Surface and Ground Water Monitoring Sites. Table 6, Kinney # 2 Mine Baseline Monitoring Stations, and Table 7, Kinney # 2 Mine Operational Monitoring Stations, when combined with Map 28, summarizes the type and location of monitoring sites. The frequency, density and accuracy of monitoring will allow ~~CR~~ CEG3 to evaluate and determine the success of mine plans, drainage and sediment control facilities,

and reclamation for the purpose of minimizing disturbance to the hydrologic balance. The monitoring data and resulting evaluations will be used to identify any potential problems and develop necessary mitigation measures.

Hydrologic information submitted in R645-301-711- 727 of this permit application includes an identification of surface drainages and general flow characteristics, modeling of corresponding peak flows and annual runoff volumes, identification of ground water aquifers, and a general description of aquifer characteristics including ground water levels, movements, and recharge/discharge/storage characteristics.

The Hydrologic Monitoring Plan for the Kinney Mine provides for a frequency and distribution of both baseline and operational monitoring data collection adequate to identify and document baseline conditions and trends and fluctuations in the quantity and quality of surface water, the level and quality of ground water, and the overall effects of mining and reclamation activities on the hydrologic balance. As shown on Table 20, Hydrologic Monitoring Schedule, water quality parameters include field measurements for water level or flow, pH, specific conductance, dissolved oxygen, and temperature. Laboratory measurements include a significant list covering general water quality characteristics such as TDS, nutrients, major ions, and trace metals. Both surface and ground water quality samples will be collected, labeled and transported to a qualified analytical laboratory for analyses. Proper sample collection, preservation, handling, and storage methods will be utilized at all times to preserve the integrity of the samples and ensure validity of the analytical results.

The ongoing monitoring network consists of 10 ground water wells, some having the capability of sampling from above, within or below the mined coal seam, 3 springs, and 3 surface or stream locations. Data from one additional well (CR-06-03-ABV) was drilled as part of the mine water monitoring program and was sampled between April and September 2006. However, due to legal issues related to the well it was abandoned and is not part of the ongoing water monitoring program. In a similar fashion, monitoring from Angle Springs has been terminated due to access limitations. Each of the historic and current sampling locations are identified on Table, 6 Kinney No. 2 Mine Baseline Monitoring Stations, and on Map 28, Surface and Ground Water Monitoring Sites. The spring/seep locations and monitoring wells will be used to evaluate the occurrence of ground water and the hydraulic characteristics of the aquifers. The surface water monitoring sites will be used to evaluate the quality and quantity of surface water.

Baseline and operational monitoring will be performed for the Kinney Mine at the following frequency:

Spring - Discharge measurements, field water quality parameters, and laboratory samples were collected for Angle, Eagle and Sulfur Springs starting in May 2005 and for Aspen Spring in November 2007. Baseline data having been collected. These springs will now be monitored for operational mining parameters.

Stream Stations - Flow and field water quality parameters were measured on Mud Creek and Miller Outlet from May 2005 through February 24, 2011. Pool elevation and field water quality parameters were measured for Scofield Reservoir beginning in June 2006 through February 24, 2011. Operational monitoring can now continue.

Monitoring Wells - Groundwater level measurements were taken, following well installation, for dry wells CR-06-01, CR-06-01BLW, CR-06-02, and CR-06-02ABV beginning in March 2006. Baseline monitoring of well CR-06-05 began in September 2006 and continued through May 2007 after which time operational monitoring began. Data for this site is available through December 2010. Baseline sampling of different zones within well CR-06-09 began as early as August 2006, with all three zones being monitored simultaneously beginning in October 2006. Measurements from this site area also available from June 2008 through December 2010. Operational monitoring began for well CR-06-09 in July 2007. Per the Divisions request, two additional monitor wells were

completed in 2010; CR-10-11 and CR-10-12. Both of these wells have been sampled eight times beginning in July 2010 through February 2011. They will be picked up as part of the operational quarterly sampling program.

In the event any of the groundwater monitor wells that have been shown to be dry should be found to contain a static water level, sampling of that well will commence.

Within the constraints of the physical limits to do so, groundwater samples will be taken from all the monitor wells having a static water level within the system of monitor wells in preparation for the next revision of the MRP. During the 2011 field season, the ability to sample the wells not currently sampled will be determined. Those that, it physically possible to sample, will be added to the operational sampling plan.

All water monitoring analysis results will be recorded, reviewed to identify potential problems or trends, and filed at the mine so as to be available for future inspection and review. In addition, and following initiating of development activities, ~~CR~~ CEG3 will file copies of both field data and laboratory analysis sheets on a quarterly basis with the UDOGM. At the end of each annual year, ~~CR~~ CEG3 will also tabulate all water monitoring data for the year, review the data with respect to changes in surface and groundwater hydrology systems, and provide a summary Annual Hydrology Report in compliance with the UDOGM schedule. ~~CR~~ CEG3 will continue to collect and evaluate hydrologic monitoring data during the operations and reclamation phases. If the additional data resulting from ongoing hydrologic monitoring indicates that any significant changes in general baseline characterizations are appropriate or that any assumptions or projections used to evaluate potential impacts are not accurate, ~~CR~~ CEG3 will review potential changes with UDOGM and modify any sections of the mining and reclamation permit application as appropriate to reflect necessary adjustments.

Following baseline monitoring, operational monitoring will be conducted for each sample location quarterly in accordance with the requirements of R645-301-731-212 and R645-301-731-223. In general, samples will be collected four times a year with one sample being taken within each quarter period. Ideally the samples will be taken in February, May, August and November. However, sample dates may be shifted one month earlier or later depending upon weather and environmental conditions. If the analysis of any surface water or groundwater sample indicates noncompliance with the permit conditions, then ~~CR~~ CEG3 shall promptly notify the Division and immediately implement expanded monitoring for the site in question. Expanded monitoring will include a single sample for the noncompliant parameter to be taken within 15 days of learning of the noncompliant event. The new sample will then be evaluated to determine the magnitude and seriousness of the event, and with the Division, determine whether additional sampling is warranted. If monthly monitoring is warranted, sampling of the parameter will continue until the cause is identified and rectified, appropriate action is taken to the satisfaction of the Division, or the cause is determined to be non-mine related.

Carbon resources has applied for and received a UPDES permit which may be found in Exhibit 4, Other Permits. The UPDES permit received by CR has since lapsed, Coal Energy Group 3 madde application for a new UPDES permit in November 2018. Approval of the UPDES permit is anticipated prior to the approval of this MRP. In addition, ~~CR~~ CEG3 will prepare and submit quarterly UPDES compliance reports to the UDOGM and UDWQ in compliance with Part 4.05.13 (2) (ii) (b). If non-compliance with a UPDES permit effluent limitation does occur, ~~CR~~ CEG3 will forward the analytical results concurrently with the written notification of non-compliance.

~~CR~~ CEG3 will continue surface and ground water monitoring activities after completion of reclamation operations to document restoration of pre-mining hydrologic characteristics. All surface and groundwater monitoring installations and associated structures and equipment will be properly installed, maintained, and operated to assure the accuracy and consistency of monitoring data. Surface water monitoring will be discontinued when untreated surface runoff meets applicable effluent limitations and the UDOGM approves removal of drainage and sediment control structures. Groundwater monitoring wells will be abandoned and removed in

accordance with UDOGM guidelines following UDOGM approval to discontinue groundwater monitoring.

R645-301-731.300 Acid and Toxic Forming Materials

This topic is dealt is addressed in R645-301-624.

R645-731.500 Discharges

The Kinney mine workings will progress down dip from the outcrop area and mine drainage will be controlled during active operations so there is little or no potential for direct gravity discharge of water from the mine. The minor amounts of water encountered within the mine will be controlled underground and pumped, if necessary, to mined out areas. Upon completion of mining and related activities in-mine drainage control operations will cease and portions of the mine workings (especially the mine workings furthest down dip) may either partially or gradually fill as ground water inflows discharge to the mined-out areas. No post cessation flow is anticipated and ~~CR~~ CEG3 will seal and backfill the mine portals. Sealing practices are discussed in R645-301-542.300 – 800 & 550 – 553.900 and 560, Reclamation Practices, and R645-301-764 - 765, Casing and Sealing of Wells and Mine Openings.

There are no plans to develop, divert, or discharge any surface water into any underground mine in conjunction with ongoing mining and reclamation operations at the Kinney Mine.

Possible alternatives for the disposal of any in-mine water encountered are 1) discharge the water into remote or abandoned mine workings, 2) request a new NPDES discharge permit for surface discharge, 3) construct shallow or deep injection wells, 4) treat and discharge the water into Mud Creek, and 5) evaporate through new ponds. The feasibility and cost associated with these alternative will be investigated in the unlikely event that mine discharges are required.

All temporary and permanent diversions within the Kinney mine and loadout areas have been designed and will be constructed to maintain effective flow under all anticipated conditions. Upon completion of mining and related activities, mine openings will be sealed and backfilled to further preclude any potential ground water discharge or surface water inflows in mine portal areas or boreholes.

R645-301-731.600 Stream Buffer Zones

No streams requiring a buffer zone are located within the immediate or adjacent surface disturbed areas.

R645-301-731.700 Cross Sections and Maps

Hydrologic information is presented in various locations within the permit including:

R645-301-731.800 Water Rights and Replacement

As discussed in R645-301-727, Potential Impacts on Surface and Ground Water Sources, ~~CR's~~ CEG3's mining and related operations are not expected to adversely impact any surface or ground water sources or water rights. Consequently, there is no need to explicitly address provisions for replacement of impacted water rights at this time. In the unlikely event however, that proximate contamination, diminution, or interruption does occur and can be documented as resulting from the Kinney mining and related operations, ~~CR~~ CEG3 will mitigate the associated water rights impacts through discussion and development of a cooperative agreement with any effected water rights holder. Potential mitigation options may include but will not be limited to replacement or augmentation of effected water rights, monetary compensation, development of alternative watering facilities such as guzzlers.

~~Carbon Resources~~Coal Energy Group 3 is the owner of two shares of Scofield Reservoir water and is reserving this water right as potential mitigation for any claim against ~~CR~~ CEG3 relative to depletion of water due to evaporation of that small amount of water, contributed to from water encountered underground, that is carried out of the mine as a wet coating on coal transported out of the mine.

Per discussion with Mark Stiltson, Division of Water Rights, two shares of Scofield Water (which is Two Acre Feet of Scofield Reservoir water) is ample water rights to cover the extremely minor amount of water that may be depleted due to being transferred out of the mine as wetting on coal.

Some concerns regarding the volume of water replacement rates were raised by the Division for the area of Eagle Canyon. As allowed under the coal rules, some groundwater rates can be estimated if not directly measurable. This was done in the case of Aspen Spring (aka, Eagle Pond 1). Therefore, until the verification period is completed and accepted by the Division, if the springs in the graben area are affected by mining, ~~CR~~ CEG3 commits to replace the estimate quantity of Aspen Spring and the total of the flow measurements for the other springs in the graben area. Based on the maximum estimate of flow for Aspen Spring which is 5.0 gpm. Therefore a total for the five seeps and springs in upper Eagle Canyon is 25 gpm. Once the verification is completed, ~~CR~~ CEG3 will adjust the commitment to the flow values verified.

The primary postmining land use in the mine, loadout, and adjacent areas will be undeveloped wildlife habitat, dispersed recreation and grazing requiring minimal supporting water requirements. The discussions presented in R645-301-711 – 727, Hydrology Information, indicate that while surface and ground water resources are limited in those areas to be affected by the Kinney Mine operations, they will be adequate in terms of both quantity and quality to support the designated postmining land use. Given the proposed postmining use, ~~CR~~ CEG3 currently has no plans to transfer any exploration boreholes or monitoring wells for subsequent use as water wells for the current mine plan. It is however anticipated that new ground water monitoring wells will be constructed to define subsurface conditions east of the current mine plan area in the future. Details regarding this need will be coordinated with DOGM in advance of any action.

R645-301-732 Sediment Control Measures

Sediment control measures for the Kinney Mine operations have been designed to meet or exceed all applicable State effluent limitations under the provisions of the required UPDES discharge permit. Primary long-term sediment control measures include re-grading and re-vegetating mine disturbance areas to control runoff and siltation and increase infiltration, and use of localized sediment control measures including mulching, erosion netting, sediment fences, check dams, sediment traps, straw bales and other means as appropriate. Short-term operational sediment control measures include the use of localized sediment control measures as noted above, construction of collection and diversion ditches where necessary to intercept and route runoff flows, and the use of a sedimentation pond to retain runoff and allow suspended solids to settle out prior to discharge to natural drainages. Major sediment control

structures for the Kinney Mine are shown on Map 24, Drainage and Sediment Control Plan Map – Undisturbed Drainage Areas, and Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas. The runoff control pond is shown on Map 25, Sedimentation Pond 1 – Section and Details. These facilities have been designed utilizing the best technology currently available and will result in effective compliance with both the requirements of Kinney Mine's UPDES permit and all other applicable regulatory requirements.

One new sedimentation pond will provide effective sediment control for the Kinney mine facilities area. This pond is located in the northern end of the surface disturbed area east of and adjacent to Highway 96. This sedimentation pond is located as close as possible to the contributing disturbed areas and is not located within the floodplains of any perennial streams.

Complete detailed plans, calculations, and design specifications for sedimentation ponds are presented in Exhibit 16, Runoff Control Design Details. This design documentation include discussion of design methodology and assumptions, descriptions of specific drainage and sediment control structures or types of structures, hydrologic and hydraulic design calculations, and design specifications for all structures. In addition to compliance with applicable design standards and requirements under the Utah Coal Mining Regulations, the Kinney Mine sedimentation pond will be constructed, operated, and maintained to effect compliance with applicable UPDES discharge effluent standards. The pond has been designed to provide a minimum detention time of 24 hours, and longer if necessary, to meet applicable effluent limitations with respect to TSS and is sized to control pond discharge rates so that adequate detention times are maintained.

The proposed sedimentation pond has been designed to provide adequate storage for anticipated sediment accumulations from contributing drainage areas. Sediment storage calculations are conservative, reflecting the maximum anticipated disturbance acreage for each drainage area over the mine life. In addition to designing for adequate sediment storage capacity, ~~CR~~ CEG3 will monitor the sediment level in the sedimentation pond, and as necessary to maintain adequate storage capacity, will remove accumulated sediment and dispose of it at Utah State approved disposal sites such as ECDC in East Carbon, Utah or another facility. Sediment removal volumes will be minimal and should not have any significant effect on refuse stockpile stability, overall volume, or overall storage issues within the mine. It is anticipated that sediment removal will be only be required on an occasional basis.

As sediment removal becomes necessary, ~~CR~~CEG3, in order to facilitate removal, minimize the potential for additional contributions of sediment to downstream waters, and prevent any potential adverse impacts on coal refuse stockpile stability, will schedule sediment removal during the portion of the year when the sedimentation pond is normally dry. Any water retained in the ponds at this time will be utilized for mine dust control application and pond surfaces will be allowed to dry out prior to initiation of equipment operations and sediment removal. If runoff occurs during pond cleanout, sediment removal operations will be temporarily suspended until any accumulated water can be discharged and effective operating conditions for sediment removal reestablished as described in R645-301-522, 523.100 – 220, 524.100 – 800, & 525.100 – 300, General description of Mine Plans, Mining Methods, and Related Design Requirements.

The sedimentation pond, unless otherwise required by Federal or State law, will be completely removed and effected area reclaimed upon completion of mining and related activities and restoration of contributing drainage areas. Restoration criteria include a re-vegetation success determination as described by R645-301-341.250, 300, 353.100 – 300, 356.100 – 400, & 357.100 - 300, Re-vegetation Success - Criteria and Evaluation Methods, and effective restoration of drainage characteristics such that the quality of untreated runoff from reclaimed areas is

approximately equal to the quality of receiving drainages before the initiation of any mining activity as established by baseline water quality data.

Sedimentation pond reclamation will involve removal of any man-made discharge structures, removal and disposal of any riprap and bedding materials which will not be utilized in conjunction with re-establishment of postmining drainages, grading of embankment fill into pond basin areas, and re-grading associated disturbance areas to blend with surrounding reclaimed and undisturbed terrain. Replacement of soil/substitute materials and re-vegetation as described in R645-301-542.300 – 800, 500 – 553.900, & 560, Reclamation Practices, will complete pond reclamation.

As previously discussed in the introduction to this section, operational plans for the Kinney Mine include standard hydrologic controls and mitigation measures that are designed to prevent significant changes in the quantity and quality of surface and ground water resources, preserve existing hydrologic functions, comply with regulatory requirements, and limit adverse impacts to surface water or ground water users. These measures include:

- Limiting surface disturbance areas
- Proper design, construction, and grading of facilities areas and roads
- Construction, operation, and maintenance of drainage and sediment control structures to divert undisturbed runoff around disturbance areas, collect and route disturbed area runoff to sedimentation ponds to allow settlement of suspended solids, and facilitate any treatment which may be necessary
- Utilization of localized erosion control measures in any areas having high erosion potential
- Initiation of reclamation operations as soon as practical following completion of mining or when the associated facilities are no longer required to support ongoing mining and related operations
- Effective reclamation to minimize gradients, re-establish surface drainage patterns, restore pre-mining runoff and infiltration characteristics, and establish an effective and self-sustaining vegetative cover
- Post-reclamation land use management

During active operations, the designed drainage and sediment control system along with appropriate surface grading and stabilization measures will be the primary mechanism used to provide effective erosion and sediment control. A detailed discussion of this system was provided in R645-301-731.120 – 122, Surface Water Protection Measures. The locations and configuration of disturbed area drainage and sediment control structures are shown on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas, and design information and calculations are provided in Exhibit 16, Runoff Control Design Details. Because of limited surface disturbance area available for the Kinney Mine, the surface facilities have been laid out in a series of elevated pads as shown on the map.

Following completion of mining operations reclamation of surface disturbance areas, restoration of effective drainage, and revegetation as described in R645-301-511.300, 541.100 – 400, 553.500 – 524, & 553.600 - 653, Reclamation of Mining Disturbance, will be the primary means of establishing both effective short and long-term erosion and sediment control.

This section presents the climatological information and methodology used in performing a hydrologic analysis to determine runoff volumes and peak runoff discharges which were used in designing the sediment pond, drainage ditches, conveyance/by-pass culverts, and reclamation channel.

Runoff Calculations

Discharge Rate Calculations

There are no streams that traverse the permit area. Three perennial streams however are located within ¾ to 2 1/5 miles which are tributary to Scofield Reservoir. Mud Creek is the largest and is located within the central valley area west of the proposed permit area and Long and Miller Canyons are located ¾ and 2 1/3 miles to the east. Long Canyon many not actually be perennial but intermittent. More field work will determine this. Smaller local drainages exhibit inflow in response to spring snowmelt and high intensity thunderstorms. These drainages do not contribute significant quantities, or yields of stream flow to Mud Creek or Scofield Reservoir.

The USGS monitors stream flow in the area at the Mud Creek below Winter Quarters Canyon Scofield (USGS Station 09310700). This monitoring station is immediately downstream of the confluence of Winter Quarters Canyon and Mud Creek.

Mud Creek is the only perennial stream potentially directly tributary to the mine permit area. It is however more likely that permit area discharges will enter Scofield Reservoir directly and will not enter Mud Creek itself. Long and Miller Canyons enter Scofield Reservoir approximately 1.6 miles north of the mine site.

Flows within Miller Canyon, to which Long Canyon is tributary, and from Sulphur Spring are measured in the field utilizing flow area and velocity calculations.

All other surface water discharge rates used for ditches, culverts and the pond are calculated using standard runoff prediction modeling which utilizes the SCS Curve Number method.

Volume Calculations

Surface water volume determinations used within in the permit area for the design of the sediment pond utilizes the SCS Curve Number procedure mentioned above for flow calculations, and is reported in ac-ft/year.

Climatological Information

Precipitation depths were obtained from the Point Precipitation Frequency Estimates from National Oceanic and Atmospheric Administration (NOAA) Atlas 14 found on the NOAA website (http://hdsc.nws.noaa.gov/hdsc/pfds). This site calculates rainfall depths at various durations and return frequencies for a given location and elevation. Estimates are based on annual precipitation data from over 300 stations in Utah and over 2,000 stations in the semiarid southwest. The design rainstorm depths were taken from the NOAA website at a location approximately near the center of the proposed mine site. The design rainfall depths used in the hydrologic analysis are shown in Table 16, Design Rainfall Depths.

TABLE 16. DESIGN RAINFALL DEPTHS

LOCATION	RETURN PERIOD	RAINFALL DEPTH (INCHES) BY DURATION	
		6-HOUR	24-HOUR
Kinney Mine	10-Year	1.28	1.92
	100-Year	2.08	2.73

Modeling Methodology

Jones Draw (southern-most) and Columbine Draw (next north of Jones Draw) are the southern two of the three ephemeral drainages that cross the permit boundary. These two drainages currently are conveyed under Highway 96. The south drainage (Jones Draw) will be conveyed by way of culvert UDC-1 through the mining area and under Highway 96. The northern drainage (Columbine Draw) will also be culverted to bypass the proposed roads and ditches without effecting the mine permit area via culvert UDC-2. Storm drainage runoff from the remaining permit area, with exception of a small area south of the main mine access road and east of Highway 96, will be captured and conveyed to a sediment pond by way a drainage collection system consisting of a series of ditches and culverts. Runoff from the small area south of the entrance will be managed using alternate sediment control methods with revegetation and silt fencing and/or straw bales. The runoff conveyance plan is shown in Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas.

In order to design the collection system ditches and culverts, hydrographs and peak runoff flows were determined. The hydrology for the mine permit area was modeled with Hydrologic Modeling Software (HEC-HMS) 3.1.0 developed by the Army Corps of Engineers using the Soil Conservation Service (SCS) curve number loss method and the SCS unit hydrograph transform method. The SCS Type II rainfall distribution was used in analyzing the storm drainage runoff which was developed by the Natural Resources Conservation Service (NRCS) for 24 hour rainfall events. A modified SCS Type II 6-hour distribution was also developed by the Soil Conservation Service and is provided in the SCS National Engineering Handbook-4 (NEH-4).

Drainage basins (also referred to as watersheds or catchments) were delineated in AutoCAD using existing and proposed elevation contour data and the location of proposed pads and storm drainage facilities. A drainage basin is an area where all rainfall or snowmelt runoff within it will collect to a common point. Each drainage basin includes one or a combination of the following three land types: hard surface pad area revegetated graded area, and natural undisturbed area.

Each basin was assigned an SCS (Soil Conservation Service) curve number. The curve number is a function of vegetative cover, hydrologic soil groups, and Antecedent Moisture Conditions (AMC). Curve numbers range from 0 to 100. Areas with high runoff rates have high curve numbers. Areas that are more pervious have lower curve numbers. Area-weighted curve numbers for each drainage basin were estimated by delineating the area of the three land types within each drainage basin and using curve numbers for the three land types obtained from the SCS NEH-4 which are 90 for the hard surface pads (C soil, hard surface, AMCII), 82 for

the revegetated graded area (C soil, 10% ground cover density, AMCII condition), and 75 for the natural undisturbed area (C soil, 20% ground cover density, AMCII condition).

Drainage basins were modeled in HEC-HMS using the SCS unit hydrograph transform method which requires a lag time t_L for each basin. Lag time is described as the time from the center of mass of rainfall excess to the peak of the runoff hydrograph. According to the SCS, the watershed lag time is equal to 0.6* t_c (Time of concentration). The time of concentration t_c, (not is defined as the time required for flow from the hydraulically most remote point in a basin to reach the basin outlet. Times of concentration and lag times were calculated for each basin within the mine permit area using the method described in SCS Technical Report55 (TR-55) which takes into account sheet flow travel time, shallow concentrated flow travel time, and channel flow travel time. A lag time for the mountain watershed tributary to UDC-1 was estimated using the method described in the publication by M.J. Simas and R.H. Hawkins called "Lag time characteristics for small watersheds in the U.S." which takes into account width, slope, and curve number of the mountain drainage basin.

R645-301-733 Impoundments

~~CR~~ CEG3 does not propose any permanent impoundments within the mine or loadout areas. Upon restoration of disturbed areas, the sedimentation pond will be removed and associated disturbance areas reclaimed. In addition, all reclaimed areas will be re-graded to re-establish natural drainage patterns and eliminate any significant depressions which could impound water.

As described and referenced in R645-301-526.100 – 300, 527.100 – 250, 528.100 – 322, & 529.100 - 400, Mine Structures and Facilities, all impoundments will be designed and constructed with stable perimeter side-slopes, inlets, the tops of pond embankments, and embankment outslopes will be protected against erosion by vegetation or riprap as necessary. With the exception of downstream embankment slopes, all embankment areas will drain to the impoundment basins providing inherent sediment control. Runoff from downstream embankment slopes will be effectively limited by the semi-arid climate, minimal slope angles, and re-vegetation so that no additional sediment control will be necessary.

~~CR~~ CEG3 has developed a pond maintenance program designed to assure continued safe and effective operation of the Sediment Detention pond and surface water control system. The sedimentation pond will be inspected at regular intervals during construction and on completion of construction by a professional engineer or specialist experienced in impoundment construction. An impoundment inspection report certified by a Registered Professional Engineer will be provided to UDOGM promptly following each inspection. The report will verify construction in accordance with design plans and will note and discuss any apparent instability, structural weakness, or other hazardous conditions. A copy of the report will be retained on file at the mine site for inspection by authorized agency representatives.

Operation and Maintenance

Operation and maintenance of drainage and sedimentation control structures will involve periodic inspection of all ditches and culverts, quarterly inspection and annual certification of the impoundment and related structures, ongoing discharge monitoring for the impoundment, and any necessary maintenance or repair of problems noted during the inspections.

~~CR's~~ CEG3's ditch inspection and maintenance procedures will focus on identification and repair of any significant ditch erosion, removal of any trash or debris from ditches, and maintenance of an adequate cross-sectional flow area, regardless of actual ditch configuration, to pass the design flows. In practice this will mean that ~~CR~~ CEG3 will not modify, recut, or clean out a ditch simply because the physical ditch dimensions are not the same as the original design or originally constructed configuration so long as the actual ditch configuration is adequate to pass the design flow. Since the ditches and culverts have been designed to a larger runoff event than is required by UDOGM regulations, there is excess capacity in the ditches and culverts. This approach allows for some siltation, and erosion without affecting the capacity of the ditches and culverts to carry the regulatory required flow. Culvert maintenance will involve removal of trash or debris from culvert inlets and any upgradient debris fences, repair of any significant erosion at culvert inlets, outlets, or of the cover material, and repair or replacement of any damaged culverts.

Sedimentation pond maintenance and operation procedures will include ongoing sampling and discharge monitoring under applicable provisions of a UDWQ permit; quarterly inspections of pond embankments, impoundment areas, discharge structures, and inlet/outlet structures and areas and reporting; notification of any hazardous conditions and development of emergency remedial control measures; maintenance or repair of any problems noted during the inspections; and the periodic removal of accumulated sediment. The sedimentation pond has been designed and will be operated and maintained to effectively retain storm runoff to allow settlement of suspended solids prior to discharge. Control of potential water quality impacts from pond discharge is monitored through compliance with applicable effluent standards under a UDWQ discharge permit. Effluent sampling and reporting will occur as outlined in R645-301-731.200 - 225, Water Monitoring Plan, and under the provisions of the UPDES permit ~~in Exhibit 4, Other Permits, UPDES Permit~~.

The sedimentation pond will be inspected quarterly by a qualified person for any indication of structural weakness or other hazardous condition, instability, and any erosion or other problems; the depth and elevation of any impounded water will be measured; based on the depth measurements storage capacity will be estimated; and any required structural monitoring will be performed. Copies of the quarterly inspection reports discussing each of the noted inspection categories and verifying that the pond has been constructed and maintained as designed will be prepared, certified by a qualified Registered Professional Engineer, and submitted promptly to UDOGM. Copies of the inspection reports will also be maintained on file at the minesite. Any minor problems noted during the inspection will be addressed in a timely manner. This may involve repair of any minor localized erosion, clean-out or minor repair of discharge structures, reseeding of embankment slopes, mowing weeds which may interfere with pond inspection, or other minor maintenance and repair as necessary. If the inspection identifies any structural weakness or other conditions which could pose a hazard to the public, the person who conducted the inspection will notify UDOGM promptly of the hazardous condition and any emergency procedures which may be appropriate to protect the public and address the hazardous condition. In consultation with and with approval from UDOGM, appropriate remedial measures will be implemented as soon as is reasonably practicable to address any hazardous condition.

~~CR~~ CEG3 has no plans for future construction of any additional ponds beyond that addressed in this mining and reclamation plan submittal. If changes in mine plans or effected areas dictate the necessity for additional sedimentation control structures, ~~CR~~ CEG3 will evaluate

requirements, complete the necessary designs, and submit the designs as technical revisions to the approved permit for UDOGM review and approval prior to initiating any construction work.

R645-301-735 Disposal of Excess Spoil

As described in R645-301-521, 522, 523.100 – 220, 524.100 – 800 & 525.100 - 300, Engineering Designs and Operating Plans, mining and related operations will not result in the generation of any excess spoil and, in fact, reclamation activities will be limited to backfilling and re-contouring utilizing the limited spoil materials available on the site. Plans for handling and disposal of non-coal wastes are presented in R645-301-526.100 – 300, 527.100 – 250, 528.100 – 322, & 529.100 - 400, Mine Structures and Facilities, under the subheading of Noncoal Waste Disposal. The specific handling and disposal methods described in the referenced permit sections will effectively protect ground and surface water resources by minimizing the potential for pollution or contamination from placement and handling of waste materials generated by mining and related operations.

R645-301-736 Coal Mine Waste & Underground Development Waste

Underground Development Waste

Please refer to a full treatment of this topic in Chapter 5 under **R645-301-526 Mine Facilities – Mine Development Waste.**

R645-301-737 Noncoal Mine Waste

Plans for handling and disposal of non-coal wastes are presented in Chapter 5, Engineering Design and Operations Plans Noncoal Waste Disposal, and to follow. The specific handling and disposal methods described in the referenced permit sections will effectively protect ground and surface water resources by minimizing the potential for pollution or contamination from placement and handling of waste materials generated by mining and related operations.

Noncoal Waste Disposal

Noncoal wastes generated in conjunction with mining and related activities will including but not limited to used oil and lubricants, garbage, paper waste, machinery parts, tires, cable, wood waste, and other miscellaneous debris. All smaller noncoal solid wastes will be collected and stored in dumpsters or similar closed containers. Larger solid waste materials including such items as used equipment, machinery parts, tires, and cable will be temporarily stored in designated sap yards located in areas as shown on Map 13, Surface Facilities Map. Dumpsters will be located primarily near buildings during mine operations, however, during construction they may be located throughout the disturbed area. Used oil will be handled according to Utah State and EPA requirements. Any waste other used oil and lubricants and any used oil not meeting the applicable EPA requirements will be collected and stored in either closed drums or in the waste oil storage tank located in the maintenance shop building. Temporary storage

areas for used oil and lubricants will provide full containment to prevent accidental release of petroleum products to the surface drainage system.

~~CR~~ CEG3 does not currently plan or anticipate that any materials classified as "hazardous waste" will be utilized or generated in conjunction with the proposed mining and related operations. In the unlikely event that hazardous materials storage or disposal become necessary, ~~CR~~ CEG3 will comply with all applicable storage, labeling, and documentation requirements, and disposal will occur off-site at a licensed hazardous waste disposal facility.

A contract disposal service will regularly collect and haul the noncoal solid wastes from the dumpsters to the permitted Carbon County municipal landfill, or to the East Carbon Development Corporation (ECDC) facility. Dependent on the market for sap materials, the larger noncoal solid waste and sap will be collected periodically either by a salvage contractor for salvage and recycling or by a contract disposal firm which will haul these material off-site and dispose of it in a suitable disposal site. Any used oil, lubricants, or other potentially combustible materials will be collected and either recycled or disposed of by a licensed disposal contractor in accordance with all applicable Utah and EPA regulations. No noncoal wastes will be disposed of on site during active operations.

R645-301-738 Temporary Casing and Sealing of Wells

All exploration boreholes and any boreholes which have been converted to monitoring wells following completion of drilling within the Kinney Mine permit area will be plugged and sealed during mining reclamation. In the case of the boreholes, plugging and sealing will occur as soon as drilling, sampling, and logging operations are completed. In the case of monitoring wells, the wells will be plugged and sealed when no longer needed for ongoing ground water monitoring. Standardized procedures for plugging and sealing are detailed in R645-301-631 – 631.200, & 641, Casing and Sealing Exploration Holes and Boreholes. Measures to plug and seal boreholes and water monitoring wells will minimize the potential for mixing of surface and ground water sources and will also limit the potential for communication and mixing between various but locally limited ground water aquifers.

R645-301-740 Design Criteria and Plans

This section presents detailed information on the design standards and requirements which have been or will be utilized in the design, construction, operation, maintenance, and reclamation of drainage and sediment control structures and facilities for disturbed and undisturbed areas. Forward references to methods and calculations used in design criteria are:

Curve Number Methodology	
Sec 732	Discharge Rate Calculation
Sec 732	Volume Calculation
Sec 732	Modeling Methodology
Ditch Design	
Sec 742.300	Collection Ditches and Associated Structures
Sec 724.400	Road Drainages
Pond Design	
Sec 742.220	Sedimentation Ponds
Sec 728	Surface Water Consequences

Sec 731.110	Retention of Drainage in Sedimentation Pond Structures
Sec 732	Table 16 – Design Rainfall Events
Reclamation	
Sec 760	This section discusses reclamation activities based on the criteria set in Sections 728 through 742.220

R645-301-742 Sediment Control Measures

~~CR~~ CEG3 has designed and will construct, operate, and maintain drainage and sediment control structures to minimize erosion, control surface runoff, and prevent, to the extent possible, increased contributions of suspended solids to area drainages. By effectively accomplishing these objectives ~~CR~~ CEG3R will also affect full compliance with all applicable discharge effluent limitations under any required UPDES discharge permit(s). Discussions of drainage and sediment control practices are presented in R645-301-521, General Description of Mine Construction and Development Activities and in R645-301-526.100 – 300, 527.100 – 250, 528.100 – 322, and 529.100 - 400, Mine Structures and Facilities, under the subheading of Drainage and Sediment Control Structures. In addition, a description of design methodology and all design calculations for drainage and sediment control structures to be constructed in the mine facilities area are presented in Exhibit 16, Runoff Control Design Details.

During construction, active mining operations, and reclamation, drainage from all disturbance areas will be effectively controlled by the drainage and sediment control network. To the extent reasonably feasible, runoff from undisturbed areas will be diverted and routed around the effected areas, and all disturbed area runoff will be intercepted and routed to a sedimentation pond except for the small area south of the main mine access road where alternate sediment control measures will be utilized. Operation of the drainage and sediment control network will effectively control disturbed area runoff and retain sediment from disturbed area runoff within mine disturbance areas. In addition to the engineered drainage and sediment control structures site specific drainage control and surface stabilization measures will be utilized on an as needed basis. These may include the use of temporary berms, straw bales, mulch, sediment traps, vegetative filters, silt fence, and other appropriate drainage localized drainage and sediment control measures.

Upon completion of mining and related activities, all disturbance areas will be reclaimed, with reclamation activities designed to restore drainage conditions and land use capabilities comparable to those existing prior to the Kinney mining related disturbance. Disturbance areas will be backfilled where necessary and re-graded to establish an undulating configuration with relatively short gradual slopes which will blend with surrounding undisturbed terrain. Re-graded surfaces will be left in a roughened condition to limit runoff and provide for an effective bond between the re-graded materials and subsequently placed topsoil. Reclamation will be completed by replacing available topsoil resources and re-vegetating disturbance areas to establish an effective vegetative cover which will control runoff, erosion, and provide effective habitat and grazing/forage values for wildlife and domestic livestock.

R645-301-742.200 Siltation Structures

The purpose of siltation structures is to prevent additional contributions of suspended solids from disturbed area watersheds to receiving drainages. Consistent with applicable regulatory requirements, siltation structures should represent the best control technology currently available and are intended to be constructed prior to initiation of any mining related disturbance within

the contributing watershed. As described in R645-301-522, 523.100 – 220, 524.100 – 800, & 525.100 - 300, General Description of Mine Construction and Development Activities, ~~CR~~ CEG3 will construct required drainage and sediment control structures as one of the initial development activities prior to other construction related surface disturbance. Generally, the downstream sedimentation pond will be utilized as the primary siltation structure and the design criteria and other requirements for the sedimentation pond will therefore be applicable as described in the following section. In the following case where routing of disturbed area drainage to the sedimentation pond is not practical, siltation structures will consist of appropriate alternative sediment control measures:

Outslope of Office Pad (Pad F) and the Topsoil Stockpile (see Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas) - Siltation control for the outslope of Pad F and areas adjacent to the mine entrance will be achieved through the use of silt traps, vegetative matting and perimeter silt fencing which will intercept and contain runoff sediment. If vegetative matting and perimeter silt fencing prove inadequate to control erosional runoff, straw bales and/or additional silt fencing will be placed on contours to further control local silt movement.

Silt control for the alternate sediment control area west of Highway 96 (see Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas) will be achieved through the use of vegetative matting and perimeter silt fencing which will intercept and contain runoff sediment. If vegetative matting and perimeter silt fencing prove inadequate to control erosional runoff, straw bales and/or additional silt fencing will be placed on contours to further control local silt movement.

Sediment traps will be used on both sides of the mine entrance off of Highway 96 to control runoff from the small area between the cattle guard and Highway 96 (see Map 24).

R645-301-742.220 Sedimentation Ponds

One sedimentation pond will provide effective sediment control for the Kinney mine facilities disturbance areas. This pond is located near the north end of the mine facilities Loadout Pad (Pad C) as shown on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas and is located as close as possible to the contributing disturbance area(s). The proposed sedimentation pond is not located within the floodplain of any perennial streams as documented by the classification of streams within the permit areas described in detail in R645-301-711, 720, 722, 724726, & 727, Hydrology Information.

The sedimentation pond has been designed to be constructed to provide adequate storage for anticipated sediment contributions from contributing drainage areas. Sediment storage calculations reflect the maximum anticipated disturbance acreage for each drainage area over the mine life. The design also reflects a basin capacity sufficient to retain the flood routed volume equal to the runoff resulting from a 10-year, 24-hour storm event. Design calculations are presented and design methodology for the sedimentation pond are discussed in Exhibit 16, Runoff Control Design Details. Generally, mining and related activities will result in the direct hydrologic impacts associated with initial site disturbance and facility construction but will not result in significant further changes in hydrologic conditions for disturbed area drainages. Runoff from undisturbed areas will be diverted around or under disturbance areas and is not considered in sedimentation pond design.

The pond has been designed to provide a minimum detention time of 24 hours, and longer if necessary, to meet applicable effluent limitations with respect to TSS. Pond outlet structures are sized to control pond discharge rates so that adequate detention times are maintained. Inflow

to the sedimentation pond will be routed through the pond and discharged through the outlet structure. The principal/emergency spillway structure is designed to pass the peak flows resulting from a 100-year, 6-hour storm event.

The discharge structure for the sedimentation pond is sized based upon calculated flows for the design storm events. Invert elevations for principal spillways are set above design sediment levels and the pond is designed with adequate freeboard consistent with applicable regulatory requirements. ~~CR~~ CEG3 has designed the sedimentation pond to minimize the potential for short circuiting, and constructed it so that the primary outlet structure is located as far as possible from pond inlets. The pond outlet structure is also specifically designed to insure adequate retention time, prevent short circuiting, and minimize erosion with vegetation or riprap lined spillway and discharge channels as appropriate based on discharge flow velocities.

Pond design for the Kinney mine facilities have been developed under the supervision of a qualified Registered Professional Engineer. Consistent with applicable regulatory requirements, construction of the pond will be certified by a Registered Professional Engineer. Pond certifications for the new pond will be included as an appendix to Exhibit 16, Runoff Control Design Details.

Pond construction will also be consistent with applicable regulatory construction requirements. Foundation areas will be cleared, soil and incorporated vegetative materials removed, and foundation areas graded prior to embankment construction. Embankments will be constructed of materials specifically selected to exclude vegetation, roots, frozen soil, coal or other unsuitable materials. The selected embankment fill materials will then placed and compacted in a controlled manner in thin horizontally continuous lifts. As previously noted, embankments will be designed and constructed to provide a minimum of one (1) foot of freeboard between the emergency spillway design flow level and the top of the embankment. Actual embankment construction height (except for excavated portions) will be increased by approximately 5 percent to allow for any potential settlement, and upstream and downstream embankment slopes will be established at slopes no greater than 2H:1V. Upon completion of construction, all embankment slopes as well as exposed basin areas will be graded, scarified and seeded to stabilize the slopes, prevent erosion, and establish an effective vegetative cover.

The sedimentation pond will be completely removed and effected areas reclaimed upon completion of mining and related activities and restoration of contributing drainage areas. Pond reclamation will occur following a determination by UDOGM of re-vegetation success and hydrologic restoration. Sedimentation pond reclamation will involve removal of any man-made discharge structures, removal and disposal of any riprap and bedding materials which will not be utilized in conjunction with re-establishment of post-mining drainages, grading of embankment fill into pond basin areas, and re-grading associated disturbance areas to blend with surrounding reclaimed and undisturbed terrain. Replacement of soil/substitute materials and re-vegetation will complete pond reclamation.

As shown in Figure 35, Pond 1 Stage-Volume Curve, the sedimentation pond has an embankment height and storage volume of 8 feet and 4.82 acre-feet respectively, and therefore does not fall within the jurisdiction of the State Engineer requiring additional regulatory submittals. Pond 1 is therefore designated an MSHA pond and will be inspected on a quarterly basis at a minimum for structural weakness, erosion and other hazardous conditions. Consistent with applicable regulations, UDOGM will be notified of any hazardous conditions. Should any such conditions be identified, remedial measures will be initiated and appropriate modifications will be completed in a timely manner.

R645-301-742.300 Diversions

Surface facilities diversions will be constructed to intercept and divert surface runoff flows from undisturbed upgradient areas around the mine surface facilities areas. Diversion of undisturbed drainage will minimize additional sediment contributions, prevent impacts from the undisturbed drainage on mine disturbance areas, and limit requirements for retention and treatment of surface runoff to disturbed area drainage flows. All temporary diversions related to the mine facilities area are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. The permanent re-establishment of the ephemeral drainage through the disturbed mining area is shown on Map 29, Mine Surface Facilities Area - Postmining Topography. Design calculations for temporary and permanent diversions are provided in Exhibit 16, Runoff Control Design Details.

Diversion structures utilized in conjunction with the Kinney Mining and related operations will include both temporary diversions to control undisturbed runoff during active mining and reclamation operations and the permanent diversions which will be constructed in order to restore effective surface drainage following completion of ongoing mining and related operations.

In an effort to restore the natural environment to pre-mining conditions through the reclamation process, culvert UDC-1 will be removed and the topography restored to the extent possible to pre-mining conditions. Slopes and contours will be re-established to blend with both upstream and downstream topography to approximate the natural gradients as shown on Map 29, Mine Surface Facilities Area – Post Mining Topography. Given the local conditions noted, aquatic habitat values are non-existent.

The original and post-mining alignments of the irrigation ditch are similar. As can be seen on Map 29, Mine Surface Facilities Area – Post Mining Topography, the south end of the irrigation ditch is fixed, and must match the alignment of the existing ditch to the south. The north end is fixed by the drainage culvert underneath Highway 96. The ditch must therefore be reclaimed using a uniform gradient between the two points, with a bottom width and side slope configuration that matches those conditions found in the natural ditch south of the disturbed area.

Collection Ditches and Associated Structures

Collection ditches for disturbance areas associated with the proposed Kinney Mine surface facilities diversions will be established to collect and route disturbed area runoff flows to a designed sedimentation pond. The locations of disturbed area collection ditches in the mine facilities areas are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Area and corresponding design calculations are provided in Exhibit 16, Runoff Control Design Details.

All temporary runoff ditches have been conservatively sized to carry the peak runoff flows from the 25-year, 6-hour storm event. Ditches UDD-1 and UDD-2 are upgradient undisturbed area ditches which will remain following reclamation. These two ditches were designed using the 100-year, 6-hour storm event. In order to assure effective collection and routing of disturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety

and culvert inlets, outlets, diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required. Specific information on culvert design and erosion protection measures is also provided in Exhibit 16, Runoff Control Design Details.

Temporary diversion ditches in disturbed areas are designed to safely pass the peak discharge from the 10-year, 6-hour storm event. All diversions have been designed and will be constructed to remain stable under design flow conditions. Calculated flow velocities based on channel configuration, slope and flow volume have been utilized as the basis for design of either vegetative channel linings or specification of riprap and bedding materials to assure channel stability. Locations of all temporary diversions are shown on Map 23, Drainage and Sediment Control Plan Map – Undisturbed Drainage Areas , and on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas. Design calculations for the mine facilities area are included and design methodologies discussed in Exhibit 16, Runoff Control Design Details.

Upon completion of mining and related activities all temporary diversions will be removed (with the exception of ditches DE-3, and DE-4) and the effected lands reclaimed when no longer required for sediment control. Ditches UDD-1 and UDD-2 remain as permanent structures. Ditches DE-3 and DE-4 will remain to divert and control runoff and from the reclaimed areas into the sediment pond. Ditches DE-3 and DE-4 will be reclaimed along with the sediment pond. When it occurs, reclamation will consist of full or partial filling of the diversion ditches with material from adjacent areas consistent with the design post mining drainage configuration, grading to blend ditch areas with surrounding terrain, replacement of available soil/substitute materials, and reseeding.

None of the planned diversions will drain into underground mines. The potential for subsidence will generally be limited and is not expected to impact surface structures. Because of location, there is no potential for drainage from Mud Creek to enter underground workings. In addition, upon completion of mining and related activities, ~~CR~~ CEG3 will seal and backfill the mine portals and other mine openings to prevent any significant exchange between surface and ground water systems. Details of portal sealing are discussed in R645-301-541.100 – 400, & 542.200, Reclamation Plan, under the subheading of Stabilization and Sealing of Mine Openings.

R645-301-742.400 Road Drainage

All roads have been designed to be constructed, operated, and maintained to provide for effective control of drainage from road surfaces, associated cuts and fills, and other related areas. Road construction in perennial and ephemeral streams has been avoided except where a road crossing for UDC-1 was necessary, and road alignments and designs minimize the potential for downstream sedimentation or flooding and uncontrolled drainage over the road surface.

Road designs incorporate grading or crowning to promote effective drainage off the road surface, road surfaces will generally be protected from erosion and damage by appropriate

surfacing materials and regular maintenance, roadside ditches have been designed to effectively collect and convey runoff from road areas, and culverts are provided where appropriate to convey drainage flows under or around designed roads. All road ditches and culvert structures have been designed to pass the flows from the 10-year, 6-hour storm event. Road culverts have been located and sized to avoid plugging or collapse and culvert installations will incorporate inlet and outlet protection and trash racks as appropriate to minimize both plugging and erosion. Roads, ditches, and associated culverts are shown on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas.

Flows from the 100 year, 6 hour storm were used to check the design capacity of undisturbed area drainage road ditches UDD-1 and UDD-2. In fact, the design is slightly conservative for UDD-1 since the area used also includes that area tributary to UDD-2. In a similar fashion, the design for UDD-2 is conservative since it also includes flows from the area tributary to UDD-1. Details regarding ditch design are provided within R645-301-731.110 - 112.

R645-301-743 Impoundments

The sedimentation pond described in the preceding section is the only impoundment which will be utilized for drainage and sediment control purposes in conjunction with the Kinney mining and related operations. Applicable regulatory requirements for impoundments essentially duplicate the specified requirements for sedimentation ponds addressed above. Given limited pond size and capacity, the minimum design freeboard of 1 foot is more than adequate to resist overtopping of the embankment due to wave action or sudden increases in inflow.

To insure that the designed storm water storage capacity is maintained, a staff gage will be installed in the sediment pond with the sediment cleanout level clearly marked so it can be visually monitored. Marks will be made on the staff gage at elevations of 7683.80 (5.3 year sediment level), and at each 0.5 foot level below the 5.3 year sediment level. This will allow mine operators to visually monitor the sediment level and plan for sediment cleanout.

R645-301-744 Discharge Structures

Flow rates and velocities for temporary diversion ditches and discharge calculations for the sedimentation pond outlet are presented in Exhibit 16, Runoff Control Design Details. Where specific constraints imposed by the natural terrain result in steeper gradients, flows may exceed five feet per second and placement of riprap and bedding material may be necessary to limit flow velocities, assure channel stability, and prevent any significant erosion. Design calculations include information on riprap sizing where required and the descriptive text in Exhibit 16, Runoff Control Design Details addresses standard procedures to be utilized in placing and securing riprap and bedding materials, and can be seen on Map 27, Runoff Control Details.

Generally, discharge structures have been designed at minimum gradients to limit discharge flow energy. Any potential for erosion at the outflow of discharge structures will be effectively controlled by placement of riprap and bedding materials in an apron configuration at the outflow. Generally, once the initial discharge energy is dissipated in these apron areas, erosion from the discharge flow will not be a problem since most receiving drainages have established a stable bed configuration and most drainages are effectively armored by exposed cobble and gravel materials. Because of limited space, grouted riprap has been utilized where hydraulic calculations show the need for ditch erosion control. Riprap aprons have also been utilized to dissipate energy as undisturbed area flows exit culverts west of Highway 96. Use and placement of riprap and bedding materials as designed herein should provide adequate channel protection and erosion control.

Other than the sedimentation pond and alternative sediment control measures discussed in the preceding sections, no additional treatment facilities will be necessary or will be utilized to provide effective drainage and sediment control and meet applicable discharge effluent limitations.

Runoff from the Kinney No. 2 Mine area to be disturbed flows to 4 existing culverts beneath UDOT Highway 96, one culvert is located at the south end of the permit area adjacent to the proposed topsoil stockpile, a second culvert is located near the existing gravel road accessing the proposed mine site, a third culvert is located near the north end of the proposed permit area adjacent to the proposed sediment pond, the fourth culvert is located well north of the proposed permit area. The vast majority of runoff water flows to the second and third culverts mentioned above. The vast majority of runoff from the mining disturbed area will report to the sediment pond, with a discharge point at the west side of Highway 96. The first three culverts discussed above can be seen on Map 24, Drainage and Sediment Control Plan Disturbed Drainage Areas Map.

Of the two existing culverts carrying the vast majority of the pre-mine runoff, the third culvert mentioned above will be replaced with culvert No. CP-2 during reconstruction of Highway 96 for turning lanes into the mine site. This culvert will receive discharge from the sediment pond. Pre-mining runoff reports to this culvert so no significant increase in flows will be experienced, and in fact, since the sediment pond will collect sediments from the runoff water and act as a regulating pond for storm events there should be no adverse affects from the pond discharge. There is little evidence of flows through this culvert in recent years. An energy dissipation fan structure will be constructed to prevent erosion at the end of Culvert No. CP-2 as shown on Map 24, and detailed in Exhibit 16, Runoff Control Design Details.

The sediment pond is an incised pond. In the event of the pond over-topping due to an extreme runoff event, or plugging of the primary and emergency spillways, water would flow overland to the UDOT Highway 96 rode-side ditch and flow through Culvert CP-2.

R645-301-745 Disposal of Excess Spoil

As described in R645-301-521, 523.100 – 220, 524.100 – 800, & 525.100 - 300, Engineering Designs and Operating Plans, mining and related operations will not result in the generation of any excess spoil and, in fact, reclamation activities will be limited to backfilling and re-contouring utilizing the limited spoil materials available on the site. Plans for handling and disposal of non-coal wastes are presented in R645-301-526.100 – 300, 527.100 – 250, 528.100 – 322, & 529.100 - 400, Mine Structures and Facilities, under the subheading of Noncoal Waste Disposal. The specific handling and disposal methods described in the referenced permit sections will effectively protect ground and surface water resources by minimizing the potential for pollution or contamination from placement and handling of waste materials generated by mining and related operations.

R645-301-746 Coal Mine Waste

Please refer to a full treatment of this topic in Chapter 5 under R645-301-526 Mine Facilities – Mine Development Waste. Design and Operations Plans for handling Non-coal Waste Disposal, are described underR645-301-747 Disposal of Noncoal Mine Waste, below and will effectively protect ground and surface water resources by minimizing the potential for pollution or contamination from placement and handling of waste materials generated by mining and related operations.

R645-301-738 Temporary Casing and Sealing of Wells

All exploration boreholes and any boreholes which have been converted to monitoring wells following completion of drilling within the Kinney Mine permit area will be plugged and sealed during mining reclamation. In the case of the boreholes, plugging and sealing will occur as soon as drilling, sampling, and logging operations are completed. In the case of monitoring wells, the wells will be plugged and sealed when no longer needed for ongoing ground water monitoring. Standardized procedures for plugging and sealing are detailed in R645-301-631 – 631.200, & 641, Casing and Sealing Exploration Holes and Boreholes. Measures to plug and seal boreholes and water monitoring wells will minimize the potential for mixing of surface and ground water sources and will also limit the potential for communication and mixing between various but locally limited ground water aquifers.

R645-301-747 Disposal of Noncoal Mine Wastel

Noncoal wastes generated in conjunction with mining and related activities will including but not limited to used oil and lubricants, garbage, paper waste, machinery parts, tires, cable, wood

waste, and other miscellaneous debris. All smaller noncoal solid wastes will be collected and stored in dumpsters or similar closed containers. Larger solid waste materials including such items as used equipment, machinery parts, tires, and cable will be temporarily stored in designated sap yards located in areas as shown on Map 13, Surface Facilities Map. Dumpsters will be located primarily near buildings during mine operations, however, during construction they may be located throughout the disturbed area. Used oil will be handled according to Utah State and EPA requirements. Any waste other used oil and lubricants and any used oil not meeting the applicable EPA requirements will be collected and stored in either closed drums or in the waste oil storage tank located in the maintenance shop building. Temporary storage areas for used oil and lubricants will provide full containment to prevent accidental release of petroleum products to the surface drainage system.

~~CR~~ CEG3 does not currently plan or anticipate that any materials classified as "hazardous waste" will be utilized or generated in conjunction with the proposed mining and related operations. In the unlikely event that hazardous materials storage or disposal become necessary, ~~CR~~ CEG3 will comply with all applicable storage, labeling, and documentation requirements, and disposal will occur off-site at a licensed hazardous waste disposal facility.

A contract disposal service will regularly collect and haul the noncoal solid wastes from the dumpsters to the permitted Carbon County municipal landfill, or to the East Carbon Development Corporation (ECDC) facility. Dependent on the market for sap materials, the larger noncoal solid waste and sap will be collected periodically either by a salvage contractor for salvage and recycling or by a contract disposal firm which will haul these material off-site and dispose of it in a suitable disposal site. Any used oil, lubricants, or other potentially combustible materials will be collected and either recycled or disposed of by a licensed disposal contractor in accordance with all applicable Utah and EPA regulations. No noncoal wastes will be disposed of on site during active operations.

R645-301-748 Casing and Sealing of Wells

All exploration drillholes established by ~~CR~~ CEG3 within the Kinney Mine permit area will either be completed as monitoring wells or sealed following completion of drilling, sampling, and logging. Well completion methods are described in R645-201 – 225, 323.200, 325, 202-235, & 236, Completion as Ground Water Monitoring Wells, and in Figure 21, Typical Well Completion Diagram. Similar to exploration drillholes, monitoring wells will be plugged and sealed when they are no longer needed for ongoing ground water monitoring activities. Standardized procedures for plugging and sealing are detailed in R645-301-631 – 631.200, & 641, Casing and Sealing Exploration Holes and Boreholes. Measures to plug and seal boreholes and water monitoring wells will minimize the potential for mixing of surface and ground water sources and will also limit the potential for communication and mixing between various ground water aquifers.

R645-301-750 Performance Standards

R645-301-751 Water Quality Standards and Effluent Limitations

Discharges of water from areas disturbed by coal mining and reclamation activities will be in compliance with all applicable Utah and Federal water quality laws and regulations. Additionally, discharges will comply with effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency as set forth in 40 CFR Part 434.

Water quality standards and effluent limitations for discharges from the Kinney Mine permit area will be regulated by the UDWQ under the terms of UPDES discharge permit(s) for the Kinney Mine. As part of the mine permitting process, ~~CR~~ CEG3 has obtained a discharge permit from the UDWQ. ~~A copy of the UPDES Permit can be found in Exhibit 4, Other Permits.~~ Compliance with applicable UPDES effluent limitations will involve diversion of runoff from undisturbed areas around areas effected by mining operations, collection of disturbed area runoff which will be routed through the sedimentation pond prior to discharge, other localized drainage and sediment control measures, reclamation practices designed to effectively restore effected areas, and implementation of a comprehensive ongoing discharge monitoring program to verify compliance.

Drainage from mine and loadout areas, after retention in the sedimentation pond, is not anticipated to exceed applicable effluent limitations or any other Federal or State water quality limitations or standards. No acid or toxic mine drainage is anticipated from surface runoff and no mine drainage discharge is anticipated.

R645-301-752 Sediment Control Measures

Refer to responses to: R645-301-732, Sediment Control Measures; R645-301-742.200, Siltation Structures; R645-301-742.300, Diversions; and R645-301-742.400 Road Drainage.

R645-301-753 Impoundments and Discharge Structures

Refer to responses to: R645-732, Sediment Control Measures; R-645-301-742, Sediment Control Measures; and R645-301-743, Impoundments.

R645-301-754 Disposal of Excess Spoil, Coal Mine Waste and Noncoal Mine Waste

Refer to responses to: R645-301-735, Disposal of Excess Spoil; R645-301-736, Coal Mine and Underground Development Waste; R645-301-737, Noncoal Mine Waste; R645-301-742.300, Diversions; and R645-301-747, Disposal of Noncoal Waste.

R645-301-755 Casing and Sealing of Wells

Generally, a determination will be made either prior to or during completion of any exploration holes or boreholes of whether or not the hole(s) will be utilized for ground water monitoring purposes. If the hole is to be utilized for monitoring it will be cased, completed, and developed as a monitoring well consistent with Figure 21, Typical Well Completion Diagram, and as described in R645-301-201 – 225, 323.200, 325, 202-235, & 236, Completion as Ground Water Monitoring Wells. If the hole(s) is not to be utilized as a monitoring well or when an existing well is no longer required for ongoing monitoring, it will be sealed by filling the borehole or casing with cement to form a plug from the bottom of the hole to at least 20 feet above any zone of completion or water-bearing zone; filling the remainder of the hole to within 20 feet of the ground surface; and filling the remainder of the hole to the ground surface with cement to form a surface plug. A steel fence post will be placed in the center of the surface plug before the cement sets-up to provide a permanent marker for the hole location.

R645-301-760 Reclamation

This section describes the plan for restoration of hydrologic resources in the permit and adjacent areas that could potentially be affected or impacted by the mining and reclamation activities. Information in this section was developed in accordance with applicable regulatory guidelines (R645-301-700) for coal mine permitting in the State of Utah.

Before abandoning the Kinney No. 2 Mine area or seeking final bond release, ~~CR~~ CEG3 will remove and reclaim temporary structures and take appropriate actions to assure that any permanent sedimentation ponds, diversions, impoundments, and treatment facilities meet applicable regulatory requirements.

All areas disturbed by mining and related operations will be reclaimed as soon as operationally practical following completion of mining. ~~CR~~ CEG3 has incorporated specific control and mitigation measures in mining, processing, and reclamation plans in order to prevent any significant impacts on surface or ground water quality. All mining related activities including soil/substitute removal, mine development, coal recovery, mine sealing, backfilling and grading, topsoiling, and revegetation are designed and sequenced to minimize disturbance and progress in a logical manner towards effective restoration of disturbed areas to pre-disturbance conditions. Reclamation will involve backfilling and regrading disturbance areas, re-establishment of drainage patterns similar to those existing in the premining environment, replacement of soil or substitute materials, and revegetation, and development of a self-sustaining vegetative community. As a result of effective reclamation, infiltration and runoff relationships will be restored, limiting the time interval over which water quality impacts may occur.

R645-301-761 General Requirements

In conjunction with reclamation of all areas disturbed by mining and related activities, ~~CR~~ CEG3 will reestablish an effective post mining drainage configuration as shown on the Mine Facilities Area Post Mining Topography & Interim Drainage Control Map, (Map 29). Permanent runoff control structures remaining following reclamation include ditches UDD-1, UDD-2, culverts UDC-2 and CP-2 and the reconstructed irrigation ditch. Post mining drainages have been designed in compliance with requirements for permanent diversions and provide drainage distribution and density characteristics similar to the pre-disturbance environment. Anticipated runoff characteristics and site geomorphic considerations have been incorporated in post mining drainage designs to assure long-term stability, minimize erosion, and prevent significant additional contributions of suspended solids to area drainages. ~~CR~~ CEG3 will continue to operate and maintain sedimentation ponds and associated drainage structures until contributing drainage areas are effectively restored through application of the reclamation practices. Effective restoration will include a determination of re-vegetation success and restoration of surface
drainage characteristics such that contributions of suspended solids from untreated disturbed area runoff are within applicable water quality limitations.

Figure 21

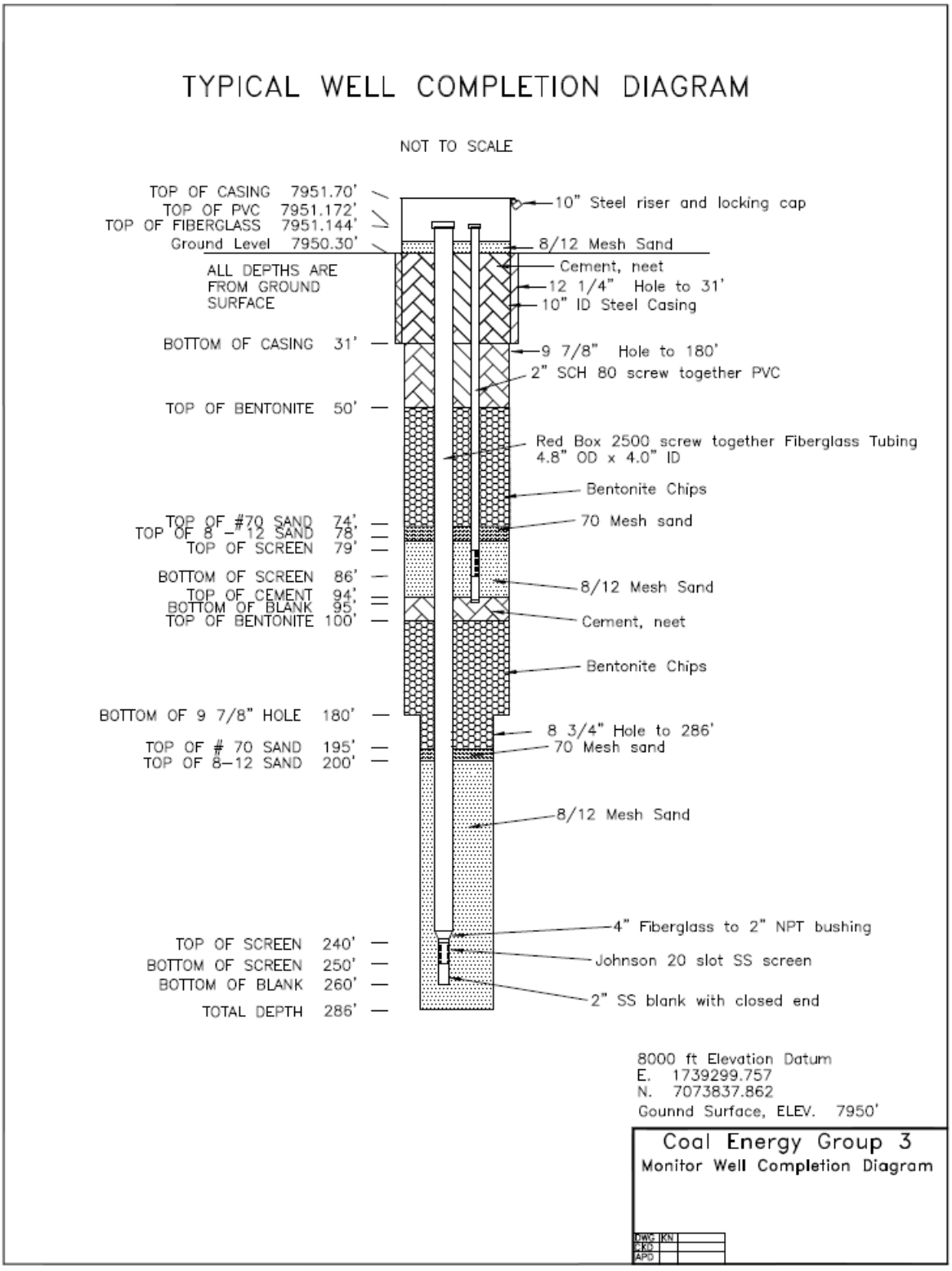

TYPICAL WELL COMPLETION DIAGRAM
NOT TO SCALE
TOP OF CASING 7951.70'
TOP OF PVC 7951.172'
TOP OF FIBERGLASS 7951.144'
Ground Level 7950.30'
ALL DEPTHS ARE FROM GROUND SURFACE
BOTTOM OF CASING 31'
TOP OF BENTONITE 50'
TOP OF #70 SAND 74'
TOP OF 8 – 12 SAND 78'
TOP OF SCREEN 79'
BOTTOM OF SCREEN 86'
TOP OF CEMENT 94'
BOTTOM OF BLANK 95'
TOP OF BENTONITE 100'
BOTTOM OF 9 7/8" HOLE 180'
TOP OF # 70 SAND 195'
TOP OF 8–12 SAND 200'
TOP OF SCREEN 240'
BOTTOM OF SCREEN 250'
BOTTOM OF BLANK 260'
TOTAL DEPTH 286'
10" Steel riser and locking cap
8/12 Mesh Sand
Cement, neet
12 1/4" Hole to 31'
10" ID Steel Casing
9 7/8" Hole to 180'
2" SCH 80 screw together PVC
Red Box 2500 screw together Fiberglass Tubing
4.8" OD x 4.0" ID
Bentonite Chips
70 Mesh sand
8/12 Mesh Sand
Cement, neet
Bentonite Chips
8 3/4" Hole to 286'
70 Mesh sand
8/12 Mesh Sand
4" Fiberglass to 2" NPT bushing
Johnson 20 slot SS screen
2" SS blank with closed end
8000 ft Elevation Datum
E. 1739299.757
N. 7073837.862
Gounnd Surface, ELEV. 7950'
Coal Energy Group 3
Monitor Well Completion Diagram
DWG KN
CKD
APD

Table 8. Well Conditions as of December 2010

Well	Bottom of Screen	Water Level	Depth Relative to Screen Bottom	Status
CR-06-01	7865.2	7853.8	-7.7	Dry
CR-06-01-BLW	7701.1	7697.1	-4.5	False Positive Water Levels, But Hole is Dry.
CR-06-02	7901.6	7898.5	-7.1	Dry
CR-06-02-ABV	8039.8	8036.0	-1.2	Dry
CR-06-03-ABV*	7646.0	7798.2	152.2	Reclaimed Per UDOGM Directive
CR-06-05A	7747.9	7741.1	-4.1	Dry
CR-06-09-BLW	7802.9	7851.9	51.0	Water level has varied by only 2.8 feet over period of record
CR-06-09	7841.8	7860.7	20.5	Water level has varied by only 1.5 feet over period of record
CR-06-09-ABV	7945.3	7977.2	31. 9	Water level has varied by 5 feet over period of record, and is falling.
CR-10-11	7586.51	7647.2	63.2	Subartesian, Level varied by 2.2 feet over period of record.
CR-10-12	7611.23	7650.7	42.0	Subartesian, Level varied by 2.5 feet over period of record.

* - Last reading taken on 9/7/2006 due to a property owner access dispute.

All of the monitor wells were professionally completed using either fiberglass or PVC as non-corrosive well tubing with stainless steel slotted well screens and a ten foot stainless steel closed bottom "blank" beneath each well screen. Washed round silica sand was tremmied into position around the screen/blank assembly (Figure 21 & Exhibit 11). Water level in each well was measured and recorded through the baseline period. Field visit to each well is demonstrated by the date and water level noted in the field notes (Exhibit 10). Confusion is caused by the fact that the ten foot "blanks" capture and hold water even in a dry hole because there is always some drilling water remaining in the formation immediately following the drilling process that is captured by the blank. The water levels shown in all of the "dry holes" are below the well screens, but within the blanks which contain only remnant water from the drilling process, and therefore do not represent a groundwater level and consequently are dry holes.

CR-06-01-BLW is completed with 4" fiberglass well tubing and a custom made reducer connecting the 2" stainless steel well screen and blank assembly to the 4" fiberglass. The inside

of this reducer is not tapered but has a "lip" at the bottom of the 4" fiberglass. Unfortunately, the well deviates from vertical causing the water level probe to strike the lip of the reducer instead of entering into the 2" well screen. These two factors when combined with a third, that is , moisture condensation in the well tubing, caused the water level probe to encounter the moisture at, and in some cases above the lip by scraping sided of the casing, and gave "false positive" water levels for this hole. This information has been verified by lowering a color, led lighted, borehole camera into the hole that produced a digital video.

R645-301-762 Roads

Roads that will not be retained for use under an approved postmining land use will be reclaimed immediately after they no longer needed for coal mining and reclamation activities. Reclamation of roads will include reshaping of all cut and fill slopes to be compatible with post-mining land use and to compliment the drainage pattern of the surrounding terrain.

R645-301-763 Siltation Structures

As a component of the planned reclamation activities ~~CR~~ CEG3 will implement an interim runoff control plan wherein the majority of temporary operational drainage structures will be removed. Interim structures (including the sediment pond) will remain throughout the re-vegetation of the mine site after which time they too will be removed and the area re-vegetated. The only structures which will remain following final reclamation will be those identified as permanent ditches and culverts (and related riprap energy dissipation aprons). Details of the interim drainage control plan addressing the period between site reclamation and final bond release are discussed in R645-301-542.100, & 500, and illustrated by the Mine Surface Facilities Area – Post Mining Topography & Interim Drainage Control Map, (Map 29).

When no longer required for sediment control, all temporary diversions and associated structures will be removed and the affected lands reclaimed, with the exception of permanent diversion ditches UDD-1,UDD-2, UDC-2, culvert CP-2, and the associated energy dissipation riprap shown on Map 29. The irrigation ditch shown at the southern end of Map 29 will also be re-established. The Post Mining Land Use road will also remain to allow private property access following mining. Reclamation will consist of filling of the diversion ditches with material from adjacent areas consistent with the design postmining drainage configuration, grading to blend ditch areas with surrounding terrain, replacement of available soil and reseeding.

Sedimentation pond reclamation will involve removal of any man-made discharge structures, removal and disposal of any riprap, concrete, and bedding materials which will not be utilized in conjunction with reestablishment of post-mining drainages, grading of embankment fill into pond basin area, and regrading associated disturbance areas to blend with the surrounding terrain. Replacement of soil and revegetation as described in R645-301-240, 241, 250, 242.100,

242.100 – 310, 243, & 244.100 - 320, Reclamation Plan, will complete pond reclamation. Upon restoration of disturbed areas, all sedimentation ponds and water storage and treatment impoundments will be removed and associated disturbance areas reclaimed. In addition, all reclaimed areas will be regraded to reestablish natural drainage patterns and eliminate any significant depressions which could impound water.

Postmining drainages and temporary ditches will route any disturbed area runoff to the sedimentation pond or through alternative sediment controls as shown on Map 29 through the post-reclamation period to the point of bond release. Runoff from the area south of the site access road cannot flow to the sedimentation pond and therefore will be controlled by alternative sediment control measures as shown on Map 29, Mine Facilities Area Post Mining Topography & Interim Drainage Control Map. Following determination of reclamation success, sedimentation ponds and temporary diversion ditches will be reclaimed and postmining drainages will be connected to existing natural drainages. Where postmining drainages intersect existing natural drainages, the transition channel will be constructed to provide a smooth transition of both channel configuration and flow. Siltation structures will be maintained until removal is authorized by UDOGM and the disturbed area has been stabilized and revegetated. Structures will not be removed within two years after the last augmented seeding.

R645-301-764 Structure Removal

As an underground mining operation, surface disturbance associated with ~~CR's~~ CEG3's mining activities will be minimal relative to the overall permit area. However, where disturbance does occur, ~~CR~~ CEG3 will reclaim disturbed areas using reclamation practices that restore normal infiltration and runoff characteristics to conditions that are comparable to premining conditions. This will be done as soon as operationally feasible following completion of mining and related activities.

Reclamation will involve backfilling and grading to stabilize the slopes, reestablishment of natural drainage patterns, topsoil replacement, and revegetation. ~~CR~~ CEG3 has also designed the postmining topography and associated backfilling and grading plans to effectively utilize available materials and minimize disturbance of adjacent areas.

Permanent postmining drainages have been located and designed to generally duplicate premining drainage patterns and densities and to effectively convey surface drainage flows. Postmining drainage patterns and designs are illustrated by the Mine Surface Facilities Area – Post Mining Topography & Interim Drainage Control Map, (Map 29) and Exhibit 16 Runoff Control Design Details.

Disturbance areas will be backfilled where necessary and regraded to establish a stable undulating configuration with relatively short gradual slopes which will blend with surrounding undisturbed terrain. Regraded surfaces will be left in a roughened condition to limit runoff and provide for an effective bond between the regraded materials and subsequently placed

topsoil. Soil replacement and reseeding will be scheduled to minimize the period of time during which soil materials will be exposed without a protective vegetative cover.

Reclamation will be completed by replacing available soil resources and revegetating disturbance areas to establish an effective vegetative cover which will control runoff, erosion, and provide effective habitat and grazing/forage values for wildlife.

Under applicable regulatory provisions, one of the conditions for final bond release is documentation of restoration of premining drainage conditions. ~~CR~~ CEG3 will develop and provide this documentation to UDOGM using one of two methods or by a combination of the two; 1) Comparisons of post-reclamation water monitoring data with premining baseline data and applicable effluent standards; 2) Runoff and sedimentation modeling utilizing measured reclamation cover values to determine runoff curves and sediment contributions and comparison with model results developed using baseline cover values.

R645-301-765 Permanent Casing and Sealing of Wells

References

All exploration drillholes completed by ~~CR~~ CEG3 within the Kinney No. 2 Mine permit area will either be completed as monitoring wells or sealed following completion of drilling, sampling, and logging.
Generally, a determination will be made either prior to or during completion of any exploration holes or boreholes of whether or not the hole(s) will be utilized for ground water monitoring purposes. If the hole is to be utilized for monitoring it will be cased, completed, and developed as a monitoring well consistent with Figure 21, Typical Well Completion Diagram. If the hole(s) is not to be utilized as a monitoring well or when an existing well is no longer required for ongoing monitoring, it will be sealed by filling the borehole or casing with cement to form a plug from the bottom of the hole to at least 20 feet above any zone of completion or water-bearing zone; filling the remainder of the hole to within 20 feet of the ground surface with bentonite; and filling the remainder of the hole to the ground surface with cement to form a surface plug. A steel fence post will be placed in the center of the surface plug before the cement sets-up to provide a permanent marker for the hole location.

~~CR~~ CEG3 does not intend to transfer title of any monitoring wells to a second party following the cessation of mining and reclamation activities.

Chapter 8

R645-301-800 BONDING

Kinney No 2 Mine

Table of Contents

R645-301-820 General Requirement 1
R645-301-820.100 – 352 Requirement to File a Bond.....1
R645-301-830.100 – 500 Determination of Bond Amount.....1
R645-301-840.100 – 520 Bond Terms and Conditions.....2
R645-301-850.100 – 320 Bonding for Underground Coal Mining and Reclamation Activities.....3
R645-301-860.100 – 380 Form of Bond 3
R645-301-870.100 – 200 Replacement of Bond 3
R645-301-880.100 – 932 Bond Release 3

R645-301-820 General Requirement

This section defines the requirements for filing and maintenance of performance bonds, addresses requirements for determination of bond amounts, identifies acceptable bond forms and required bond terms and conditions, describes requirements for replacement of bonds, and defines specific actions and requirements for bond release. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-811) for coal mine permitting in the State of Utah.

R645-301-820.100 – 352 Requirement to File a Bond

After approval but prior to issuance of the mining permit, ~~CR~~ CEG3 will file a reclamation bond payable to UDOGM. The bond will be provided on a form prescribed and provided by UDOGM and will be conditioned on faithful performance of the permit plans, and applicable requirements of the State of Utah Coal Mining Rules. As an underground coal mining operation, the bond will cover long-term surface facilities and structures and surface disturbance areas associated with the mining and related activities. Bond coverage may be for a specific term but will be maintained to provide continuous bonding coverage over the entire period of active mining and reclamation and for the extended liability period following completion of reclamation. Under the bond, ~~CR's~~ CEG3's liability will be limited to those obligations or commitments under the approved permit specifically including reclamation of surface disturbance to return the land to a condition and productive capacity capable of supporting the approved postmining land use.

R645-301-830.100 – 500 Determination of Bond Amount

Under Rule R645-301-830.120, the bond amount will depend on the requirements of the approved permit and reclamation plan. Consistent with this requirement, bond reclamation calculations do not accompany this initial permit application submittal. Once UDOGM has had opportunity to review and comment on the permit application and reclamation plan and any related issues have been effectively resolved, ~~CR~~ CEG3 will proceed with preparation of a detailed bond reclamation cost estimate. This estimate, which will be submitted to UDOGM for insertion in Exhibit 18, Bonding and Insurance Information, will be based on the approved reclamation plan; reflect the anticipated level of effort required to reclaim all surface disturbance given site topography, geology, hydrologic conditions, revegetation potential, and other relevant factors; and will reflect any appropriate inflation factors to address potential increases in reclamation cost over the permit term.

Generally, the method used in calculating the bond reclamation cost estimate is consistent with the guidance provided by the Handbook for Calculation of Reclamation Bond Amounts (USDI-OSMRE, [latest version]) and will involve the following sequential steps:

- Determine the maximum disturbance scenario relative to reclamation requirements
- Identify, delineate, and determine disturbance area acreages
- Determine required reclamation functions and sequencing
- Calculate material handling requirements and volumes
- Delineate haulage routes and determine material haul or push distances
- Select and specify appropriate reclamation equipment
- Calculate equipment productivities
- Calculate equipment and manpower schedules and project time requirements

- Develop equipment, labor, material, demolition, and revegetation unit costs
- Calculate project profit and indirect, overhead, management and other costs
- Develop cost summary for total estimated bond reclamation cost
- Develop and present bond reclamation cost estimate documentation including description of methodology, summary calculations, and supporting volumetric, productivity, and cost data

With the exception of the text description included in the summary report, reclamation calculations will be developed and presented in computer format to facilitate review and any necessary future modifications.

Following submission of ~~CR's~~ CEG3's detailed bond reclamation cost estimate, UDOGM will determine the appropriate bond amount which will be based on but not necessarily limited to ~~CR's~~ CEG3's bond estimate. If the cost of reclamation and corresponding bond coverage increases or decreases due to changes in the method of operation or other factors, ~~CR~~ CEG3 may request or UDOGM may determine that an adjustment in the bond amount is appropriate. ~~CR~~ CEG3 and the bond surety will be notified by UDOGM of any proposed adjustment in bond amount and will have opportunity for review of the proposed adjustment and an informal conference to discuss the adjustment and related matters. If ~~CR~~ CEG3 elects to request an adjustment in bond amount, the request will be accompanied by appropriate documentation supporting the request. Adjustments involving undisturbed lands or revised reclamation costs are not considered a bond release.

R645-301-840.100 – 520 Bond Terms and Conditions

In compliance with applicable regulatory provisions, the reclamation bond submitted prior to permit issuance and initiation of development, construction, and operations will be in the amount determined by UDOGM and will be payable to UDOGM. Other specific required bond terms and conditions will include the following:

- The bond will be conditioned on faithful performance of all applicable requirements of the State Program and the approved permit, including completion of the reclamation plan
- Continuous bonding coverage will be provided for the latter of, the period of active mining and reclamation and the extended liability period following completion of reclamation, or until the reclamation requirements under the State Program and permit are achieved
- The bond will provide for prompt notification of UDOGM and ~~CR~~ CEG3 by the surety in the event of any action which would render the surety incapable of providing continuing, valid bond coverage including insolvency or bankruptcy of the surety or ~~CR~~CEG3, or alleged violations which could result in suspension or revocation of the surety's charter or business licenses
- If the surety is incapable of providing continuing, valid bond coverage, ~~CR~~ CEG3 will promptly notify UDOGM and UDOGM will, in turn, provide written notification to the ~~CR~~ CEG3 that replacement bond coverage must be obtained within a specified period not to exceed 90 days. If replacement coverage is not obtained prior to the end of the specified period, the ~~CR~~ CEG3 will cease coal mining operations and will comply with applicable requirements for temporary cessation. Mining operations will not resume until a suitable replacement bond has been posted.

R645-301-850.100 – 320 Bonding for Underground Coal Mining and Reclamation Activities

Specific reclamation bonding requirements and provisions which are applicable to underground coal mining and reclamation operations include limitation of bonding coverage to surface facilities and structures and surface disturbance areas associated with the underground mining operations and designation of a "long-term period of liability" in recognition of the extended period of use which is typical for such facilities and areas.

The long-term liability period will begin with permit issuance and will continue until the bond has been released, replaced, or extended in compliance with applicable regulatory provisions.

In order to maintain continuous bonding coverage, the bond will be conditioned on extension, replacement, or payment in full 30 days prior to expiration of the permit term. If the bond does not provide coverage for the entire reclamation liability period or alternatively, if a bond for the new permit term is not filed 30 days prior to expiration of the permit term, UDOGM may act to initiate bond forfeiture.

R645-301-860.100 – 380 Form of Bond

The applicable regulations provide several alternatives for compliance with requirements for reclamation bonding coverage. Each specific alternative or bond form has a number of associated compliance requirements. Once the bond amount is determined, ~~CR~~ CEG3 will evaluate potential bonding alternatives and will select and submit a bond in a form which meets all applicable compliance criteria.

R645-301-870.100 – 200 Replacement of Bond

Under regulatory provisions for bond replacement, ~~CR~~ CEG3 may elect to replace any existing bond(s) with another bond(s) providing equivalent coverage, however, existing bond(s) will not be released until UDOGM has approved as acceptable the replacement bond and bond replacement will not constitute bond release.

R645-301-880.100 – 932 Bond Release

The applicable UDOGM regulations provide specific guidance relative to procedures for release of reclamation performance bonds. On completion of mining and related activities, ~~CR~~ CEG3 anticipates that all associated surface disturbance will be reclaimed consistent with the approved reclamation plan in order to restore the effected lands to a condition and capability consistent with the approved postmining land use. Upon completion of reclamation and surface restoration ~~CR~~ CEG3 will file application for bond release consistent with the following bond release process:

- ~~CR~~ CEG3 files application for bond release
- Within 30 days of the application date, ~~CR~~ CEG3 will file a public notice in a local newspaper general circulation with publication at least once per week over a period of four weeks
- ~~CR~~ CEG3 mails notices of bond release inspection to surface owners
- Within 30 days of the application filing UDOGM will conduct a bond release inspection which may also include interested surface owners or agents

- Persons with a valid legal interest which could be effected by bond release or responsible officials of jurisdictional agencies can submit written comments or objections and may request a hearing within 30 days following the date of last publication of the public notice
- If a hearing is requested it will be held within 30 days of receipt of the hearing request
- If no public hearing is held UDOGM, within 60 days of the application filing, will notify ~~CR~~CEG3, the bond surety, and other interested persons of its determination on the bond release request
- At least 30 days prior to bond release UDOGM will notify, by certified mail, the municipality in which the mining activities are located of the pending bond release.

Chapter 9

R645-302 Special Categories

Kinney No 2 Mine

Table of Contents **Page Number**

R645-302 SPECIAL CATEGORIES AND MINING AREAS 1
R645-302-211 through 218 EXPERIMENTAL PRACTICES 1
R645-302-221 through 227.900 MOUNTAINTOP REMOVAL 1
R645-302-231 through 234.400 STEEP SLOPE MINING 2
R645-302-241 through 245.500 AUGER MINING 2
R645-302-251 through 254.620 IN-SITU PROCESSING 2
R645-302-261 through 264.900 COAL PROCESSING PLANTS NOT WITHIN THE MINE PERMIT AREA 2
R645-302-271 through 275 VARIANCES FROM AOC RESTORATION REQUIREMENTS 2
R645-302-281 through 284 VARIANCES FOR DELAY IN CONTEMPORANEOUS RECLAMATION 3
R645-302-291 through 299.400 SMALL OPERATOR ASSISTANCE PROGRAMS 3
R645-302-311 through 317 OPERATIONS ON PRIME FARMLANDS 3
R645-302-320 Alluvial Valley Floors 3
R645-302-100 4
DEFINITIONS OF ALLUVIAL VALLEY FLOOR (AVF) 4
Rule R645-100. Administrative: Introduction. 4
TITLE 30 – Mineral Resources 4
OSM ALLUVIAL VALLEY FLOOR GUIDELINES 5
Significant and applicable sections of this OSM report together with sections of Rule R-645-302-320 are: 5
DISCUSSION 6
Evaluation of SCS Soil Survey of Carbon Area, Utah, Published June, 1988 (the most current survey as of August 2010). 9
Soil Map Unit 109 9
Use and Management of the Soil 9
Productivity 10
Soil Map Unit 108 10
Use and Management of the Soil 11
Productivity 11
Livestock Capability 12
R645-302-321.100 AVF Vegetation Studies 12
R645-302-322.100 Affect on AVF 13
Risk To AVF Area 14

R645-302 SPECIAL CATEGORIES AND MINING AREAS

This section of the Kinney No. 2 Mine Permit Application provides both general and specific information on design, construction, operation, maintenance, and reclamation for mining and related operations which fall under the categories of either "Special Categories of Mining", as defined by Rule R645-302-200, or "Special Areas of Mining", as defined by Rule R645-302-300. Information sources utilized in developing the descriptions presented in this section include baseline investigations, particularly with respect to evaluation of areas as potential alluvial valley floors or prime farmlands; detailed mining plans developed by the ~~CR~~ CEG3 team; conceptual and detailed facility layouts and designs; and specific plans for control, monitoring, and mitigation of mining related impacts. The information presented in this section has been prepared in compliance with applicable provisions of the State of Utah Coal Mining Rules and are intended to address the applicability of the regulatory definitions and provisions under the two designated special categories. The discussions presented in this section reflect consideration of the environmental resource information presented in Chapters 2 through 7, and are designed to address prevention, control, and mitigation of the potential effects of mining for areas or activities falling within the defined categories.

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

This section also provides information on the applicability of the designated regulatory categories of either "Special Categories of Mining", as defined by Rule R645-302-200, or "Special Areas of Mining", as defined by Rule R645-302-300 relative to the Kinney No. 2 Mine mining and related operations. For any categories which are applicable, design, construction, operation, maintenance, and reclamation information is provided for mining and related operations which fall under the categories. Information in this section was developed in accordance with applicable regulatory requirements (R-645-302-200 and 300) for coal mine permitting in the State of Utah.

R645-302-211 through 218 EXPERIMENTAL PRACTICES

~~CR~~ CEG3 has no current plans to implement or utilize experimental practices in conjunction with planned mining and related activities for the Kinney No. 2 Mine Mine. In addition, all of ~~CR's~~ CEG3's planned operations will affect full compliance with applicable regulations without a variance from the environmental protection performance standards for experimental or research purposes or alternative postmining land uses. Since ~~CR~~ CEG3 does not plan to conduct experimental practices in conjunction with planned mining and related operations the provisions of Rule R645-302-210 are not applicable.

R645-302-221 through 227.900 MOUNTAINTOP REMOVAL

As described in Chapter 5, Mine Plans, Mining Methods, and Related Design Considerations, the Kinney No. 2 Mine operations will be exclusively underground coal mining operations. Since no surface mining activities are planned in conjunction with the Kinney No. 2 Mine operations, the provisions of Rule R645-302-220 are not applicable.

R645-302-231 through 234.400 STEEP SLOPE MINING

The only areas where steep slopes exist in the planned surface disturbance area which will be affected by mining and related activities are along the eastern margin of the facilities area and disturbance in these areas will be limited. Consistent with Rule R645-301-231.100, most of the planned surface disturbance will occur on terrain condusive to topsoil salvage, and planned reclamation efforts will result in a configuration similar to that which existed prior to the Kinney No. 2 Mine disturbance. Reclamation considerations relative to the existing land configuration and final reclamation will be addressed under the applicable provisions for remining of previously mined areas (R645-301-553.500). Given these considerations, the provisions of Rule R645-302-230 are not applicable.

R645-302-241 through 245.500 AUGER MINING

As described in Chapter 5, Mine Plans, Mining Methods, and Related Design Considerations, the Kinney No. 2 Mine operations will be conventional underground coal mining operations utilizing continuous underground mining methods. The planned mining operations will result in significantly higher production levels and greater resource recovery and conservation than would be possible using auger mining methods. Given these considerations, ~~CR~~ CEG3 has no present plans to conduct auger mining in conjunction with the Kinney No. 2 Mine operations and the provisions of Rule R645-302-240 are not applicable.

R645-302-251 through 254.620 IN-SITU PROCESSING

~~CR~~ CEG3 has no current plans to implement or utilize in-situ extraction or processing methods in conjunction with planned mining and related activities for the Kinney No. 2 Mine Mine. Since ~~CR~~ CEG3 does not plan to conduct any type of in-situ activities in conjunction with planned mining and related operations the provisions of Rule R645-302-250 are not applicable.

R645-302-261 through 264.900 COAL PROCESSING PLANTS NOT WITHIN THE MINE PERMIT AREA

The Kinney No. 2 Mine mining and related operations will not utilize a coal processing plant at the mine site, all coal will be sold FOB mine site.

R645-302-271 through 275 VARIANCES FROM AOC RESTORATION REQUIREMENTS

Planned final backfilling and grading activities will result in a reclaimed land configuration which is similar to that which existed prior to the Kinney No. 2 Mine disturbance. The area which will be affected by construction of the required mine surface facilities is a previously mined area consisting of an existing face-up area which has been partially reclaimed by the Utah AML program. An old railroad grade exists at the western edge of planned surface facilities and had very limited reclamation done by the AML project, if any. This railroad grade will not be affected by the Kinney No. 2 Mine operations. Given this previous mining related disturbance, the planned mine construction activities constitute remining of a previously mined area under applicable provisions of Rule R645-301-553.500. These provisions take into consideration the practical reclamation limitations associated with previously mined areas and encourage

effective restoration by allowing final backfilling and grading utilizing all available spoil material and partial retention of highwall exposures if the volume of available spoil material is not sufficient to provide for total highwall elimination.

The planned postmining topography for the mine surface facilities areas effects compliance with all applicable provisions of Rule R645-301-553.500 and will result in a stable regraded configuration which provides for effective drainage, is compatible with the planned postmining land use, and minimizes the height and extent of any highwall remnant which remains. Under the applicable provisions of Rule R645-301-553.500 a variance from AOC restoration requirements is not necessary for remining of previously mined areas, therefore, the provisions of Rule R645-301-270 are not applicable. The remaining highwall at the pre-SMCRA mine was partially backfilled and will not be disturbed by the Kinney No. 2 Mine, however small pre-SMCRA cuts may be disturbed by Kinney No. 2 Mine operations in the general mine area. These small cuts may be reclaimed back to similar configurations as existed pre-Kinney No. 2 Mine.

R645-302-281 through 284 VARIANCES FOR DELAY IN CONTEMPORANEOUS RECLAMATION

As described in Chapter 5, Mine Plans, Mining Methods, and Related Design Considerations, the Kinney No. 2 Mine operations will be exclusively underground coal mining operations and will not include surface mining operations or combined surface and underground mining operations. Under Rule R645-301-553, requirements for contemporaneous reclamation are only applicable to surface coal mining operations. Since no surface mining activities are planned in conjunction with the Kinney No. 2 Mine operations, the provisions of Rule R645-302-280 are not applicable.

R645-302-291 through 299.400 SMALL OPERATOR ASSISTANCE PROGRAMS

The small operator assistance program (SOAP) is designed to provide financial, technical, and permitting assistance to operators who qualify under specific production threshold limits and other eligibility criteria. ~~CR~~ CEG3 does not qualify under the SOAP eligibility guidelines and is not seeking assistance under SOAP, therefore the provisions of Rule R645-301-900 are not applicable.

R645-302-311 through 317 OPERATIONS ON PRIME FARMLANDS

As described in R645-301-221, Prime Farmland Investigation, formal consultation with the USDA-NRCS resulted a determinations that prime farmlands do not exist in the Kinney No. 2 Mine permit area. Documentation of these determinations is provided in Exhibit 6, Soils Information. Given the determination that prime farmlands do not exist in the Kinney No. 2 Mine permit area and, therefore will not be affected or impacted by the planned mining and related operations, the provisions of Rule R634-302-310 are not applicable.

R645-302-320 Alluvial Valley Floors

The area adjacent to the west of the permit, but not within the permit area, displays characteristics that fit two different parts of the AVF definition, below under OSM Guidelines, and have been identified with two different AVF boundaries. A "True AVF Boundary" and a "Quasi AVF Boundary" Map (32). The True AFV fits the classical definition of AVF as having unconsolidated stream-laid sediment, whereas, the Quasi AVF does not have unconsolidated stream-laid sediment, however, by virtue of a historic ditch could have sufficient water available to support agricultural, which is a secondary characteristic of AVF. A review of the AVF definitions is required prior to continuing discussion of the adjacent AVF boundaries.

R645-302-320

BEFORE ADDRESSING THE FOLLOWING REGULATIONS, IT IS CLEAR IN THIS REGULATION THAT THEY 320APPLY ONLY TO SURFACE MINING AND RECLAMATION OPERATIONS. As stated in R645-302-320, "Before applying for a permit to conduct, or before conducting surface coal mining and reclamation operations within a valley holding a stream or in a location where the adjacent area includes any stream, the applicant shall either affirmatively demonstrate, based on available data, the presence of an alluvial valley floor, or submit to the Division the results of a field investigation of the proposed permit and adjacent area." *(Underlining added)*

Since the Kinney No. 2 Mine is an underground mine, these regulations do not apply, however, to complete the application and to fully address the hydrologic consequences of operating the mine, ~~CR~~ CEG3 has addressed this regulation as follows:

DEFINITIONS OF ALLUVIAL VALLEY FLOOR (AVF)

Rule R645-100. Administrative: Introduction.

http://www.rules.utah.gov/publicat/code/r645/r645-100.htm
"Alluvial Valley Floors" means the unconsolidated stream-laid deposits holding streams with water availability sufficient for subirrigation or flood irrigation agricultural activities, but does not include upland areas which are generally overlain by a thin veneer of colluvial deposits composed chiefly of debris from sheet erosion, deposits formed by unconcentrated runoff or slope wash, together with talus, or other mass-movement accumulations, and windblown deposits.

TITLE 30 - MINERAL RESOURCES
http://cfr.vlex.com/vid/19696193
CHAPTER VII - OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT, DEPARTMENT OF THE INTERIOR SUBCHAPTER G - SURFACE COAL MINING AND RECLAMATION OPERATIONS PERMITS AND COAL EXPLORATION SYSTEMS UNDER REGULATORY PROGRAMS

PART 785 - REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

785.19 - Surface coal mining and reclamation operations on areas or adjacent to areas including alluvial valley floors in the arid and semiarid areas west of the 100th meridian.

(a) Alluvial valley floor determination. (1) Permit applicants who propose to conduct surface coal mining and reclamation operations within a valley holding a stream or in a location where the permit area or adjacent area includes any stream, in the arid and semiarid regions of the United States, as an initial step in the permit process, may request the regulatory authority to make an alluvial valley floor determination with respect to that valley floor. The applicant shall demonstrate and the regulatory authority shall determine, based on either available data or field studies submitted by the applicant, or a combination of available data and field studies, the presence or absence of an alluvial valley floor. Studies shall include sufficiently detailed geologic, hydrologic, land use, soils, and vegetation data and analysis to demonstrate the probable existence of an alluvial valley floor in the area. The regulatory authority may require additional data collection and analysis or other supporting documents, maps, and illustrations in order to make the determination.

(2) The regulatory authority shall make a written determination as to the extent of any alluvial valley floors within the area. The regulatory authority shall determine that an alluvial valley floor exists if it finds that (i) Unconsolidated streamlaid deposits holding streams are present; and (ii) There is sufficient water available to support agricultural activities as evidenced by (A) The existence of current flood irrigation in the area in question; (B) The capability of an area to be flood irrigated, based on evaluations of typical regional agricultural practices, historical flood irrigation, streamflow, water quality, soils, and topography; or (C) Subirrigation of the lands in question derived from the ground-water system of the valley floor.

Title of Report:

OSM ALLUVIAL VALLEY FLOOR GUIDELINES (1980). 54 pp.

Performing Organization Name and Address: OSM

Type of Report: Final Report – Guidelines

OSM Library Number: 002 Date to NTIS: 05/31/90
NTIS Accession No: PB90-225681/AS
CFR Citation: 30 CFR 785.19

Abstract:

Part 1: Investigations used to distinguish between lands which may be alluvial valley floors (AVFs) and lands clearly not AVFs. Part 2: Intermediate investigation provides sufficient information to permit final determination of AVF studies which could be used in submittal of a complete permit application. Three studies can lead to definition of important characteristics of AVFs, agricultural significance of AVFs, and the impact of mining on AVFs. Procedures in Part 1 are intended to be those which can be accomplished in a short period of time.

Significant and applicable sections of this OSM report together with sections of Rule R-645-302-320 are:

Study in areas surrounding permit area:
- Operators discretion as to study area

Study area in relation to permit area:
- The department suggests but does not require an evaluation of AVF in the mine plan area and adjacent areas

Map Scales Acceptable:
- 1:6,000 to 1:24,000

Qualifications of Personnel conducting alluvial valley floor studies Includes:
- Geologists
- Geomorphologists

Applicability to Underground Mining:
- Must assess potential affect from mining or from surface operations

"All available data" to be used includes:
- Aerial Imagery
- Soil Studies

Geologic Characteristics:
- "unconsolidated stream-laid deposits holding streams with water availability sufficient for subirrigation or flood irrigation agricultural activities, but does not include upland areas

which are generally overlain by a thin veneer of colluvial deposits composed chiefly of debris from sheet erosion, deposits formed by unconcentrated runoff or slope wash, together with talus, or other mass-movement accumulations, and windblown deposits."

Geomorphic Characteristics:

- Terraces not considered part of AVF

Floodplains:

- Not a criterion for AVF determination

Channel Size:

- At least 3 feet in width
- No standard method of measure

Alluvial Fans:

- Case by case evaluation in complex alluvial fans
- Fan has to be part of the hydrologic system

Flood Irrigation Assessment:

- Determination of irrigable land as well as irrigated land by flood irrigation

Identification of Marsh Areas:

- Sub-irrigated areas do not automatically qualify as AFV's

Sprinkler irrigation Assessment:

- Only where it simulates or makes more efficient traditional flood irrigation

Artificial sub-irrigation:

- Not distinguished from natural sub-irrigation

DISCUSSION

As stated above, the area adjacent to the west of the permit area but not within the permit area displays characteristics that fit two different parts of the AVF definition demanding the construction of two different AVF boundaries. That is, when a definition of limiting AVF to the "unconsolidated stream-laid (alluvial) deposits" is applied, a rather small AVF boundary is created and is referred to here as the "True AVF" as can be seen on Map 32, AVF Evaluation. In contrast, when the definition of ability to be watered by "flood irrigation" is used and the limit of "unconsolidated stream-laid deposits" is ignored, a larger AFV boundary is the result, referred to as the "Quasi-AFV" (Map 32).

There are alluvial deposits adjacent to Mud Creek and Miller Creek that fit the "classical definition of AVF"; where alluvial material, transported by these streams, is deposited in the channels and along the banks and flood planes. The areas occupied by these deposits are relatively small and located in near proximity (tens to hundreds of feet) to the present stream channels, forming sinuous ribbon deposits of alluvial material. The AVF boundary drawn using the limit of "unconsolidated stream-laid deposits" is a sinuous ribbon shadowing the streams and is referred to as the "True AVF (Map 32)"

Geologically, Pleasant Valley is a "graben" in a series of north-south "horsts" and "grabens" that characterize the structural geology and thus the geomorphology of the Eastern Wasatch Plateau. The floor of Pleasant Valley is much broader and flatter than would have ever been created by the fluvial processes associated with Mud Creek. As a consequence the Quasi AVF is largely defined by the "Pleasant Valley Graben," and not the action of Mud Creek. The west and east boundaries of the Pleasant Valley Graben are formed by large (~600 ft. throw) normal faults formed several millions of years in the past. Since the last major movement on the "Pleasant Valley Graben – Boundary Faults" "detritus" from the valley walls have been carried into the valley floor by flood stage sheet wash and in many cases have formed alluvial fans that

are elevated above the flat lying portion of the graben formed valley floor. This study determined that multiple Alluvial Fans extend from the hillsides (walls of Pleasant Valley) into Pleasant Valley. These fans of non-AVF material form prominences or protrusions toward the center of the valley from the valley walls. Note the consequential alluvial fans juxtaposed to the mouth of nearly all the small drainages along the valley wall. It is just such an alluvial fan that the small triangular portion of the permit area occupies immediately west of highway 96, (Map 32). These "alluvial fans" do not fit the true definition of AVF because they are generally poorly sorted storm deposits.

Note the very small alluvial fan immediately opposite the culvert that passes under highway 96 within the permit boundary near NW corner and shown on (Map 32). This fan appears to have been formed after the highway was constructed when the culvert began carrying runoff , diverted south to the culvert, from the drainage immediately north of the culvert and will continue to do so.

The geology of Pleasant Valley, described above, has created a rather large flat lying area that contains many of the AVF criteria when the criteria weighs the "flood irrigation assessment" heavily in the determination and ignores the "alluvial material assessment." Map 32 shows two different AVF boundaries, a "True AVG" and a "Quasi-AVF". The boundary of the smaller (True AVF) is supported by less direct data than the larger (Quasi-AVF). However, in spite of imprecise boundary locations, the True-AVF boundary is definitely in the ball park as being an order of magnitude smaller than the Quasi-AVF boundary. Both AVF boundaries fall outside the permit boundary, but just barely in the case of the Quasi-AVF boundary.

As the operator we have used our discretion and chosen a study area that includes Pleasant Valley adjacent to the permit area but have not included Miller Creek as it is removed from the present permit area. In future, when the need to expand the Permit Boundary arises, Miller Creek may be included in an AVF assessment.

Map 32 is constructed at a scale of 1:4800 or 1"on the map = 400'on the ground. The AVF study was conducted by Gregory Hunt a qualified geologist who also has substantial experience interpreting geomorphology within the Eastern Wasatch Plateau.

The AVF's so determined are applicable to underground mining at Kinney No. 2 Mine only to the extent that the AVF'S are adjacent to the mine permit area. Potential impacts to the AVF's will be discussed at the end of this section. Because any impacts to the AVF would come from ground and surface water originating within the phreatic zone of influence of the underground mining and the surface facilities, the area within the AVF is limited. This area is shown on Map 32, AVF Evaluation Map, and is labeled "Zone of Ground Water Contribution to AVF From Mine Permit Boundary Area." As can be seen on the map, the solid colored areas zone is an area encompassed by Mud Creek on the west, south to a line projected from the southeastern corner of the permit boundary intersecting Mud Creek, and extending northward to a line originating at the northwest corner of the permit boundary and sweeping westward and northward slightly until it intercepts the high water mark of Scofield Reservoir. This Zone of Ground Water Contribution to the AVF From Mine Permit Boundary Area could be considered to be the phreatic zone of possible influence. The western boundary of Mud Creek is assumed to be the boundary because the ground water surface west of Mud Creek is likely shaped similarly to the ground water surface on the east side of the creek as determined in this application and shown on Map 32. Since water will not move upgradient, the creek is the low point and thus the western boundary of the zone of possible influence.

All available data were incorporated in this study, including:

- High Resolution ortho-rectified Aerial Photography

    - Registered to Kinney Coordinate System and imported into AutoCAD for precision drawing
- Soil Survey conducted as part of baseline data collection for this permit application. Please refer to (Chapter 2, Soils, and Exhibit 6, Soils Information) for the complete soil survey
- Digital topographic maps
- Geomorphic Characteristics of the valley fill material
- On the ground site visits as part of the larger data collection effort

Because determination of Floodplains is not part of the OSM criteria for determining AVF, a Floodplain study was not conducted. However, observations from site visits, and from soil samples show NO EVIDENCE that high water from a flood of Mud Creek has ever reached the permit area.

Channel Size, of Mud Creek, did not enter into the AVF study because it is so small relative to the existing "quasi AVF" due to the geologic control of Pleasant Valley.

A "Flood Irrigation Assessment" was completed in this study and became key to determining the lateral extent of the AVF in defining the larger AVF. The combination of that portion of the AVF that is presently being "flood irrigated" together with that portion of valley floor that could be "flood irrigated" largely defines the two AVFs.

An abandoned ditch can be seen and is labeled in the crossing the west side of the permit boundary. This ditch was last used approximately 25 years ago, and the diversion structure for the ditch has been destroyed therefore it is no longer functioning (Mike Erkkila, Mayor Scofield Town, Personal communication). The presence of the ditch does demonstrate that a portion of the Quasi AVF south and west of the permit boundary was at one time irrigated. Other portions of the Quasi AVF, west and north of the permit boundary, are being irrigated periodically at present.

An "Identification of Marsh Areas" was completed as part of this study. The area identified as Marsh on Map 32, AVF Evaluation Map, fits the classical definition of a Marsh, i.e., a marsh is a type of wetland that is subject to frequent or continuous flood. Typically the water is shallow and features grasses, rushes, reeds, sedges, and other herbaceous plants. The area was identified from aerial photographs, field evaluation of soil types, vegetation, and from the latest USDA SCS, Soil Survey of Carbon County, Utah, published June 1988.

A field study in the area previously called the "Marsh" will be conducted by Patrick Collins, PhD (Mt. Nebo Scientific) in the 2011 field season. The study will include a qualitative description of the plant communities within the area and the dominant species present. The plant communities will also be mapped in the field. Once the study is completed, a final report will be prepared that includes a vegetation map to an appropriate scale. The final report will be submitted to the Division for insertion to the Kinney No. 2 Mining and Reclamation Plan.

Field verifications of all plant communities shown or described in Chapter 9 will also be conducted during the 2011 field season by Patrick Collins. The current language and maps in this chapter will be updated and submitted to the Division for insertion to the Kinney No. 2 Mining and Reclamation Plan.

A "Sprinkler irrigation Assessment" was not conducted as part of this study because the key parameter of whether or not the land could be flood irrigated, regardless of whether sprinkling may be more efficient in some areas, it was more important in determining extent of AVF than

comparing the potential efficiency differences of sprinkling vs. flooding. Currenty there is no sprinkler irrigation being used in the AVF area.

A determination of the extent of potential "Artificial Sub-Irrigation" was not completed as a part of this study. For Soil Maping Unit 108 the SCS soils report does not indicate a water table depth, however, for Soil Mapping Unit 109 the SCS report indicates a fluctuating water table depth of 28 to 25 inches in spring and between depths of 35 and 45 inches during the drier season (page 77). Effective rooting depth for Soil Mapping Unit 108 is reported to be 60 inches or more for water-tolerant plants but is limited to 20 to 40 inches for non-water-tolerant plants (page 77). Effective rooting depth for Soil Mapping Unit 109 is reported to be 60 inches or more for water-tolerant plants but is limited to 18 to 24 inches for non-water-tolerant plants.

Evaluation of SCS Soil Survey of Carbon Area, Utah, Published June, 1988 (the most current survey as of August 2010).

As shown on Map 32, AVF Evaluation Map, there are two Soil Map Units according to the SCS Soil Survey, Unit 108, Silas loams, and Unit 109, Silas-Brycan loams. Soil Map Unit 109 comprises a very small area of 8.69 acres and Soil Map Unit 108 includes 220.45 acres.

Soil Map Unit 109

Unit 109 includes 8.69 acres within the Quasi AVF/AVF boundary shown on Map 32. This area is within property owned by Hilda Hammand, Carbon County Parcel 1B-483. Soil Map Unit 109 is described in the Soil Survey on page 77 as "This unit is 65 percent Silas loam, wet, 0 to 3 percent slopes; 20 percent Brycan loam, 3 to 8 percent slopes; and 15 percent other soils." The 8.69 acres lie on the eastern edge of the AVF area where the ground is sloping toward the east and Highway 96, and therefore fits in the 3 to 8 percent category of being Brycan loam. Further, the Soil Survey says, "…the Brycan soil is on alluvial fans adjacent to the narrow alluvial valleys." Further, the Soil Survey says, "The present vegetation in most areas is mainly silver sagebrush, bluegrasses, sedges, wiregrass, and scattered Colorado glue spruce." The 8.69 acres is above the grassy lower, flatter land is does exhibit the vegetation types mentioned, with a predominance of grasses, but does not contain and Colorado blue spruce.

On page 107 of the Soil Survey, it says, "The Brycan series consists of very deep, well drained, moderately slowly permeable soils on alluvial fans and in valleys. These soils formed in alluvium derived from shale and sandstone.

On page 131 of the Soil Survey it says, "The Silas series consists of very deep, somewhat poorly drained, moderately permeable soils on narrow alluvial valleys. These soils formed in alluvium derived from shale and sandstone."

Use and Management of the Soil

On page 93 of the Soil Survey Land Capabiltiy Classification is explained as follows, " Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (5). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are use for crops, and the way they respond to management." Also, "Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example IIe. The letter e shows that the main limitiation is risk of erosion unless close-growing plant cover is maintained;

w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry."

The Capability Classification for Soil Map Unit 109 is VIw (page 78), which as can be seen on page 93 of the Soil Survey exhibits "…severe limitations that make them generally unsuitable for cultivation." And the subclass is w, meaning, "…that water in or on the soil interferes with plant growth or cultivation…."

Productivity

On page 94 of the Soil Survey, Total production is defined as "… the amount of vegetation that can be expected to grow annually on well managed land that is supporting the natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. … It is expressed in pounds per acre of air-dry vegetation for favourable, normal, and unfavourable years. In favorable years, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavourable year, growing conditions are well below average, generally because of low available soil moisture."

On Table 4, Rangeland and Woodland Understory Productivity and Characteristic Plant Communities, Soil Unit 109 is listed as producing 3,500 pounds per acre, dry weight in a favorable year, with 3,000 pounds per acre in a normal year and 2,500 pounds per acre in an unfavourable year.

As explained on page 94 (see above) the productivity is stated to be "…on well managed land that is supporting the natural plant community." Some shrubby species are present in the area that likely have been introduced with irrigation water, or have blown in or have been introduced by other natural processes. Whether the area has been well managed is debatable. Casual observations made over the past 25 years indicates that marginal management has been done in the area, with marginal effort to rotate grazing allotments, and irregular flood irrigation having been done. As can be seen on Map 32 an irrigation ditch called the East Branch Ditch terminates in the 8.69 acre area, and as stated before in this discussion, the Mayor of Scofield, Mike Erkkila stated that this ditch has not been used for approximately 25 years, and in fact the diversion has not been maintained, thus making the ditch unusable. According to Mayor Erkkila, a farmer attempted to run irrigation water down this ditch last year (2009) and could not get water to the fields due to poor maintenance.

Therefore, productivity of the 8.69 acre area could be expected to be approximately what the SCS Soils Survey shows on Table 4 (as stated above) at best, and at worst, much less. Since the SCS considers the production estimates to be from "well managed" land, and since the land within the 8.69 acres is not well managed as exemplified by the fact that the irrigation ditch has not been used in the past 25 years, it is likely that productivity from this soil unit is much less than the SCS estimates.

Soil Map Unit 108

Unit 108 includes a total of 220.45 acres which are owned by several individuals as shown on Map 32 within the Quasi AVF/AVF boundary. Soil Map Unit 108 is described in the Soil Survey on

page 76 as "This very deep, somewhat poorly drained soil is in narrow alluvial valleys. ··· It formed in alluvium derived dominantly from sandstone and shale of the Price River and Black Hawk Formations. Slopes are 0 to 3 percent, w00 to 200 feet long, and concave to convex. The present vegetation in most areas is mainly Kentucky bluegrass, wiregrass, carex, and arrowgrass. ··· average freeze-free period is 60 to 80 days."

On page 131 of the Soil Survey it says, "The Silas series consists of very deep, somewhat poorly drained, moderately permeable soils on narrow alluvial valleys. These soils formed in alluvium derived from shale and sandstone."

Use and Management of the Soil

On page 93 of the Soil Survey Land Capabiltiy Classification is explained as follows, " Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (5). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are use for crops, and the way they respond to management." Also, "Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example IIe. The letter e shows that the main limitiation is risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry."

The Capability Classification for Soil Map Unit 108 is VIw (page 77), which as can be seen on page 93 of the Soil Survey exhibits "···severe limitations that make them generally unsuitable for cultivation." And the subclass is w, meaning, "···that water in or on the soil interferes with plant growth or cultivation···."

Productivity

On page 94 of the Soil Survey, Total production is defined as "··· the amount of vegetation that can be expected to grow annually on well managed land that is supporting the natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. ··· It is expressed in pounds per acre of air-dry vegetation for favourable, normal, and unfavourable years. In favorable years, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavourable year, growing conditions are well below average, generally because of low available soil moisture."

On Table 4, Rangeland and Woodland Understory Productivity and Characteristic Plant Communities, Soil Unit 109 is listed as producing 3,500 pounds per acre, dry weight in a favorable year, with 3,000 pounds per acre in a normal year and 2,500 pounds per acre in an unfavourable year.

As explained on page 94 (see above) the productivity is stated to be "···on well managed land that is supporting the natural plant community." Although no species identification has been conducted on the 8.69 acres, it is evident from casual observation that grasses make up the predominant vegetation community, either native, or planted many years ago. Some shrubby species are present in the area that likely have been introduced with irrigation water, or have

blown in or have been introduced by other natural processes. Whether the area has been well managed is debatable. Casual observations made over the past 25 years indicates that marginal management has been done in the area, with marginal effort to rotate grazing allotments in the area, and irregular flood irrigation having been done. As can be seen on Map 32 an irrigation ditch called the East Branch Ditch terminates in the 8.69 acre area, and as stated before in this discussion, the Mayor of Scofield, Mike Erkkila stated that this ditch has not been used for approximately 25 years, and in fact the diversion has not been maintained, thus making the ditch unusable. According to Mayor Erkkila, a farmer attempted to run irrigation water down this ditch last year and could not get water to the fields due to poor maintenance.

Therefore, productivity of the 161.8 acre area could be expected to be approximately what the SCS Soils Survey shows on Table 4 (as stated above) at best, and at worst, much less. Since the SCS considers the production estimates to be from "well managed" land, and since the land within the 8.69 acres is not well managed as exemplified by the fact that the irrigation ditch has not been used in the past 25 years, it is likely that productivity from this soil unit is much less than the SCS estimates.

Livestock Capability

According to Mr. Ron Patterson, Extension Agent Carbon County, Utah State University Cooperative Extension Service (personal communication 83/2010), the AVF area could be expected to accommodate 1 AMU (Animal Month Unit).

"The AUM is the amount of forage needed by an "animal unit" (AU) grazing for one month. The animal unit in turn is defined as one mature 1 000 pound cow and her suckling calf. It is assumed that such a cow nursing her calf will consume 26 pounds of dry matter (DM) per day as forage. That consumption, combined with a factor for tramping and waste of about 25%, results in an estimate of about 1000 pounds of dry matter (DM) from forage to supply one AU each month. This translates into 1108 lb of hay at 90% dry matter. Various other types of stock are assigned AUM equivalents based on size and consumption. For example, the fact sheet Grazing Tame Pastures Effectively (Agdex 130/53-1) suggests a mature bull is the equivalent of 1.3 AU, a yearling steer or heifer is 0.67 AU and a weaned calf is 0.5 AU. These are the equivalents suggested by the Society for Range Management."
http://www.thedairysite.com/articles/981/understanding-the-animal-unit-month-aum

Since the AVF is in a high mountain valley, with an average frost-free period of from 60 to 80 days per year, the livestock carrying capacity of the AVF is limited to the frost-free period plus an indeterminate period of time in the spring when the vegetation begins to sprout until some indeterminate time when snows cover the ground making grazing difficult or impossible. Grass-hay harvested and stored from the AVF would then be required for livestock feed, or feed from other sources provided. This time period when livestock could potentially be supported from the AVF is somewhere in the range of 6 to 7 months at best.

Animals other than cows would of course consume and/or demand varying amounts of resources, but since the area is in a high mountain valley with a relatively short growing season, carrying capacity of the AVF is restricted and marginal for high production of animals or fowls, and economically the area is limited in usefulness for large scale producers.

R645-302-321.100 AVF Vegetation Studies

Carbon ResourcesCoal Energy Group 3 has committed to have a botanist, Patrick Collins, PhD, (*Mt. Nebo Scientific*), conduct a qualitative assessment of the vegetation for the potential AVF

adjacent to the permit area that includes a description of the plant communities including dominate species and a map to appropriate scale showing the location of the communities in the referenced 8.69 acre area. The study will be conducted in the growing season of 2011. Once the field study is completed, a report of the findings will be written that includes a description of the AVF plant communities, dominant species and maps showing the plant communities present. The report will be submitted to the Division for insertion to the Kinney No. 2 Mining and Reclamation Plan.

A search is currently being conducted for appropriate IR aerial photography by ~~Carbon Resources~~Coal Energy Group 3. Depending on the availability, the following IR photographs will be used by Patrick Collins (*Mt. Nebo Scientific*) in conjunction with the aforementioned vegetation field study for the AVF analysis: (1) a series for photographs throughout the growing season covering the area, or (2) a late-spring/early summer and late-summer/early-fall combination, or (3) a growing season photograph (preferably late summer-early fall). If no existing appropriate color IR photographs are available, field studies that identify phreatophytes (plants that depend on ground water) will be used with standard color aerial photography for the AVF study. Once the aerial photography review and the field study are completed, a final report will be written and submitted to the Division for insertion the Kinney No. 2 Mining and Reclamation Plan.

R645-302-322.100 Affect on AVF

For the purposes of this discussion, the Quasi AVF and True AVF areas are considered the same and the acreages and other discussions below apply to both areas.

Limited areas downstream from the study area and west of the line labeled as Pastureland on Map 1A, Facilities Area Vegetation Map may be an AVF, however future mining activities will not change the status or condition of the geology, ground water, surface water, or soils in this possible area for the following reasons:

1. Mining will not interrupt or cause significant diminution of surface or ground water flows. Refer Chapter 7, Hydrology for a complete discussion of the Ground and Surface Water environment in the permit and general mine area, and specifically the discussion under R645-301-728, Probable Hydrologic Consequences Determination. To summarize, mining will be conducted above the regional ground water table, therefore no impacts to ground water that possibly feeds the AVF areas are possible. Surface runoff from the mining operation facilities are directed through the surface runoff control system and directed to Sediment Pond No. 1, which is an approved UPDES discharge point, with effluent limitations that protect downstream environmental values, and any possible AVF uses.
2. Irrigation water supplying the AVF area comes from Mud Creek at a diversion point well upstream of the proposed mine site. As can be seen on Map 32, AVF Evaluation Map, irrigation ditches supplying water to the AVF area are part of the Scofield Ditch system. The diversion point for this irrigation system is in the south half of Section 5, Township 13 South, Range 7 East on Mud Creek, some three quarters of a mile south of the most southerly point of the Kinney No. 2 Mine permit area the AVF area.
3. The only ditch supplying water to the AVF area that is near the proposed mine site has not been used for many years and appears not to be used due to maintenance neglect.
4. Surface runoff water from the proposed mine site will be diverted through sedimentation controls including the sedimentation pond, and alternative sediment controls including but not limited to silt fences, straw bales, and sediment traps.

5. Water quality discharges from the mine site are required to meet effluent standards that would prevent adverse impacts. Discharge from the sediment pond must meet NPDES requirements.
6. Runoff water from the mine site historically flows to the AVF area. The proposed mine operations will not stop this flow from reaching the area, other than a very small amount of water retained in the sedimentation pond.
7. Drill hole data, data from geotechnical drilling, and data from soils pits dug during soils investigations did not indicate any ground water in the shallow alluvium in the mine site area, with exception of Monitoring Wells CR-10-11 and CR-10-12, which are at the western edge of the permit area. These two monitoring wells are below surface impacts that could be contaminated by mining operations. Since the mine site is upgradient from the AVF area, it would be expected that the ground water would flow towards the AVF, and since little ground water was encountered, there is little risk of contamination from mining operations.

Water supply for use in the AVF area includes irrigation water from Mud Creek through irrigation ditches well upstream from the proposed mining operations. One irrigation ditch flows through the southwestern corner of the proposed mine permit area, and will be culverted through the operations area, thus preventing possible diminution of the irrigation water quality. It should be noted however that this irrigation ditch has not been used for many years as evidenced by the condition of the ditch and culvert crossing Highway 96 at the location of the proposed mine entrance road at Highway 96, and as discussed previously. The irrigation ditch is very overgrown with vegetation and has partially silted in from non-use over an extended period of time. The irrigation ditch culvert crossing Highway 96 is almost complete silted closed, thus evidencing non-use for an extended period of time. Surface runoff controls have been designed to collect all surface runoff from mining operations. The sedimentation pond will prevent siltation of the downstream environment. An oil/grease skimmer has been included in the pond outlet design to prevent any floating oil or grease from exiting the pond. The pond discharge will meet UPDES discharge requirements and thus adverse downstream impacts will be prevented. Relatively small areas at the topsoil stockpile and very small areas at the entrance road to the site from Highway 96 will be controlled by alternative sediment controls including, but not limited to silt fences, berms, straw bales, an/or sediment traps. These areas are very small and will not include mining operations that would create any significant discharge volumes containing harmful substances.

Risk to AVF Area

The information above demonstrates that there is negligible risk of material damage to quantity or quality of water flowing to the AVF area from the proposed mining operations at the Kinney No. 2 Mine. Historic mining by several mines in the area, and reclamation work completed by the Utah AML program have not adversely impacted the AVF area. New mining operations by ~~CR~~ CEG3 would provide runoff controls and other controls of air quality, and control of chemical contamination that were not considered or attempted by historic mining and reclamation by AML. In addition, reclamation completed at the end of the Kinney No. 2 Mine life would be conducted in a more comprehensive manner, with more controls, and with full vegetative cover and diversity requirements. Therefore, the Kinney No. 2 Mine will have negligible impact on the AVF area.

Monitoring of water discharges, and monitoring of air quality during mining operations will document any adverse impacts, and regulatory requirements will dictate that any negative impacts must be corrected.

~~CR~~ CEG3 therefore believes that there will be no negative impact to the AVF and request UDOGM make a finding of no significant impact.

VALLEY

PASTURELAND

U.P. RAILROAD TRACKS

SAGEBRUSH/GRASS

SAMPLE AREA: PREVIOUSLY DISTURBED
RABBITBRUSH/GRASS

SAMPLE AREA: PROPOSED DISTURBED
AREA
SAGEBRUSH/GRASS

PERMIT BOUNDARY

EXISTING ELECTRIC
UTILITY LINE

Old UP # 2 Portal

Old UP # 1 Portals

Old Columbine # 2 Portal (Lower Seam)
(AKA Jones Mine)

Old Kinney Portals
(AKA Columbine # 1)

Old Kinney Portal

Old Blue Seam Portal

Old Blue Line (lower seam)
(Name?)

T12S, R7E SLB&M
T13S, R7E SLB&M

32
33
5
4

7800
8000
8400
8200

ASPEN

SAMPLE AREA: SAGEBRUSH/GRASS
REFERENCE AREA

96

LEGEND

- PRE - MINING ROADS
- PRE-SMCRA DISTURBED AREA
- KINNEY MINE NO. 2 MINE DISTURBANCE
- VEGETATION COMMUNITY BOUNDARY LINE
- AVF AREA

N

0 100 200 300 ft

SCALE
Contour Interval 200 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

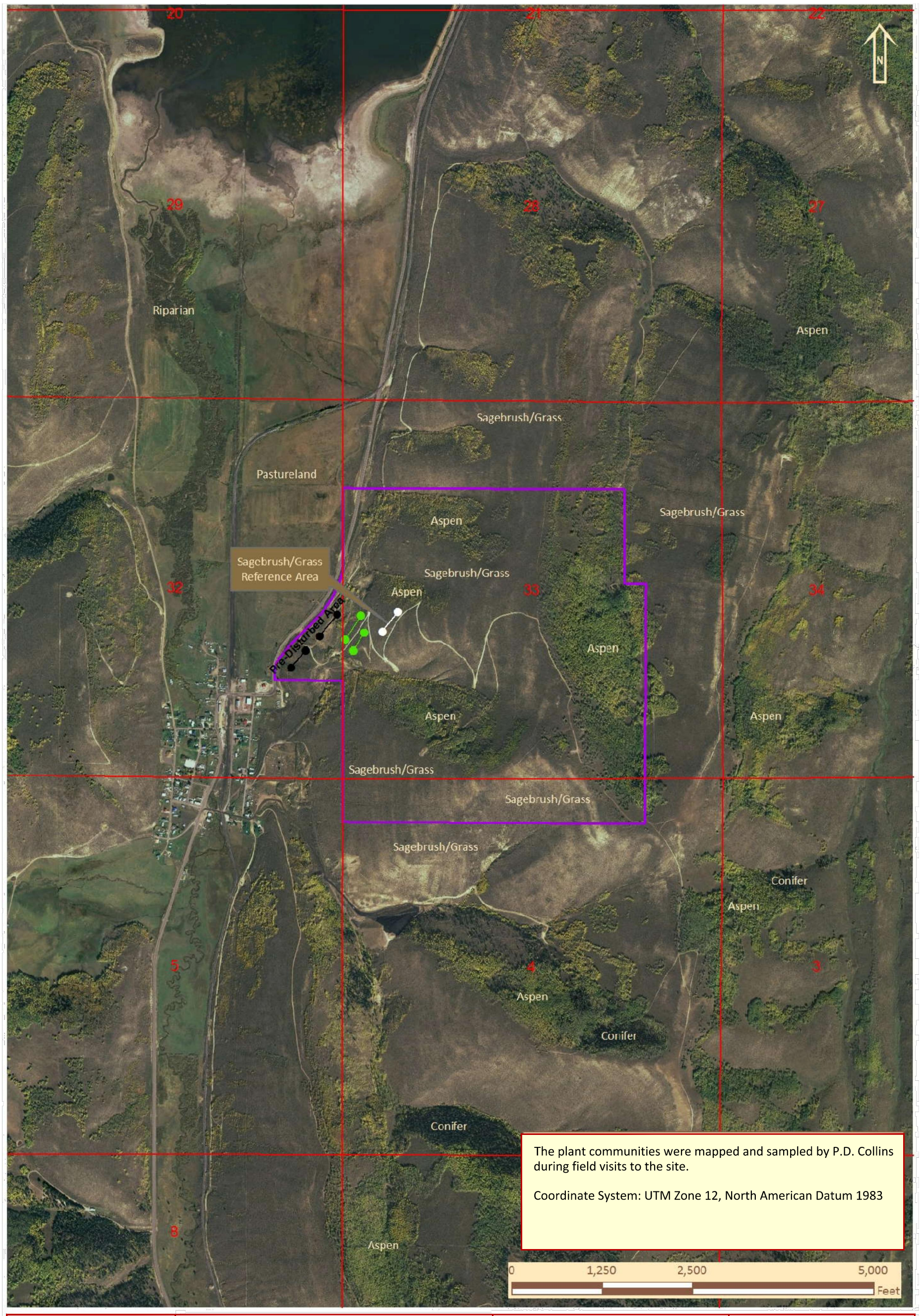
Coal Energy Group 3

KINNEY NO. 2 MINE

MAP 1A
FACILITIES AREA
VEGETATION MAP

DRAWN BY: P.C., B.G. DATE: 11/07
APPROVED BY: P.C. DATE:

MT NEBO SCIENTIFIC, INC.
330 E. 400 S. Suite 6
Springville, Utah 84663
Phone (801) 489-6937



The plant communities were mapped and sampled by P.D. Collins during field visits to the site.

Coordinate System: UTM Zone 12, North American Datum 1983

Map 1B
Vegetation
(Aerial View)

Scale: 1:15,000

Date: 11/08/2018

Legend
Sample Transect Lines (approx)

- Pre-Disturbed Area
- Proposed Disturbed Area
- Sagebrush/Grass Reference Area
- ProjectArea

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research & consulting

330 E. 400 S. Suite 6
P.O. Box 337
Springville, Utah
Phone (801 489-6937
Maped by: P.D. Collins and J. Magrath

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Kinney No. 2 Mine

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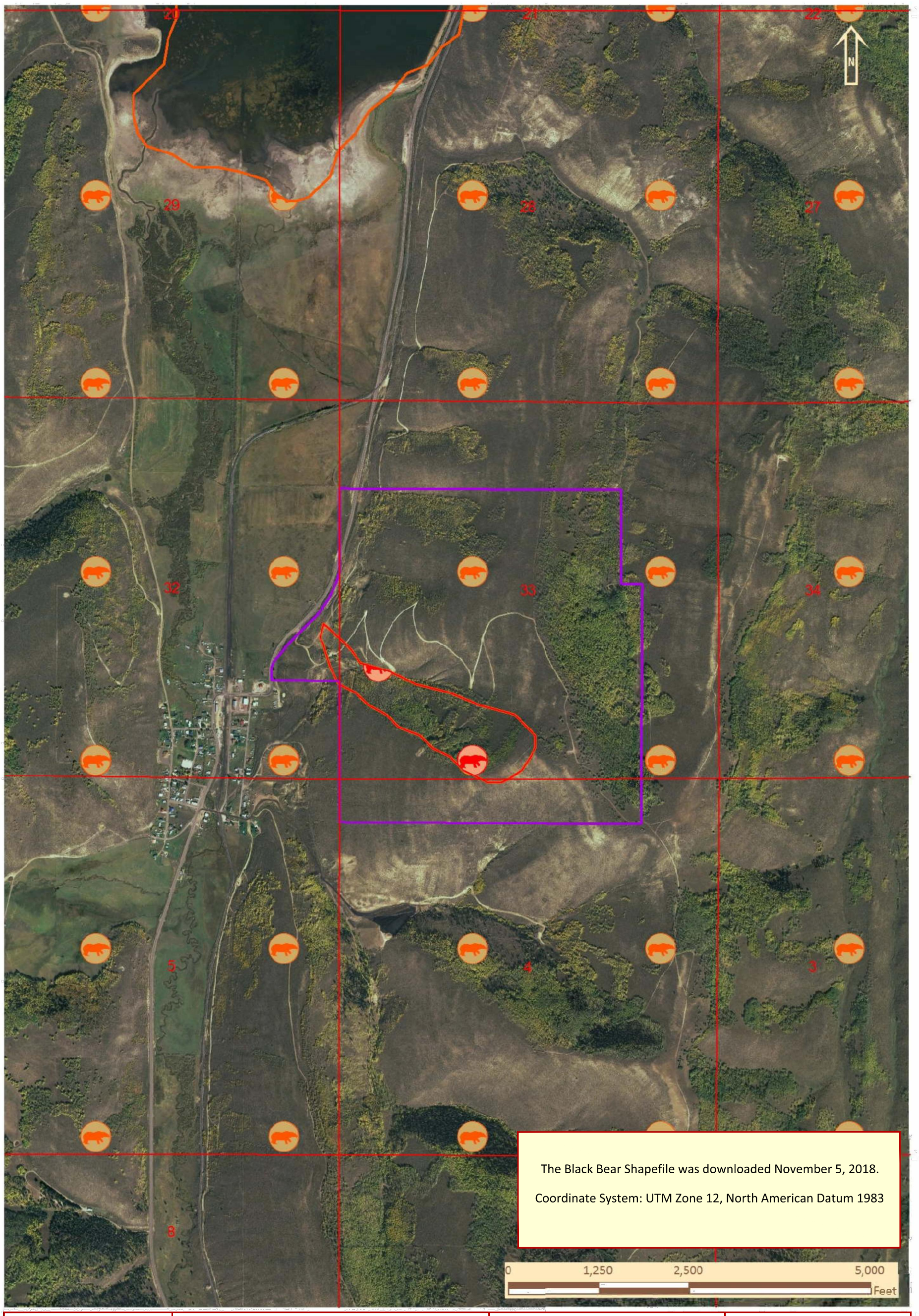
Sec. 4 T13S R7E, SLB&M.
Carbon County, Utah



Map 2A
Black Bear
Habitat

Scale: 1:15,000

Date: 11/08/2018

Legend
Black Bear (UDWR, 2018)

- Crucial, Year-Long
- Substantial, Year-Long
- ProjectArea

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research & consulting

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P.O. Box 337
Springville, Utah
Phone (801 489-6937
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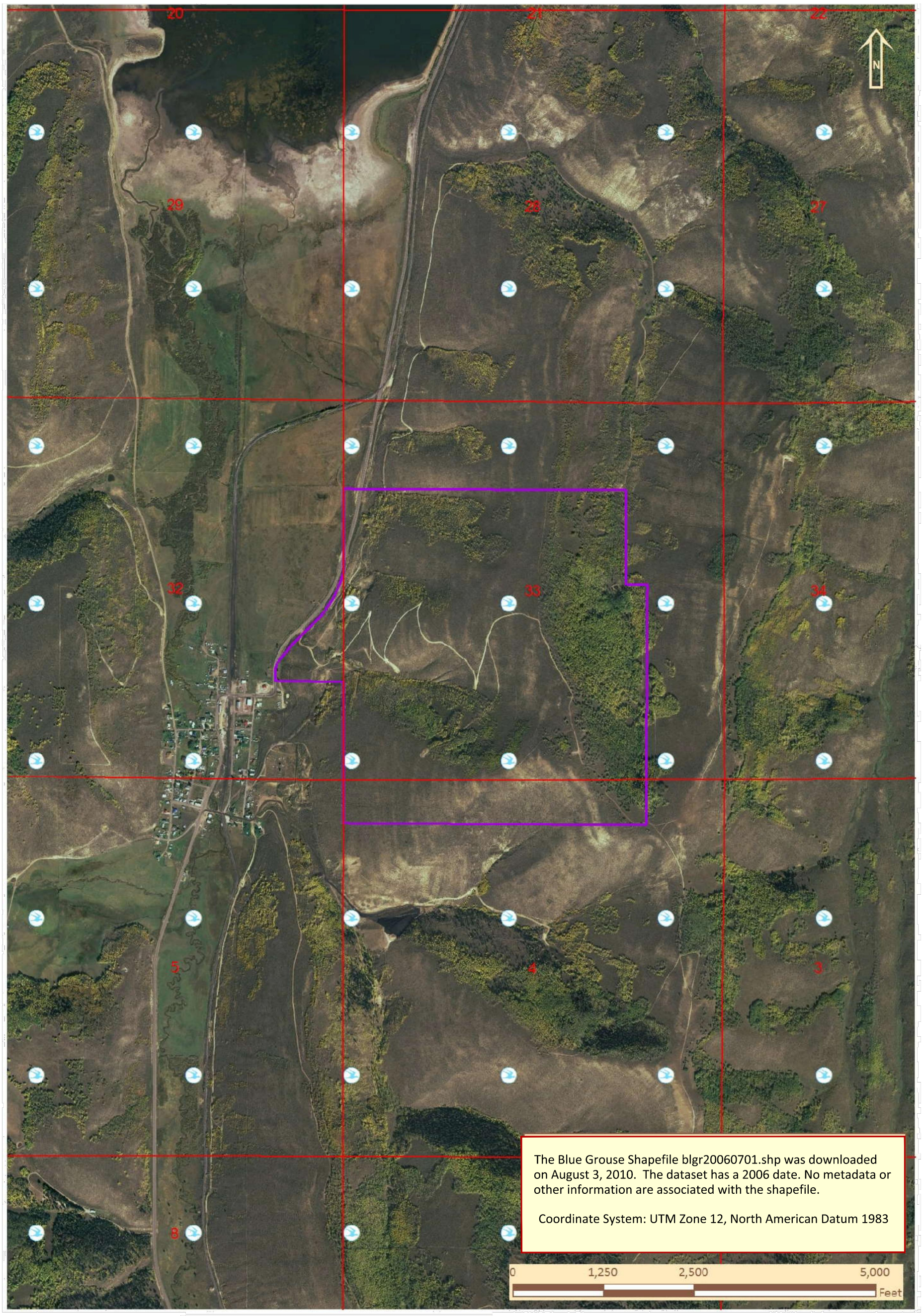

Map 2B
Blue Grouse Habitat

Scale: 1:15,000

Date: 11/08/2018

Legend
Blue Grouse (UDWR, 2018)

Year-Long, Crucial

ProjectArea

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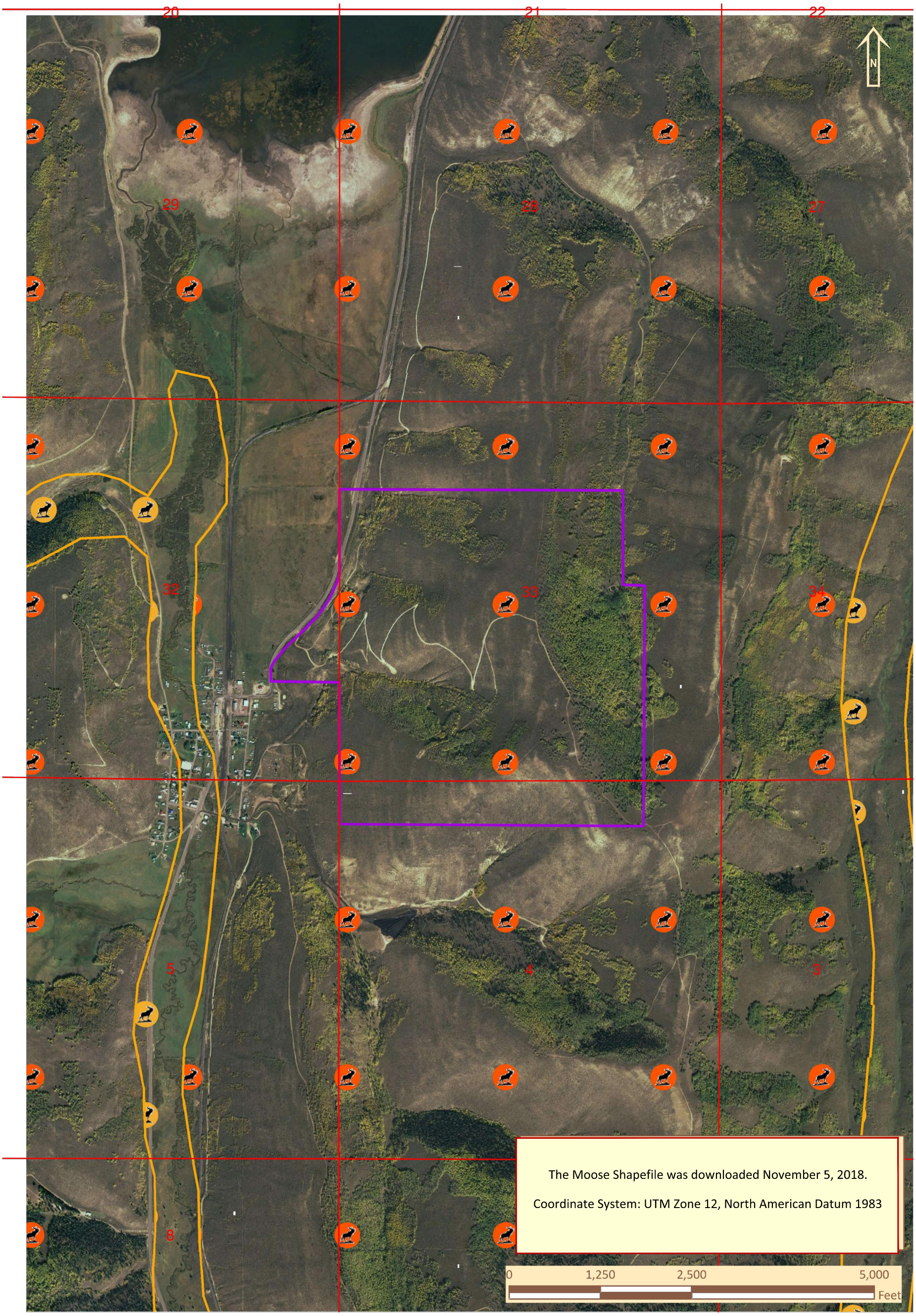
Coal Energy Group 3
CEG
Kinney Mine



Map 2C
Moose Habitat

Scale: 1:15,000

Date: 11/08/2018

Legend
Moose (UDWR, 2018)

- Winter, Crucial
- Year-Long, Crucial
- ProjectArea

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Phone (801 489-6937
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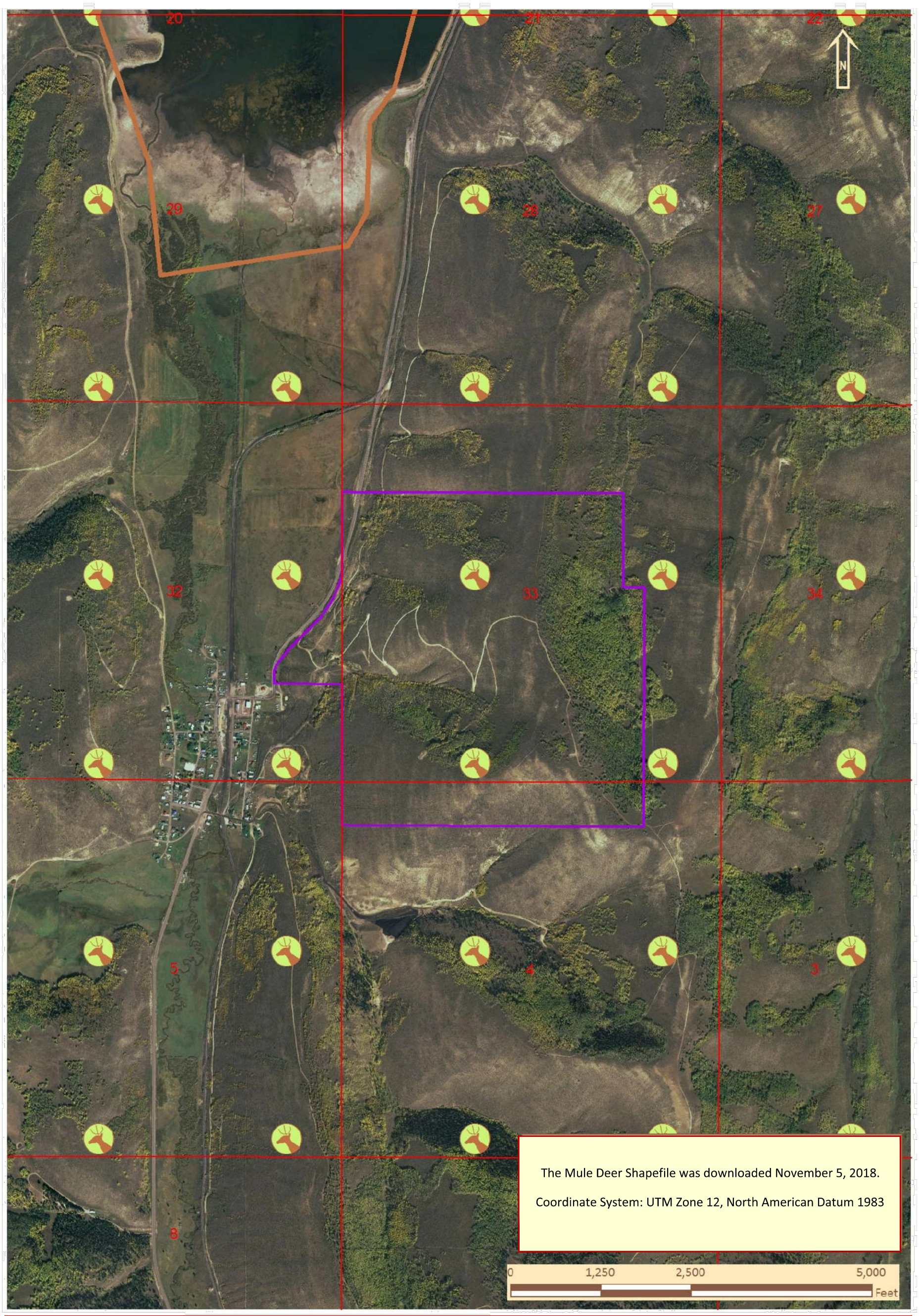

Map 2D
Mule Deer
Habitat

Scale: 1:15,000

Date: 11/09/2018

Legend
Mule Deer (UDWR, 2018)

Crucial, Summer

ProjectArea

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P.O. Box 337
Springville, Utah
Phone (801 489-6937
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Kinney No. 2 Mine

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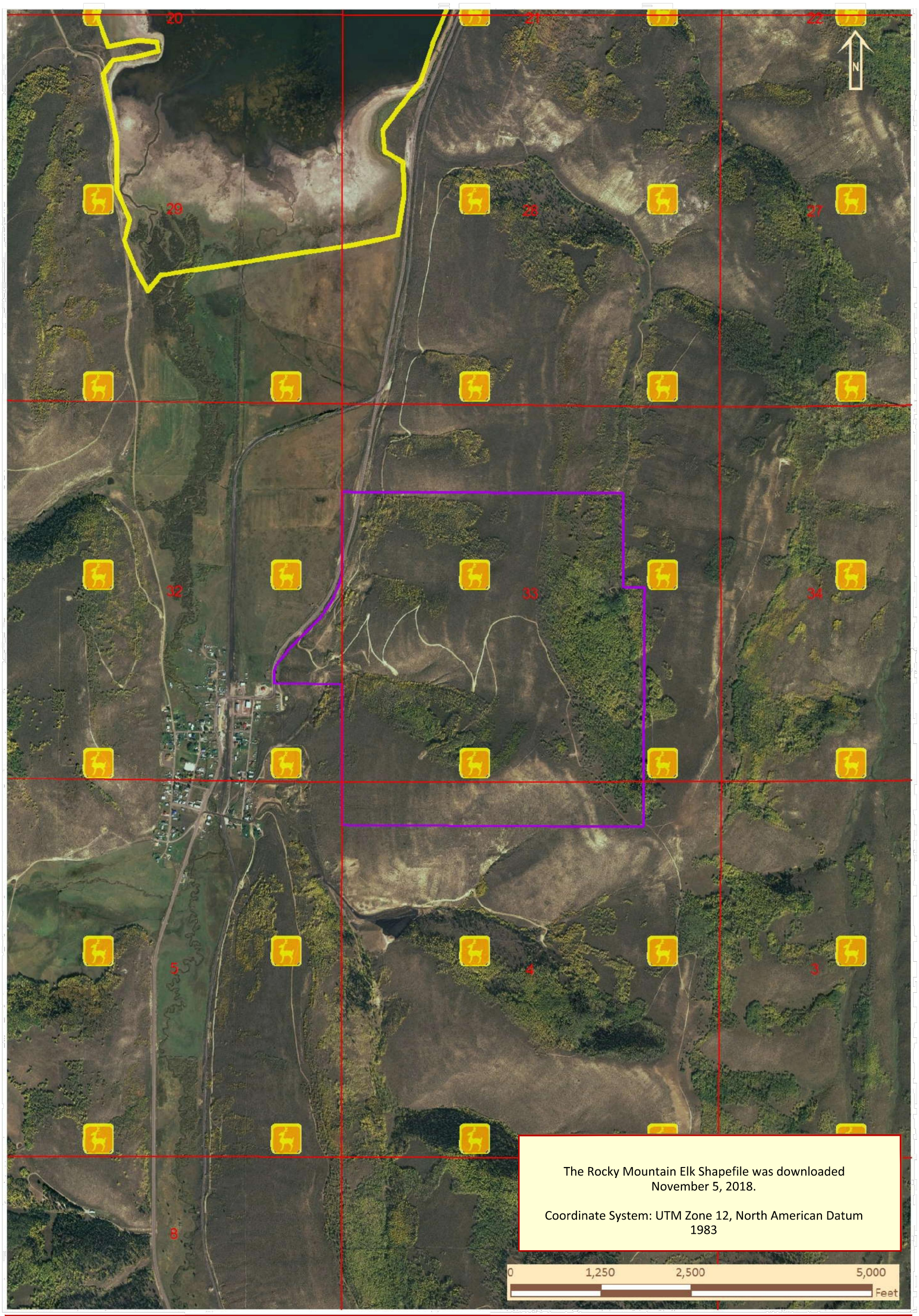
Sec. 4 T13S R7E, SLB&M.
Carbon County, Utah



Map 2E
Rocky Mountain Elk Habitat

Scale: 1:15,000

Date: 11/08/2018

Legend
Rocky Mt. Elk (UDWR, 2018)

Crucial, Summer

ProjectArea

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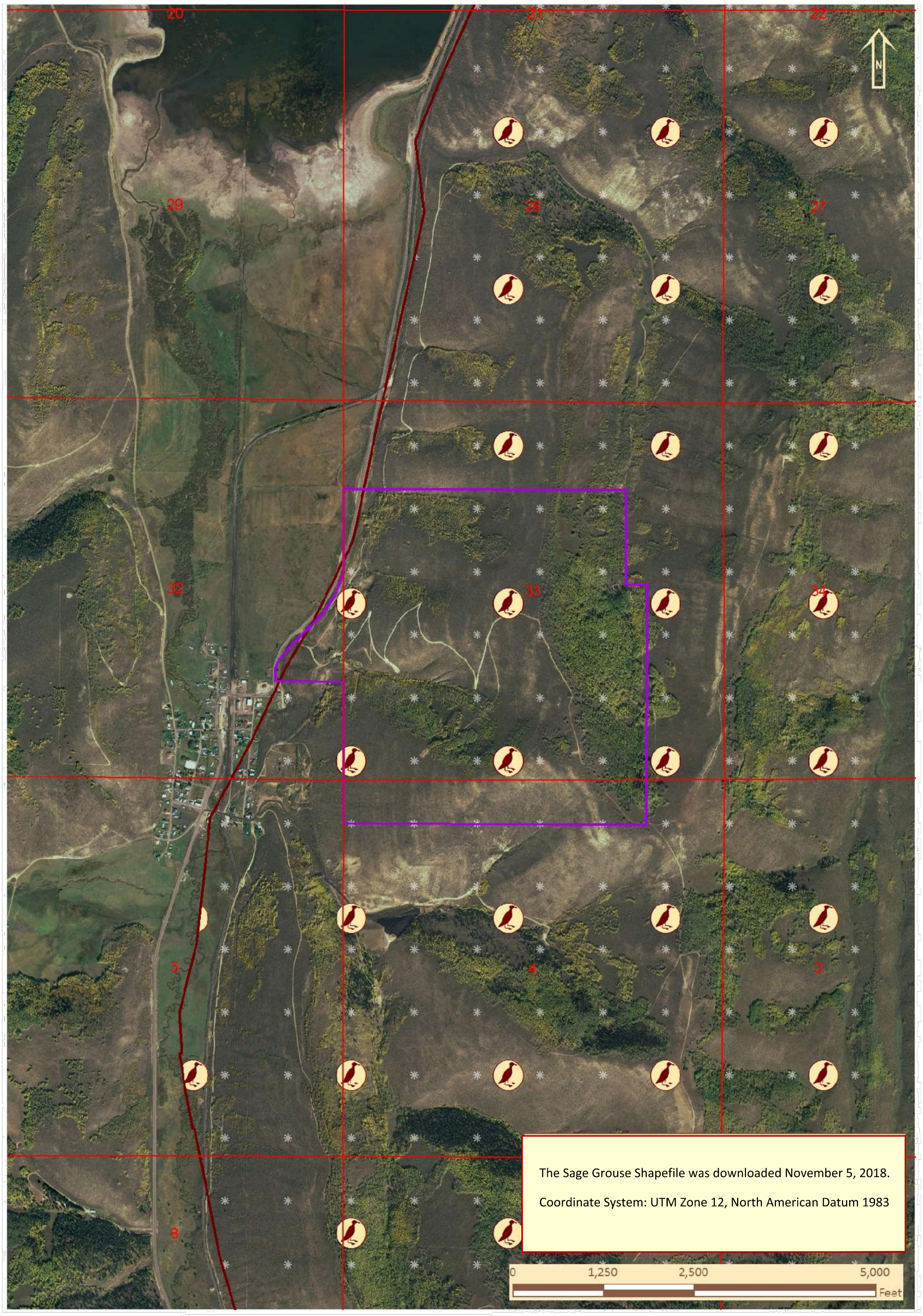
Carbon County, Utah



Map 2F
Sage Grouse Habitat

Scale: 1:15,000

Date: 11/09/2018

Legend
Sage Grouse (UDWR, 2018)

- Occupied, Brood-rearing, Crucial
- Winter, Crucial
- ProjectArea

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Kinney No. 2 Mine

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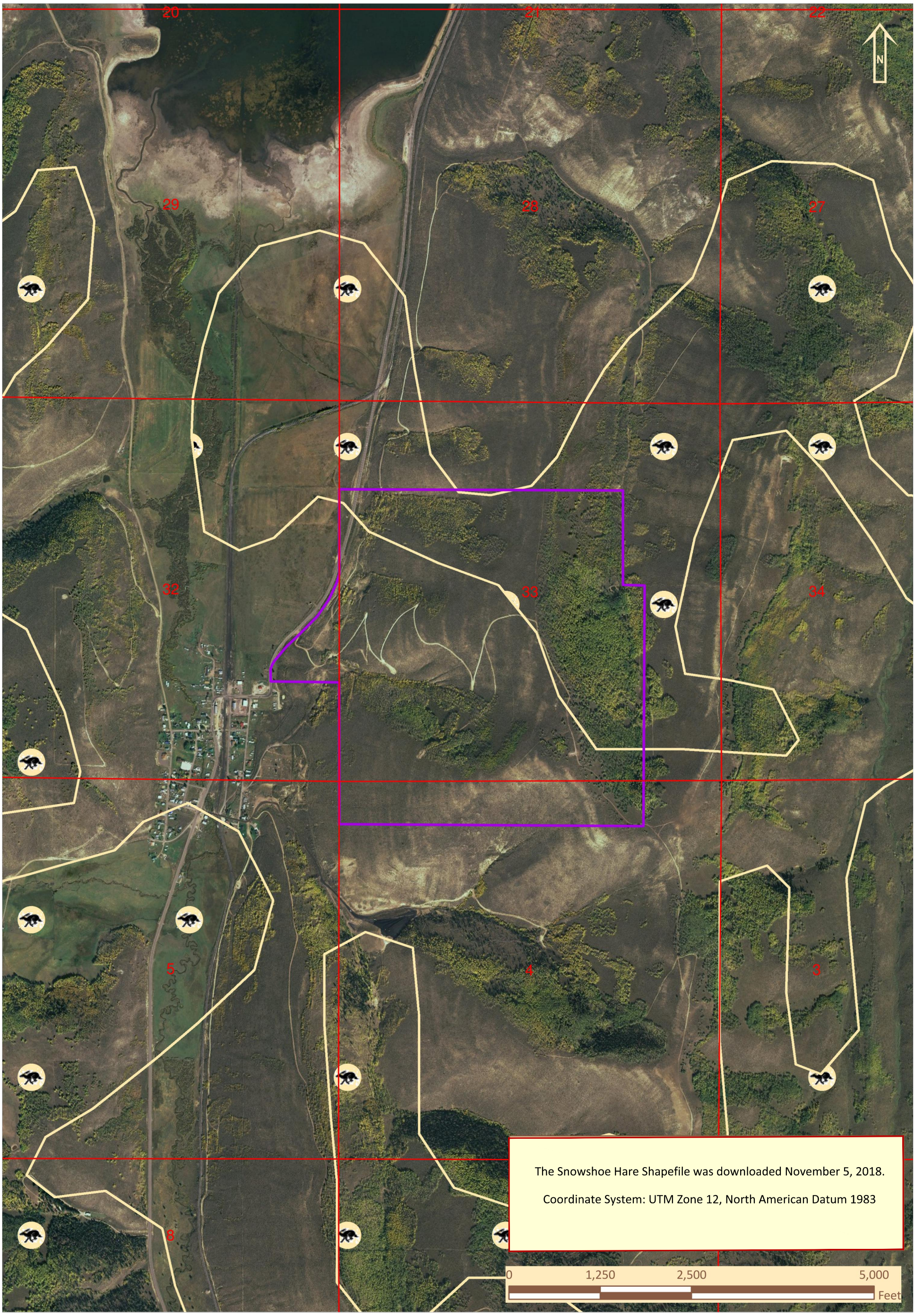
Carbon County, Utah

Coal Energy Group 3
CEG
Kinney Mine



Map 2G
Snowshoe Hare Habitat

Scale: 1:15,000

Date: 11/08/2018

Legend
Snowshoe Hare (UDWR, 2018)

Year-Long, Crucial

ProjectArea

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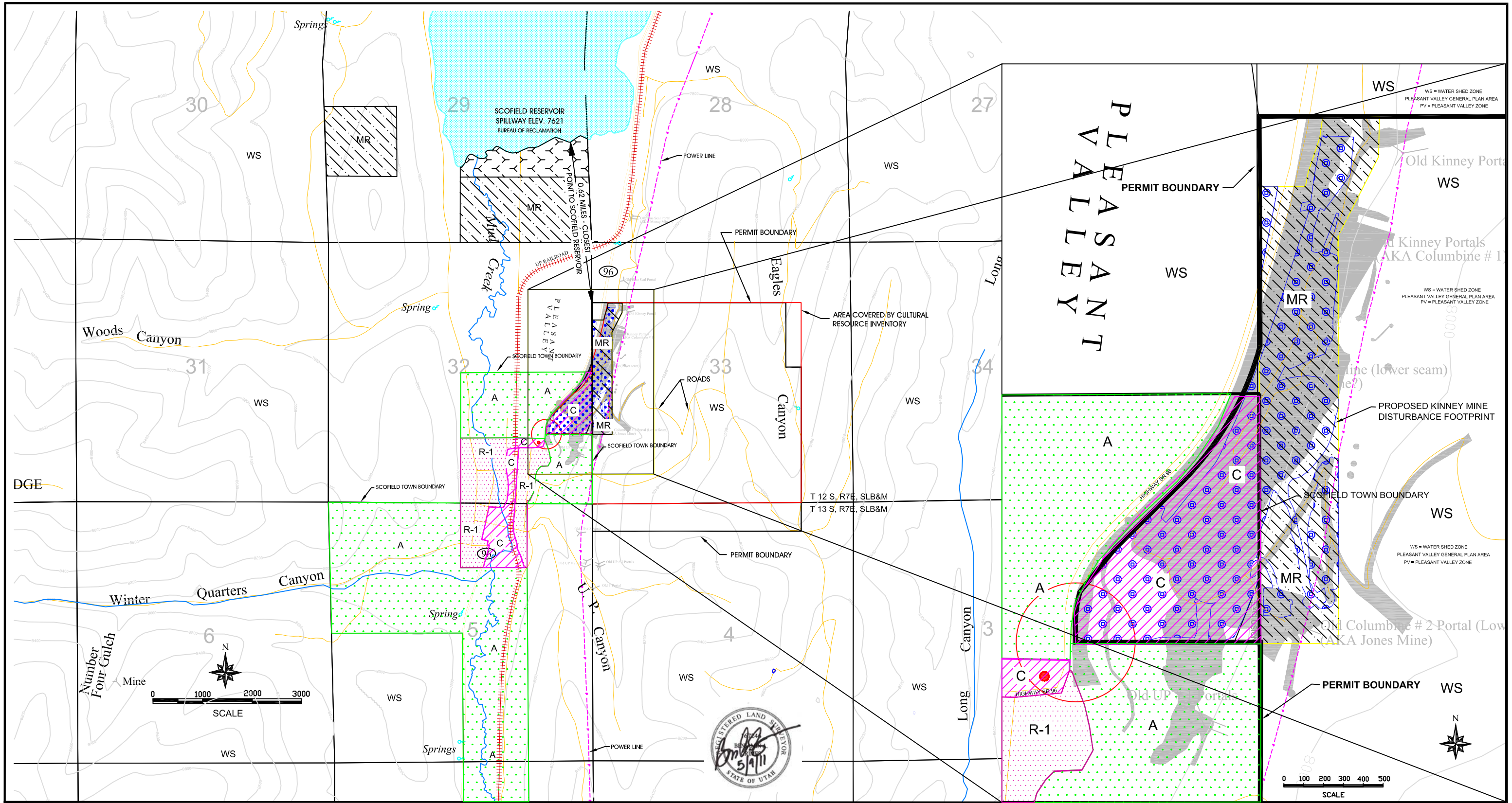
Carbon County, Utah

Coal Energy Group 3
CEG
Kinney Mine



NOTES

1. PERMIT BOUNDARY AREA COVERED BY CULTURAL RESOURCE INVENTORY
2. CONTOUR INTERVAL 200 FT.
3. REFER TO PERMIT TEXT FOR ZONE DEFINITIONS.
4. THE ENTIRE MAP AREA IS INCLUDED IN THE CARBON COUNTY PLEASANT VALLEY GENERAL PLAN AREA. THE ENTIRE MAP IS INCLUDED IN THE CARBON COUNTY WATER SHED ZONE UNLESS SHOWN BY A HATCH PATTERN AS SHOWN IN THE LEGEND. SEE PERMIT TEXT, CHAPTER 4, R645-301-411.130.

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

LEGISLATED ZONES

- WS — CARBON COUNTY (SEE NOTE 4) PLEASANT VALLEY GENERAL PLAN AREA WS = WATER SHED ZONE ALL OF MAP EXCEPT AS SHOWN IN THE LEGISLATED ZONES, LAND DESIGNATIONS AND LEGEND
- MR — CARBON COUNTY MR = MOUNTAIN RANGE ZONE ALLOWS COAL MINING OPERATIONS PRE-MININ LAND USES: WILDLIFE, GRAZING, RECREATION POST-MININ LAND USES: WILDLIFE, GRAZING, RECREATION
- C — SCOFIELD TOWN C = COMMERCIAL ZONE ALLOWS COAL MINING OPERATIONS PRE-MINING LAND USES: WILDLIFE, GRAZING, RECREATION POST-MINING LAND USES: WILDLIFE, GRAZING, RECREATION

LAND DESIGNATIONS

- 300 FOOT RADIUS FROM PERMIT BOUNDARY WITH OCCUPIED DWELLING
- BLM PROPERTY
- KINNEY MINE PROPOSED DISTURBANCE FOOTPRINT
- PRE-SMCRA MINING DISTURBANCE
- BOR = BUREAU OF RECLAMATION PROPERTY & SCOFIELD RESERVOIR

LEGEND

- A — A - SCOFIELD AGRICULTURAL ZONE
- R-1 — R-1 - SCOFIELD RESIDENTIAL ZONE
- WS — WS - WATER SHED ZONE ALL OF MAP EXCEPT AS SHOWN BELOW
- ROADS
- PERMIT BOUNDARY

REGISTERED LAND SURVEYOR — BRENT GARY RICHINS — 5/9/11 — STATE OF UTAH

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2	REVISED LEGEND AS PER J. HELFRICH	4/11	B.G.	G.H.
1	REVISED LAYOUT & ALND USE INFO.	1/11	B.G.	G.H.

Carbon Resources LLC

KINNEY NO. 2 MINE

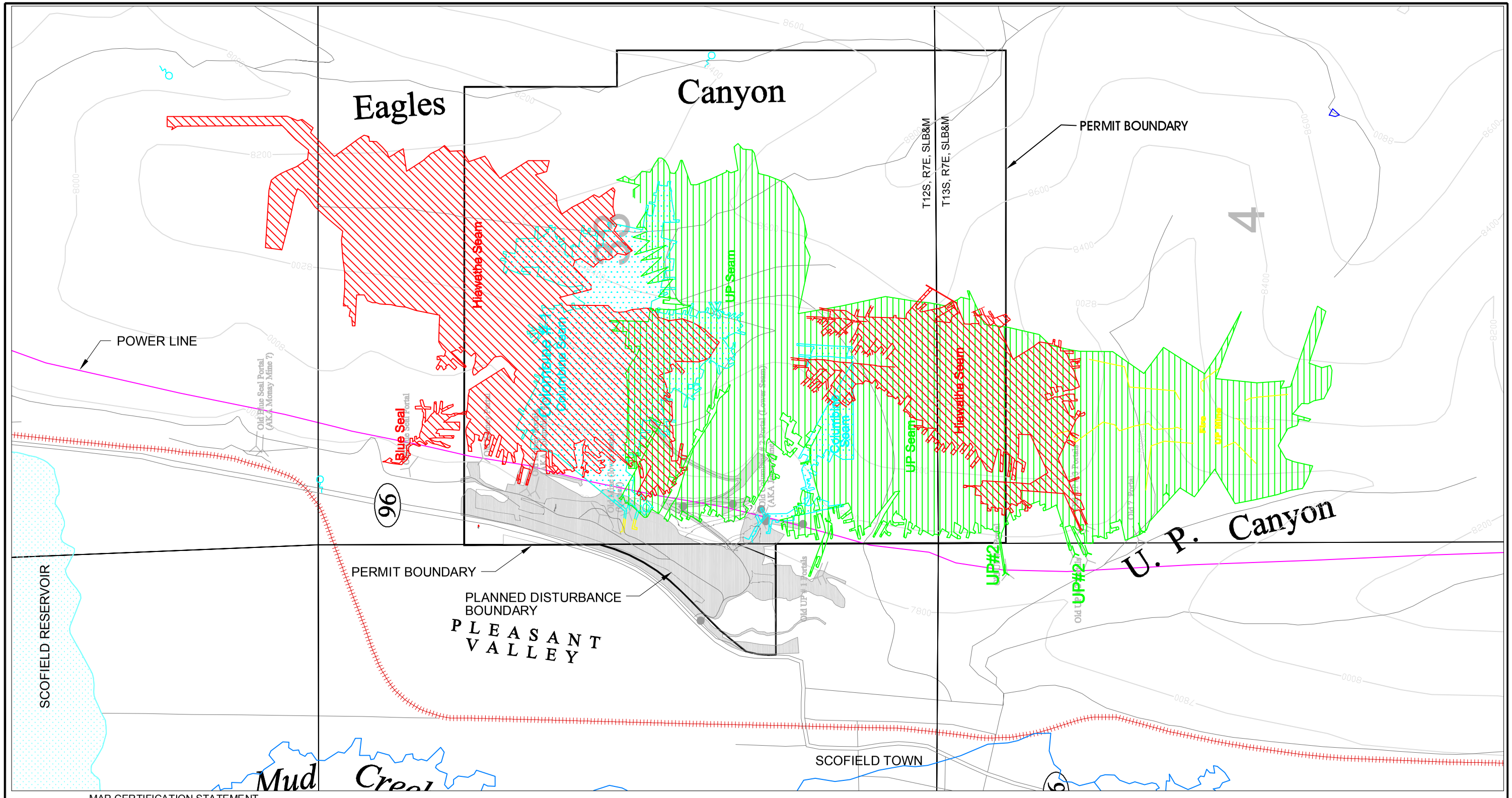
MAP 4
REGIONAL LAND USE
& ZONING MAP

DRAWN BY: B.G. DATE: 9/10
APPROVED BY: G.H. DATE: 9/10

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:



MAP CERTIFICATION STATEMENT

I, BENJAMIN A. GRIMES, BEING A REGISTERED PROFESSIONAL SURVEYOR ACCORDING TO THE LAWS OF THE STATE OF UTAH, DO STATE THAT THIS MAP HAS BEEN PREPARED UNDER MY DIRECTION, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND INFORMATION. THE LOCATION OF THE OLD MINE WORKINGS ON THIS MAP REPRESENT MINING AS OF THE DATE OF THIS SIGNING ACCORDING TO THE INFORMATION GIVEN TO ME, AND ACCORDING TO THE OLD MINE MAPS OBTAINED FROM THE STATE OF UTAH. I MAKE NO CERTIFICATION AS TO THE ACCURACY OF THE OLD MINE WORKINGS, OR TO THEIR ACCURACY OF LOCATION, EXTENT, OR CONFIGURATION. THE OLD MINE WORKNGS HAVE BEEN POSITIONED BASED ON THE INFORMATION CONTAINED ON EACH MINE MAP BASED ON THE POSITIONS OF THE MINES IN RELATIONSHIP TO THE SECTION LINES SHOWN ON THE MAPS. NO BASIS OF BERINGS WERE PRESENTED ON THE MAPS, NOR WERE THERE COORDINATES THAT GUIDED THEIR ACCURATE PLACEMENT. THE OLD MINE WORKINGS ARE POSITIONED FOR REFERENCE ONLY AND DO NOT NECESSARILY REPRESENT ACTUAL LOCATIONS HORIZONTALLY OR VERTICALLY.

REGISTERED LAND SURVEYOR 167246 BENJAMIN A. GRIMES STATE OF UTAH

BENJAMIN A. GRIMES P.L.S. NO. 167246

LEGEND

- HIAWATHA SEAM
- COLUMBINE SEAM
- UP SEAM
- GROUND SURFACE CONTOUR
- PERENNIAL STREAM
- ROADS
- PRE-SMCRA DISTURBANCE AREA

N

0 500 1000 1500 2000 ft

SCALE

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1				

Carbon Resources LLC

KINNEY NO. 2 MINE

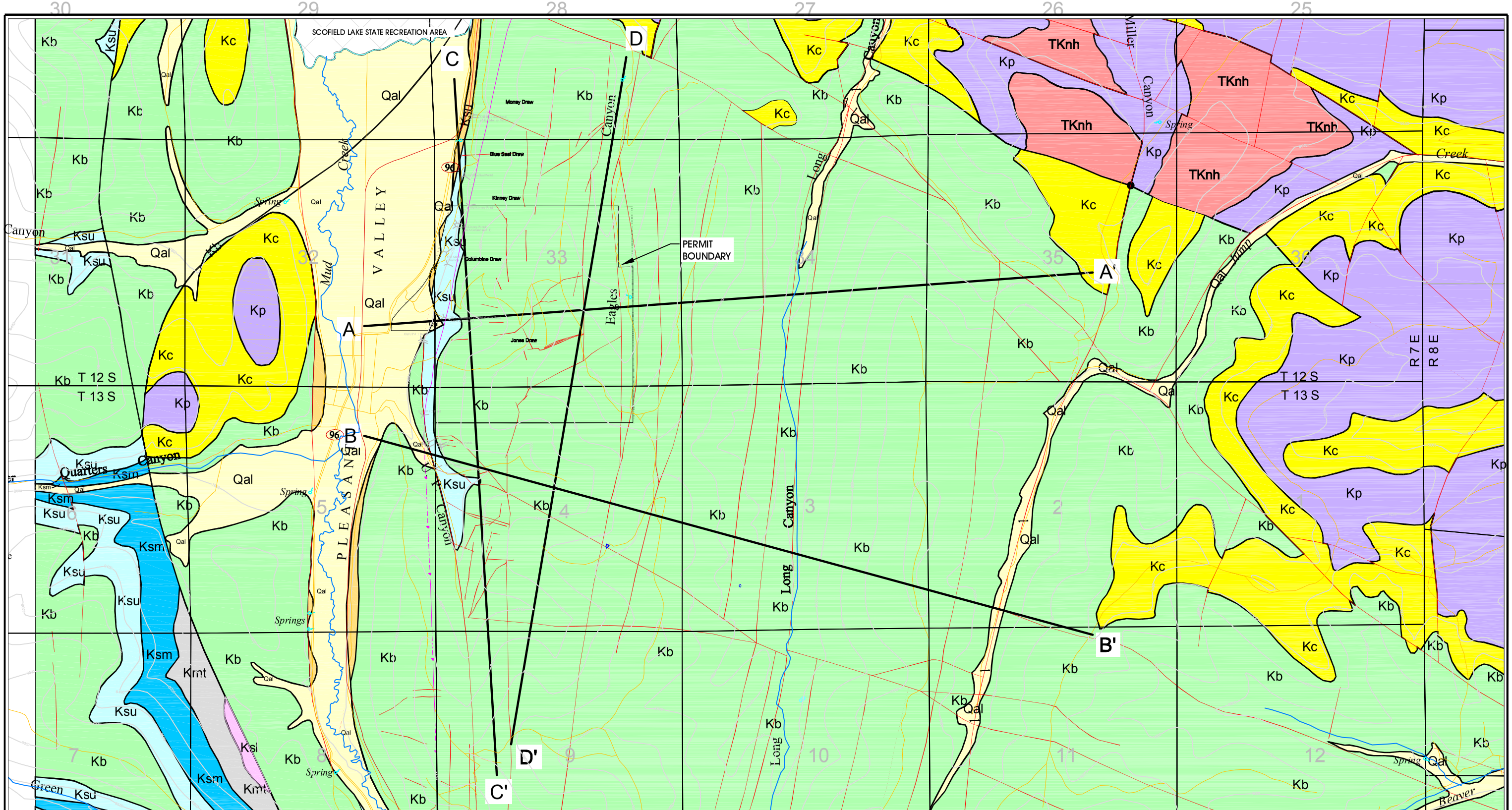
MAP 5 PREVIOUS MINING ACTIVITY

DRAWN BY: G.H., B.G. DATE: 8/07

APPROVED BY: G.H. DATE:

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sadia Park, NM 87047

DWG. NAME:



N

0 1000 2000 3000 ft

SCALE

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

LEGEND

- TKns = NORTH HORN FORMATION
- Kp = PRICE RIVER FORMATION
- Kc = CASTLE GATE SANDSTONE
- Ksu = STAR POINT SANDSTONE UPPER
- Ksm = STAR POINT SANDSTONE MIDDLE
- Kb = BLACKHAWK FORMATION
- Qal = ALLUVIUM
- FAULTS
- CROSS SECTION LOCATIONS SEE FIGURES 6,7,8 & 9

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1				

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 6

REGIONAL SURFACE GEOLOGY MAP

DRAWN BY: G.H., B.G. DATE: 8/07

APPROVED BY: G.H. DATE:

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:

ELEVATION 7618

Miller Outlet
(AKA Eagle Outlet or Eagle Outlook)

Eagle Spring
(AKA Miller Spring)

SCOFIELD RESERVOIR

RES-1
(AKA Scofield Reservoir)

7618 NAVD29 = 7621 NAVD88
Spillway = 7621 NAVD88, 7638.9 Max WS Elev USBR

Angle Spring
(Baseline Monitoring Only)

Sulfur Springs
(AKA Sulfer Springs & Sulfur Springs)

CR-06-09-BLW
AVG SWL 7,852

CR-06-03-ABV
AVG SWL 7,798
(Baseline Monitoring Only)

CR-10-11
AVG SWL 7,646

CR-10-12
AVG SWL 7,640

CR-06-1
CR-06-1-BLW
DRY WELLS
SWL Below 7,690

CR-06-02 ABV
CR-06-02
DRY WELLS

CR-06-05A
DRY WELL
SWL Below 7,740

Aspen Spring
(AKA Eagle Pond 1)
Eagle Spring 1
(AKA Eagle Seep 1)

EAGLE POND 2
EAGLE SPRING 2
EAGLE SPRING 1A
(AKA Eagle Seep 1A)
EAGLE SEEP 3

MUD CREEK
(AKA Muddy Creek)

SCOFIELD TOWN

BEAVER POND 1
LC SEEP 1
LC SEEP 2
BEAVER POND 2
BEAVER POND 3
LC SPRING 1
LC SPRING 2
LC SPRING 3
LC SPRING 4
LC SPRING 5
LC SPRING 5A
LC SPRING 6
LC SPRING 7
LC SEEP 3
LC 7 POND
BEAVER POND 9
BEAVER POND 8
LC SPRING 8
BEAVER POND 7
BEAVER PONDS 4 & 5

MERRILL SPRING 6
MERRILL SPRING 5A
MERRILL SPRING 5
MERRILL SPRING 4
MERRILL SPRING 2
GUZMAN SPRING
LUIS SPRING
MERRILL SPRING 1

JC POND 1
JC SPRING 2
JC SPRING 1
JC SPRING 4
JC SEEP
JC POND 2
JC SPRING 5
JC SPRING 3

POND

A — A'
C — C' (South 5,443 ft.)

T12S, R7E, SLB&M
T13S, R7E, SLB&M
R7E, SLB&M
R8E, SLB&M

Tucker Canyon
Spring
Spring
Spring
Spring
Spring
Spring
Woods Canyon
Mud Creek
Winter Quarters Canyon
Monay Draw
Kinney Draw
Columbine Draw
Bones Draw
Eagles Canyon
Long Canyon
Miller Canyon
Jump Creek
Cr

NOTE: Seeps,Springs,Streams, and Monitor Wells shown on this map are listed on Table 6 Chapter 7. X-Section Profiles are shown on Maps 7A and 7B. Data supporting Piezimometric Surface, Baseline can be found in Exhibit 10.

REVISED: 20 FEB 2011

N

0 1000 2000 3000 ft.
SCALE

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

LEGEND

- WATER MONITORING STATION GROUND WATER OR SURFACE WATER
- GROUND WATER SOURCE
- GROUND WATER WELL
- SURFACE WATER SOURCE (POND OR STREAM)
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- 7950 REGIONAL PIEZOMETRIC SURFACE ELEVATION
- 8000 GROUND SURFACE ELEVATION
- SPRING
- A —— A' X-SECTION LOCATION
- OLD MINE PORTAL
- Hiawatha Outcrop
- ROADS
- RAILROAD
- ELECTRICAL LINES
- SCOFIELD TOWN BOUNDARY
- PERMIT BOUNDARY
- CR-06-03, CR-06-09, CR-10-11, CR-10-12 } MONITOR WELLS PROVIDING DATA TO PIEZOMETRIC SURFACE

Carbon Resources LLC

KINNEY NO. 2 MINE

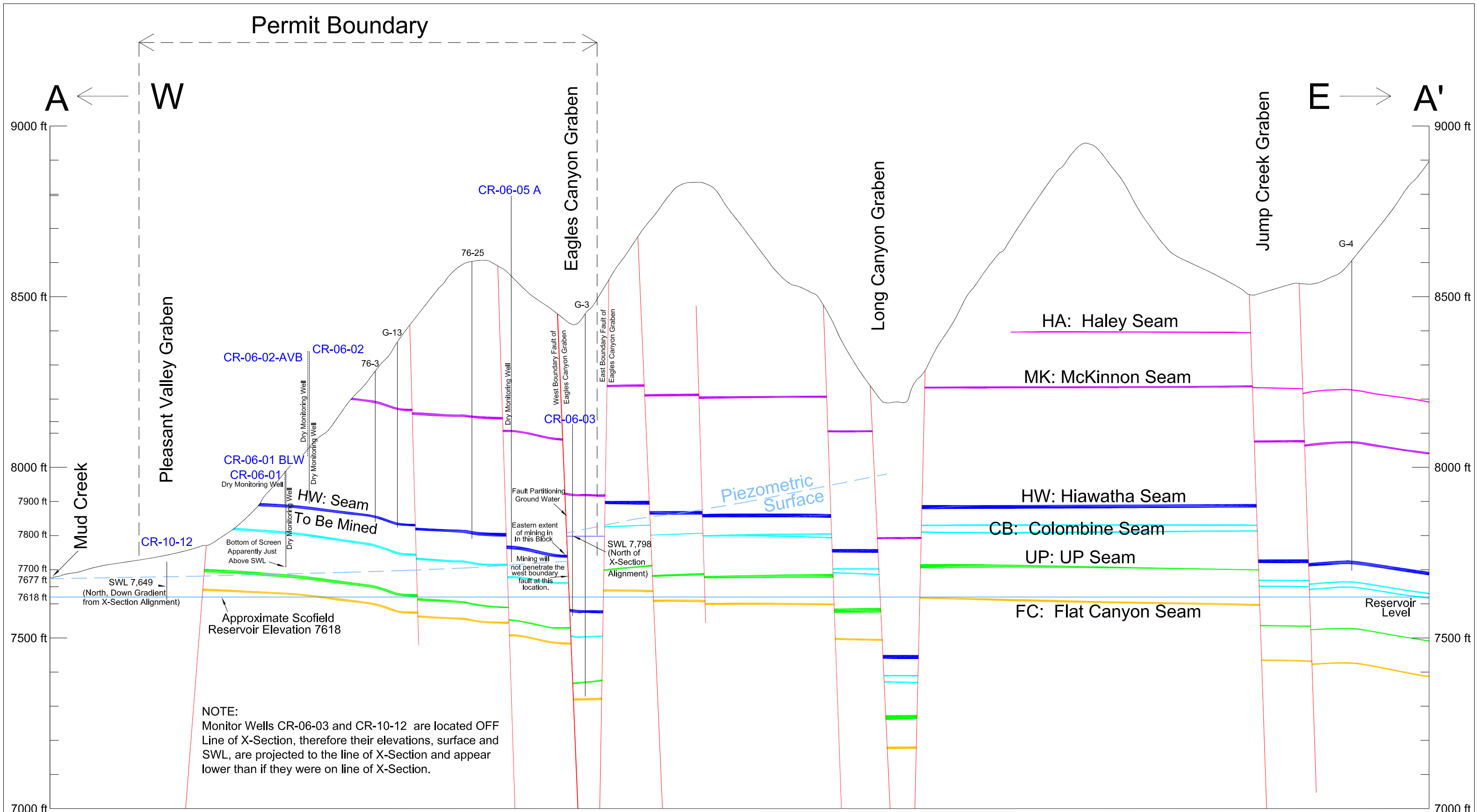
MAP 7
REGIONAL HYDROLOGY

DRAWN BY:	GLH & BAG	DATE:	9-15-10
APPROVED BY:	GLH	DATE:	9-15-10

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park , NM 87047

DWG. NAME:



E 36,269
N 73,734

End Point Coordinates of this X-Section are in KCS (Kinney Coordinate System). They are projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a CF (Combined Factor) of 1.0047927. To project back, add 7,000,000 to Northing and 1,7000,000 to Easting, then divide by the CF.

Map Location of this X-Section can be found on Map 7 (Regional Hydrology) and on Map 8 (Works-Wells-Springs-Faults)

Revised: 18 Feb 2011

0 1000 2000 ft

4X vertical exaggeration

E 52,549
N 74,929

LEGEND

CR-06-05A — Drill Hole Providing Geologic Data and Completed as Ground Water Monitor Well

76-3 — Drill Hole Providing Geologic Data

FAULT

Kinney # 2 Mine

MAP 7A

W-E X-Section A-A'

DRAWN BY: GLH DATE: 9-15-10

APPROVED BY: GLH DATE: 9-15-10

Carbon Resources — A Unit For Co2Bon County

P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 7A X-Sec A-A

C ← N

S → C'

Permit Boundary

CR-06-05A
(Off Line of Section
2,425 ft. East)

DRY WELL Off Line of Section

CR-06-02
(Off Line of Section
312 ft. East)

DRY WELL

MK: McKinnon Seam

76-1

1,159 ft. West)

CR-06-1-BLW

Bottom of "DRY"
Well Screen
Elev. 7,901

Seam to be Mined

Hiawatha

Dry Well

Bottom of "DRY"
Well Screen
Elev. 7,800.4

CB: Colombine Seam

HW: Hiawatha Seam

76-23

76-9-1

S-6

8500 ft

8000 ft

7900 ft

7800 ft

7700 ft

7620 ft

7500 ft

Scofield Reservoir

Pleasant Valley Graben

Sulfur Spring

G-14

CR-10-11

SWL 7,646

CR-10-12

SWL 7,649

Bottom of "DRY" Well Screen
Elevation 7,697

UP: UP Seam

FC: Flat Canyon Seam

Piezometric Surface

Piezometric Surface

Approximate Reservoir Level

Pleasant Valley Graben
East Boundary Fault
(Oblique Crossing)

UP North Saddle Fault

UP South Saddle Fault

NOTE:
Monitor Wells CR-10-11 & 12 are located 530 ft. and 1,159 ft. reapectivley West of Line of X- Section which places both wells inside the Pleasant Valley Graben. Projections of the wells back to the line of section gives a misleading appearance of not being in the Pleasant Valley Graben. Monitor Wells CR-06-02 & 5A are also located off Line of X-Section and are projected onto the Line of Section.

E 38,902
N 79,793

End Point Coordinates of this X-Section are in KCS (Kinney Coordinate System). They are projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a CF (Combined Factor) of 1.0047927. To project back, add 7,000,000 to Northing and 1,7000,000 to Easting, then divide by the CF.

0 1000 2000 ft

4X vertical exaggeration

E 39,854
N 64,256

Map Location of this X-Section can be found on Map 7 (Regional Hydrology) and on Map 8 (Works-Wells-Springs-Faults)

Revised: 18 Feb 2011

LEGEND

CR-06-01-BLW — Drill Hole Providing Geologic Data and Completed as Ground Water Monitor Well

76-1 — Drill Hole Providing Geologic Data

FAULT

Kinney # 2 Mine

MAP 7B
N-S X-Section C-C'

DRAWN BY: GLH DATE: 9-15-10
APPROVED BY: GLH DATE: 9-15-10

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 7B N-S X-Section

Miller Outlet
(AKA Eagle Outlet or Eagle Outlook)

Miller Spring
(AKA Eagle Spring)

Miller Canyon

Beav 1 2435

LC Seep 1 2433

LC Seep 2 2440

Beav 2 2458

Beav 3 2465

Long Canyon

CR-06-09 BLW
CR-06-09 ABV
CR-06-09

LC Seep 3 2481

LC Spring 1 2482

LC Spring 2 2483

LC Spring 3 2484

LC Spring 4 2344

LC Spring 5 2500

LC Spring 5A 2501

LC Spring 6 2510

LC Spring 7 2549

LC 7 Pond 2537

LC Spring 8 2518

Beav 8 2518

Beav 9 2515

Beav & Beav 7 2525

Beav 4 &5 2531

T12S, R7E, SLB&M

T13S, R7E, SLB&M

Long Canyon

Long

CR-06-03 ABV

Angle Spring
(Baseline Only)

Eagle Pond 2
(AKA Eagle Spring 2)

Aspen Spring
(AKA Eagle Pond 1)

Eagle Seep 3 2304

Dry Trough 2306

Eagle Seep 2

Eagle Seep 1

CR-06-05A

Permit Boundary

D

D'

C

C'

Sulfur Spring
(AKA Sulfur Springs, Sulfer Springs)

Monkey Draw

Kinney Draw

Blind Canyon

Blind Seal

Hiawatha Seam

CR-06-01
CR-06-01 BLW
CR-06-01 ABV

CR-06-02 ABV
CR-06-02

Hiawatha Seam

UP Pond 3

UP Pond 2

UP Pond 1

U. P. Canyon

UP Spring 2414

Hiawatha Seam

Utah #2 Mine

Gibson Portal

CR-10-11

CR-10-12

SCOFIELD RESERVOIR (AKA Scofield Res. 1)

ELEVATION 7618

Res-1

SCOFIELD VALLEY

UP RAILROAD

Mud Creek
(AKA Muddy Creek)

A

B

PLEASANT

Mud Creek

Spring

Spring

Spring

LEGEND

- WATER MONITORING STATION (GROUND WATER OR SURFACE WATER)
- Lc Spring 4 GROUND WATER SOURCE (SPRINGS & SEEPS)
- GROUNDWATER (MONITOR WELL)
- SURFACE WATER SOURCE (POND OR STREAM)
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- A — A' X -SECTION LINE
- OLD MINE PORTAL
- ROADS
- RAILROAD
- ELECTRICAL LINES
- SCOFIELD TOWN BOUNDARY
- PERMIT BOUNDARY
- 7950 REGIONAL PIEZOMETRIC SURFACE ELEVATION
- 8000 GROUND SURFACE ELEVATION
- HIAWATHA OUTCROP LINE
- OUTLINE - OLD HIAWATHA SEAM WORKS
- PROPOSED KINNEY NO. 2 MINE WORKS
- FAULTS (SHOWN AT HIAWATHA SEAM ELEVATION)
- UNDERGROUND DEVELOPMENT WASTE (FAULT CROSSING ROCK ROOMS)

N

0 700 1,400 2,100 ft

SCALE
Contour Interval 200 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

REVISED 4-23-2011 CLARIFIED LEGEND ITEMS
REVISED 3-15-2011 UPDATED PIEZOMETRIC SURFACE

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 8

Works-Wells-Springs-Faults

DRAWN BY: R.P, G.H., B.G. DATE: 12/07
APPROVED BY: G.H. DATE: 12/07

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

N

Mud Creek

Spring

VALLEY

Canyon

Long Canyon

Eagle Canyon

Canyon

PLEASANT VALLEY

U.P. Canyon

96

32

33

34

4

3

5

CR-06-09 ABV / 7977
CR-06-09 BLW / 7861
CR-06-09 / 7851

CR-06-03 ABV / 7798

CR-10-11 / 7646

CR-10-12 / 7649

CR-06-01 / DRY
CR-06-01 BLW / DRY

CR-06-02 ABV / DRY
CR-06-02 / DRY

CR-06-05A / DRY

Old Blue Seal Portal (AKA Monay Mine ?)

Old Blue Seal Portal

Old Kinney Portal

Old Kinney Portals (AKA Columbine # 1)

Old Mine (lower seam) (Name ?)

Old Columbine Portals (AKA Jones Mine)

Old UP # 1 Portals

Old UP # 2 Portal

Old UP # 2 Portals

Old UP # 3 Portals

Old # 3 Portal

SCOFIELD TOWN

T12S, R7E

T13S, R7E

PERMIT BOUNDARY

REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
2/28/11
STATE OF UTAH

LEGEND

- WATER MONITORING STATION GROUND WATER OR SURFACE WATER
- GROUND WATER SOURCE
- GROUND WATER WELL
- SURFACE WATER SOURCE (POND OR STREAM)
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- 8000 SURFACE ELEVATION
- ROADS
- RAILROAD
- ELECTRICAL LINES
- SCOFIELD TOWN BOUNDARY
- PERMIT BOUNDARY

REVISED 3-19-2011

0 1000 2000 3000 ft.
SCALE

LEGEND

GROUND WATER MONITORING STATION
7709 WATER ELEVATION ABOVE HIAWATHA SEAM
7861 WATER ELEVATION NEAR HIAWATHA SEAM
7798 WATER ELEVATION BELOW HIAWATHA SEAM

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

KINNEY NO. 2 MINE
GROUND WATER LEVEL DATA

MAP 9

ELEVATION 7618

Miller Outlet
(AKA Eagle Outlook or Eagle Outlet)

Miller Spring
(AKA Eagle Spring)

Res-1

Angle Spring

Sulfur Spring
(AKA Sulfer Springs)

CR-10-11

CR-06-03-ABV

CR-10-12

Mud Creek
(AKA Muddy Creek)

SCOFIELD
TOWN

Spring

Springs

Miller

Mud Creek

Eagles

Long

Canyon

PLEASANT VALLEY

U. P. Canyon

304

137

226

304

353

379

399

464

486

20

21

22

29

28

27

32

33

34

5

4

3

T12S, R7E, SLB&M
T13S, R7E, SLB&M

LEGEND

Water Monitor Site

Na+K, Ca, Mg — Cl, SO_4, HCO_3

TDS

4 2 0 2 4

MEQ/L

N

0 2,000 ft

SCALE: 1:24,000 or 1" = 2,000'

Contour Interval 200 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

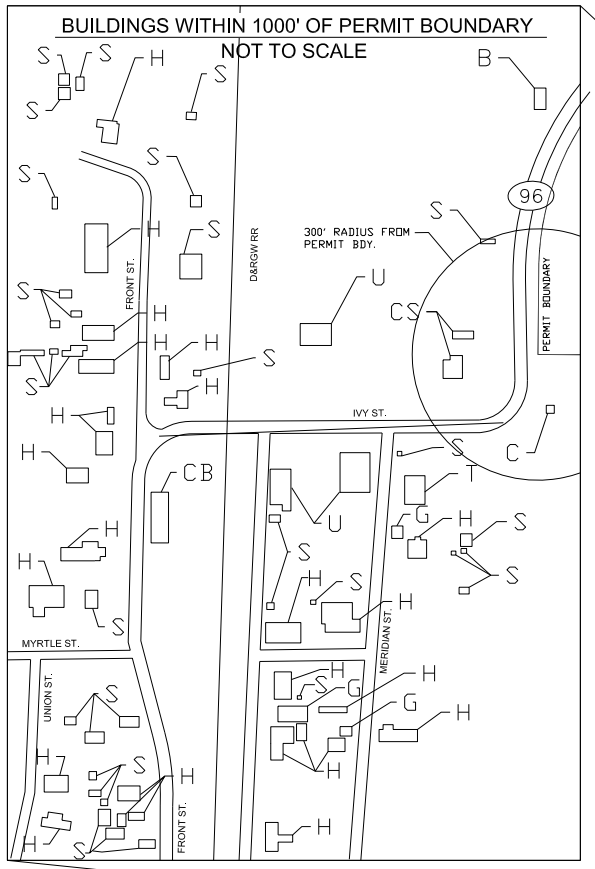
Kinney # 2 Mine

Map 10
REGIONAL WATER QUALITY

DRAWN BY: GLH	DATE: 9-1-2010
APPROVED BY: BG	DATE: 9-15-2010

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

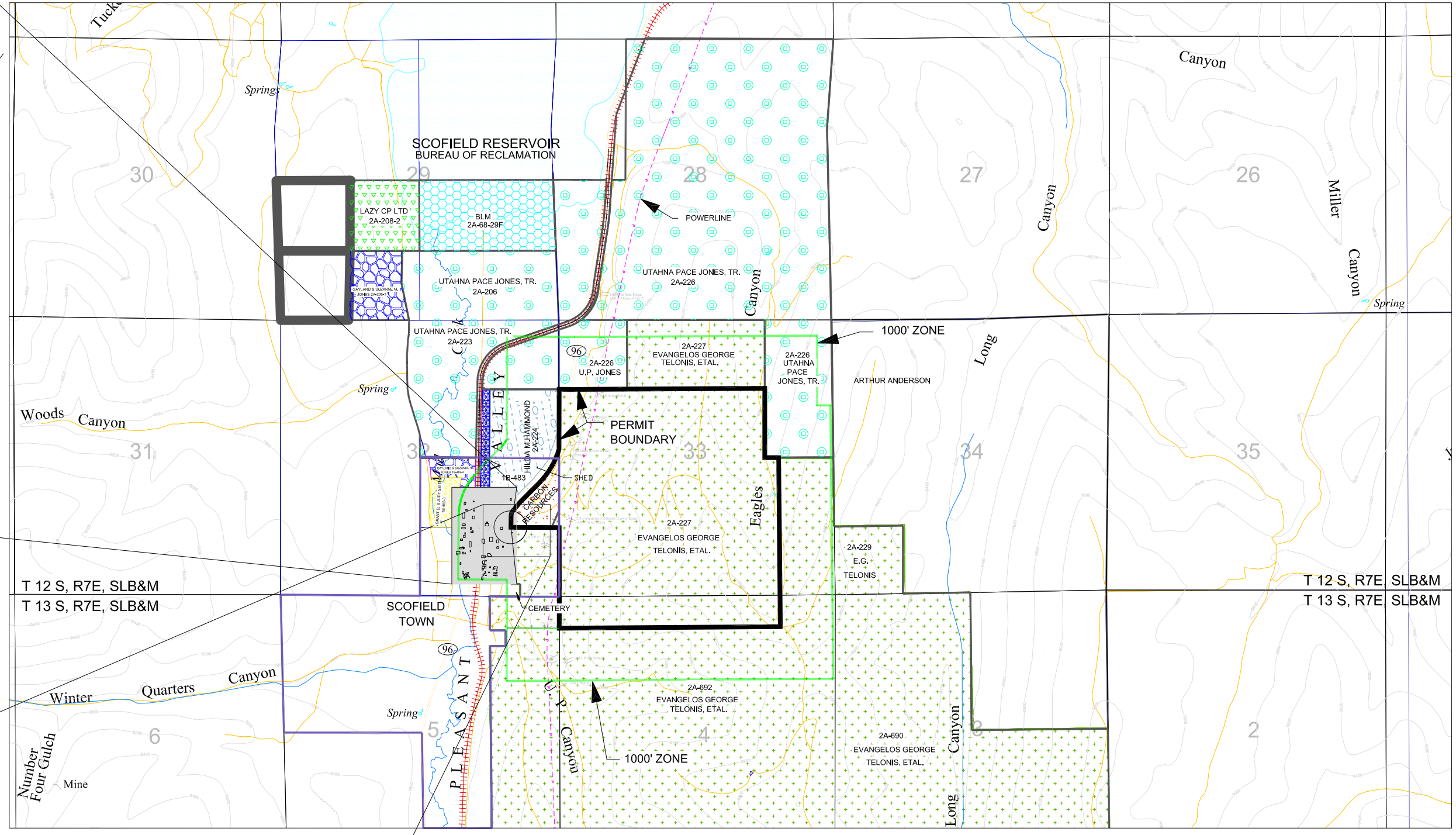
File: Map 34 Disturbed TS



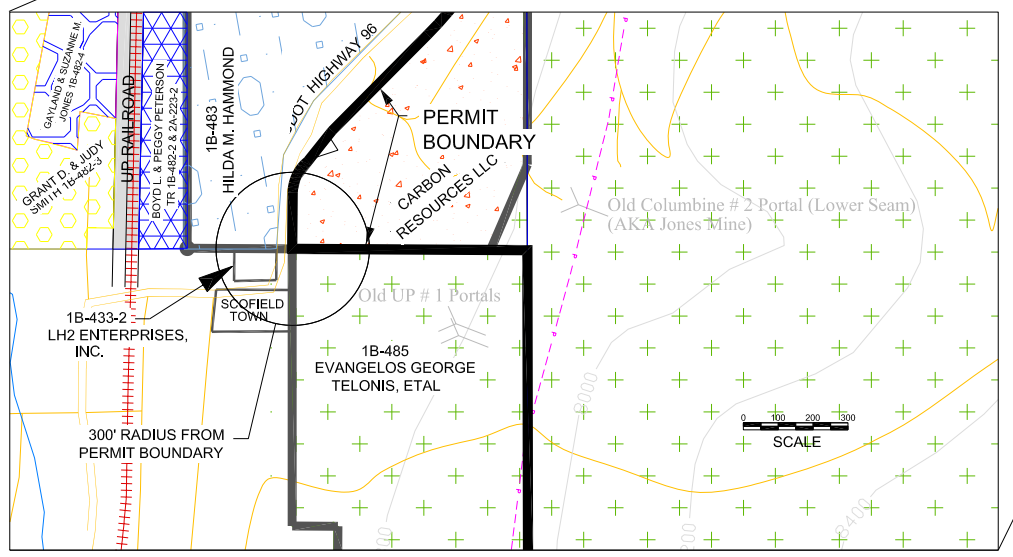
NOTE:
ONLY PERMANENT STRUCTURES ARE SHOWN

KEY TO BUILDING USES

H	HOUSE
S	SHED
G	GARAGE
B	BARN
U	UDOT BUILDING
T	SCOFIELD TOWN BUILDING
C	CAMPGROUND OFFICE
CS	CONVENIENCE STORE
CB	COMMERCIAL BUILDING



PROPERTY OWNERS ADJACENT TO PERMIT BOUNDARY



This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

LEGEND

ADJACENT PROPERTY OWNERS BOUNDARY LINES WITH PROPERTY OWNER'S NAME AND TAX ID NUMBER FROM CARBON COUNTY RECORDERS OFFICE
LINE COLORS VARY & SHADING COLORS VARY INDICATING PROPERTY OWNERSHIP

OLD MINE PORTAL
ROADS
RAILROAD
ELECTRICAL LINES
SCOFIELD TOWN BOUNDARY
PERMIT BOUNDARY
1000 FOOT ZONE AROUND PERMIT BOUNDARY

PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
8000 SURFACE ELEVATION

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1	REMOVED SCOFIELD STATE RECREATION AREA	1/25/11	B.G.	G.H.

Carbon Resources LLC

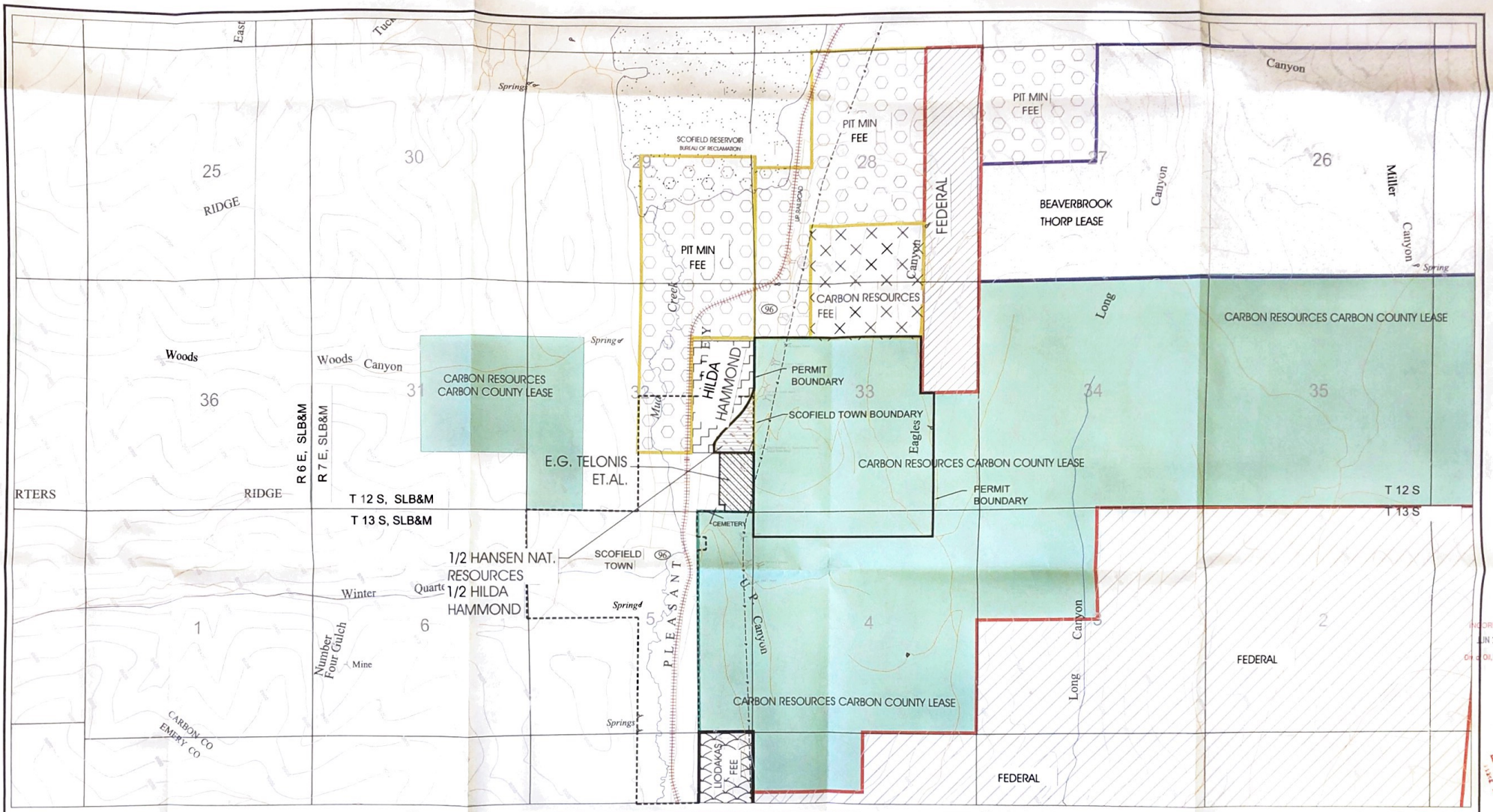
KINNEY NO. 2 MINE

MAP 11
REGIONAL SURFACE OWNERSHIP MAP

DRAWN BY: B.G. DATE: 8/07
APPROVED BY: G.H. DATE: 2/08

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME: KINNEY MAP 11



N

0 1000 2000 3000 ft

SCALE

Contour Interval 200 ft

This map is in the Kinney Coordinate System (N.C.S.); it was projected from State Plane NAD83 to a vertical datum of 6,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

LEGEND

- POWERLINES
- SCOFIELD TOWN BOUNDARY
- PIT MIN FEE
- HILDA HAMMOND
- EVANGELOS **GEORGE** TELONES ET. AL.
- 1/2 HANSEN **NAT.** RESOURCES, 1/2 HILDA HAMMOND
- CARBON **RESOURCES** - CARBON COUNTY LEASE
- FEDERAL UNLEASED
- BEAVERBROOK THORP LEASE
- CARBON **RESOURCES** FEE
- LIODAKIS FEE
- ROADS

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1	MOVED SCOFIELD RES. LABEL	1/25/11	B.G.	G.H.

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 12

REGIONAL COAL OWNERSHIP MAP

DRAWN BY: B.G. DATE: 8/07

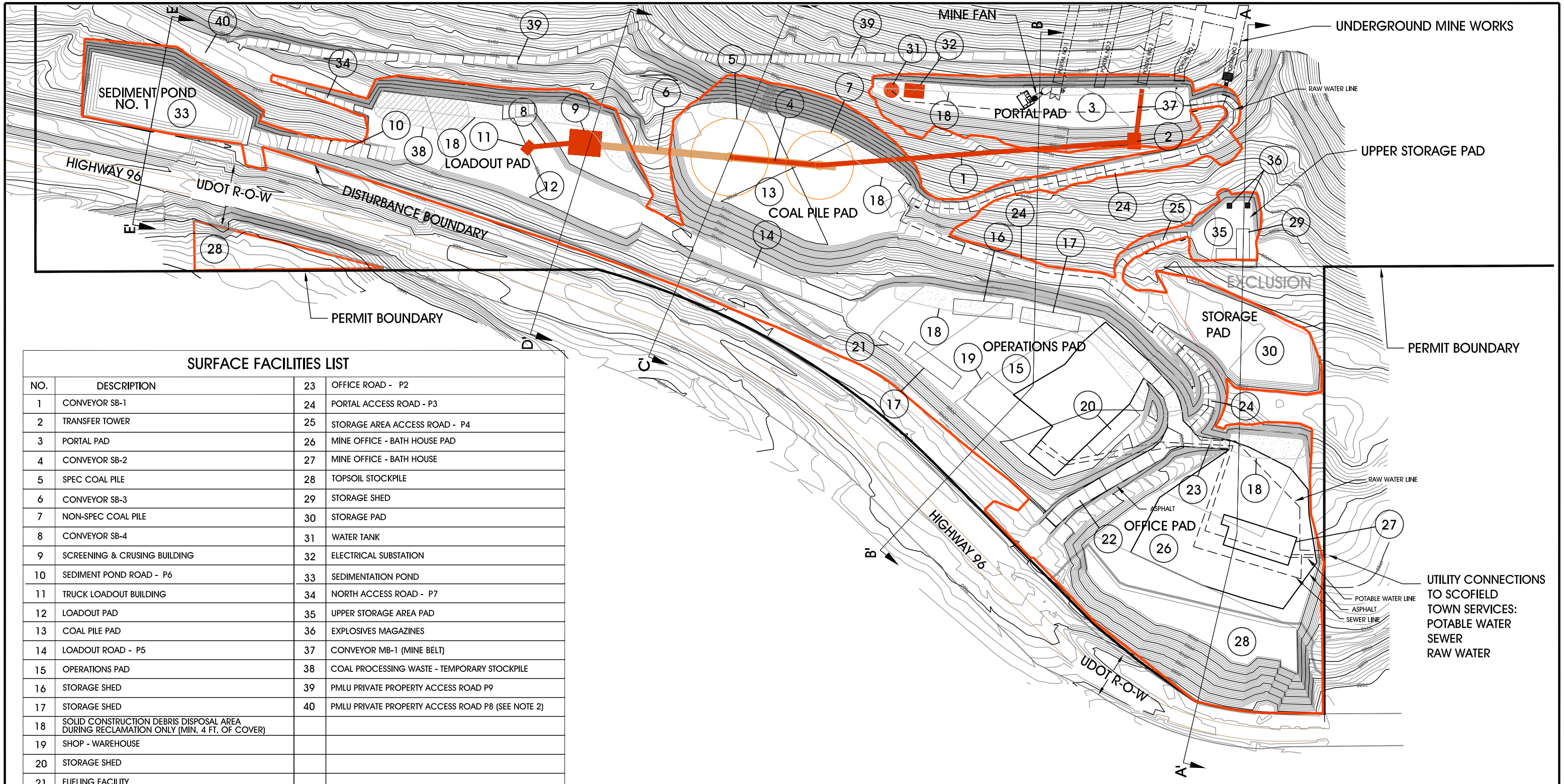
APPROVED BY: G.H. DATE:

Carbon Resources P.O. Box 954 Sadia Park, NM 87047

REGISTERED LAND SURVEYOR BENJAMIN A. STATE OF UTAH

RECEIVED JUN 28 2011 DIV OF OIL, GAS & MIN

INCORPORATED JUN 3 0 2011 Div. of Oil, Gas & Mining



SURFACE FACILITIES LIST

NO.	DESCRIPTION	NO.	DESCRIPTION
1	CONVEYOR SB-1	23	OFFICE ROAD - P2
2	TRANSFER TOWER	24	PORTAL ACCESS ROAD - P3
3	PORTAL PAD	25	STORAGE AREA ACCESS ROAD - P4
4	CONVEYOR SB-2	26	MINE OFFICE - BATH HOUSE PAD
5	SPEC COAL PILE	27	MINE OFFICE - BATH HOUSE
6	CONVEYOR SB-3	28	TOPSOIL STOCKPILE
7	NON-SPEC COAL PILE	29	STORAGE SHED
8	CONVEYOR SB-4	30	STORAGE PAD
9	SCREENING & CRUSING BUILDING	31	WATER TANK
10	SEDIMENT POND ROAD - P6	32	ELECTRICAL SUBSTATION
11	TRUCK LOADOUT BUILDING	33	SEDIMENTATION POND
12	LOADOUT PAD	34	NORTH ACCESS ROAD - P7
13	COAL PILE PAD	35	UPPER STORAGE AREA PAD
14	LOADOUT ROAD - P5	36	EXPLOSIVES MAGAZINES
15	OPERATIONS PAD	37	CONVEYOR MB-1 (MINE BELT)
16	STORAGE SHED	38	COAL PROCESSING WASTE - TEMPORARY STOCKPILE
17	STORAGE SHED	39	PMLU PRIVATE PROPERTY ACCESS ROAD P9
18	SOLID CONSTRUCTION DEBRIS DISPOSAL AREA DURING RECLAMATION ONLY (MIN. 4 FT. OF COVER)	40	PMLU PRIVATE PROPERTY ACCESS ROAD P8 (SEE NOTE 2)
19	SHOP - WAREHOUSE		
20	STORAGE SHED		
21	FUELING FACILITY		
22	MAIN ACCESS ROAD - P1		

REGISTERED LAND SURVEYOR
GLEN A. BIRCHELL
5/9/11
STATE OF UTAH

LEGEND

A — A' CROSS SECTION LOCATION (MAPS 16 - 19)

DISTURBED AREA BOUNDARY

PERMIT BOUNDARY

NOTES:

1. FOR CROSS SECTIONS REFER TO MAPS 16 THRU 19
2. SEE MAP 29A FOR ALL OF POST MINE LAND USE ROAD P8

N

0 100 200 300 ft.

SCALE

Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then dMde by the CF.

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1	ADDED ROADS P8 & P9 CALL OUTS	3-5-11	B.G.	G.H.

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 13
SURFACE FACILITIES

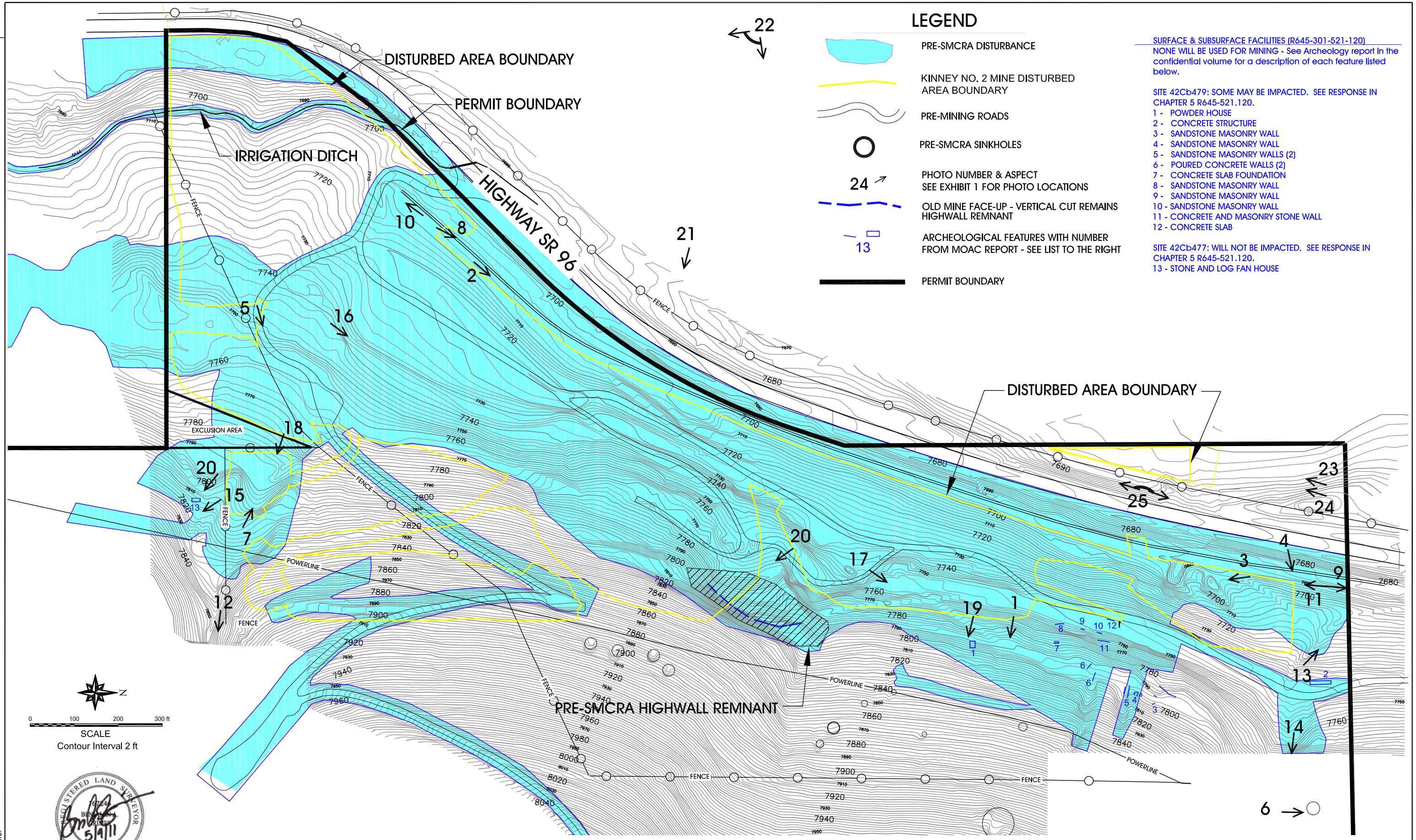
DRAWN BY: G.H., B.G. DATE: 9/28/10

APPROVED BY: G.H. DATE: 9/28/10

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME: MAP 13



LEGEND

- PRE-SMCRA DISTURBANCE
- KINNEY NO. 2 MINE DISTURBED AREA BOUNDARY
- PRE-MINING ROADS
- PRE-SMCRA SINKHOLES
- 24 — PHOTO NUMBER & ASPECT SEE EXHIBIT 1 FOR PHOTO LOCATIONS
- OLD MINE FACE-UP - VERTICAL CUT REMAINS HIGHWALL REMNANT
- 13 — ARCHEOLOGICAL FEATURES WITH NUMBER FROM MOAC REPORT - SEE LIST TO THE RIGHT
- PERMIT BOUNDARY

SURFACE & SUBSURFACE FACILITIES (R645-301-521-120)

NONE WILL BE USED FOR MINING - See Archeology report In the confidential volume for a description of each feature listed below.

SITE 42Cb479: SOME MAY BE IMPACTED. SEE RESPONSE IN CHAPTER 5 R645-521.120.
1 - POWDER HOUSE
2 - CONCRETE STRUCTURE
3 - SANDSTONE MASONRY WALL
4 - SANDSTONE MASONRY WALL
5 - SANDSTONE MASONRY WALLS (2)
6 - POURED CONCRETE WALLS (2)
7 - CONCRETE SLAB FOUNDATION
8 - SANDSTONE MASONRY WALL
9 - SANDSTONE MASONRY WALL
10 - SANDSTONE MASONRY WALL
11 - CONCRETE AND MASONRY STONE WALL
12 - CONCRETE SLAB

SITE 42Cb477: WILL NOT BE IMPACTED. SEE RESPONSE IN CHAPTER 5 R645-521.120.
13 - STONE AND LOG FAN HOUSE

REGISTERED LAND SURVEYOR — JAMES A. BIRD — 161248 — STATE OF UTAH — 5/4/11

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 6,000 ft, using a Combined Factor (CF) of 1.0047027. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then dMde by the CF.

FILE NAME:
FILE DATE:

DESIGNED . B.G.	3						SCALE
DRAFTED .J.B. , B.G.	2	4/26/11	REMOVED AERIAL PHOTO & CHANGED DISTURBED AREA BOUNDARY LINE COLOR				AS SHOWN
CHECKED . G.H.	1	1/25/11	DARKENED DISTURBED BOOUNDARY LINE & PRE-SMCRA DISTURBANCE LINE	B.G.	G.H.		
DATE 9/28/10	NO.	DATE	REVISIONS	BY	APVD.		

Carbon Resources — Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

KINNEY NO. 2 MINE
MINE SURFACE FACILITIES AREA
PRE-MINING TOPOGRAPHY

MAP 14

3/04

96

Old Blue Seal Portal

Permit Application Boundary

Old Kinney Portal

Old Works

Hiawatha Seam

Old Works

Old Kinney Portals
(AKA Columbine # 1)

Hiawatha Seam

Old Works

33

Old Mine (lower seam)
(Name?)

SR 96

Eagles Canyon Graben

2012
N13E Panel A 124,478 coal tons

2012
N13E Panel B 162,319 coal tons

Eagles

2011
S102E Portal Mains 200,653 coal tons

Old Columbine # 1 Portal (Lower Seam)
(AKA Jones Mine)

Old UP # 1 Portals

Advance drilling and concrete injection to fill old works within barrier zone

2011 FC1 - Rock Dev.
30,000 Rock tons ~ 21K cu yd.

BARRIER

2011
S79W Mains A 77,490 coal Tons

2011
N11W Panel A 165,344 coal tons

32 | 33 T 12 S, R 7 E SLB&M

5 | 4 T 13 S, R 7 E SLB&M

Old Works
Hiawatha Seam

Old UP # 2 Portal

Permit Application Boundary

0 200 400 600 ft

Old UP # 2 Portals

Old UP # 3 Portals

LEGEND

2009 2010 Old Works Hiawatha Reserve Block

Development Rock Backfill Areas

NOTE: NO PILLAR EXTRACTION PLANNED - FIRST MINING ONLY

N

0 166 333 500 ft

Contour Interval 200 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047027. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

REVISED 3-10-11 PLACED EAGLES CANYON GRABEN IN THE PROPER LOCATION

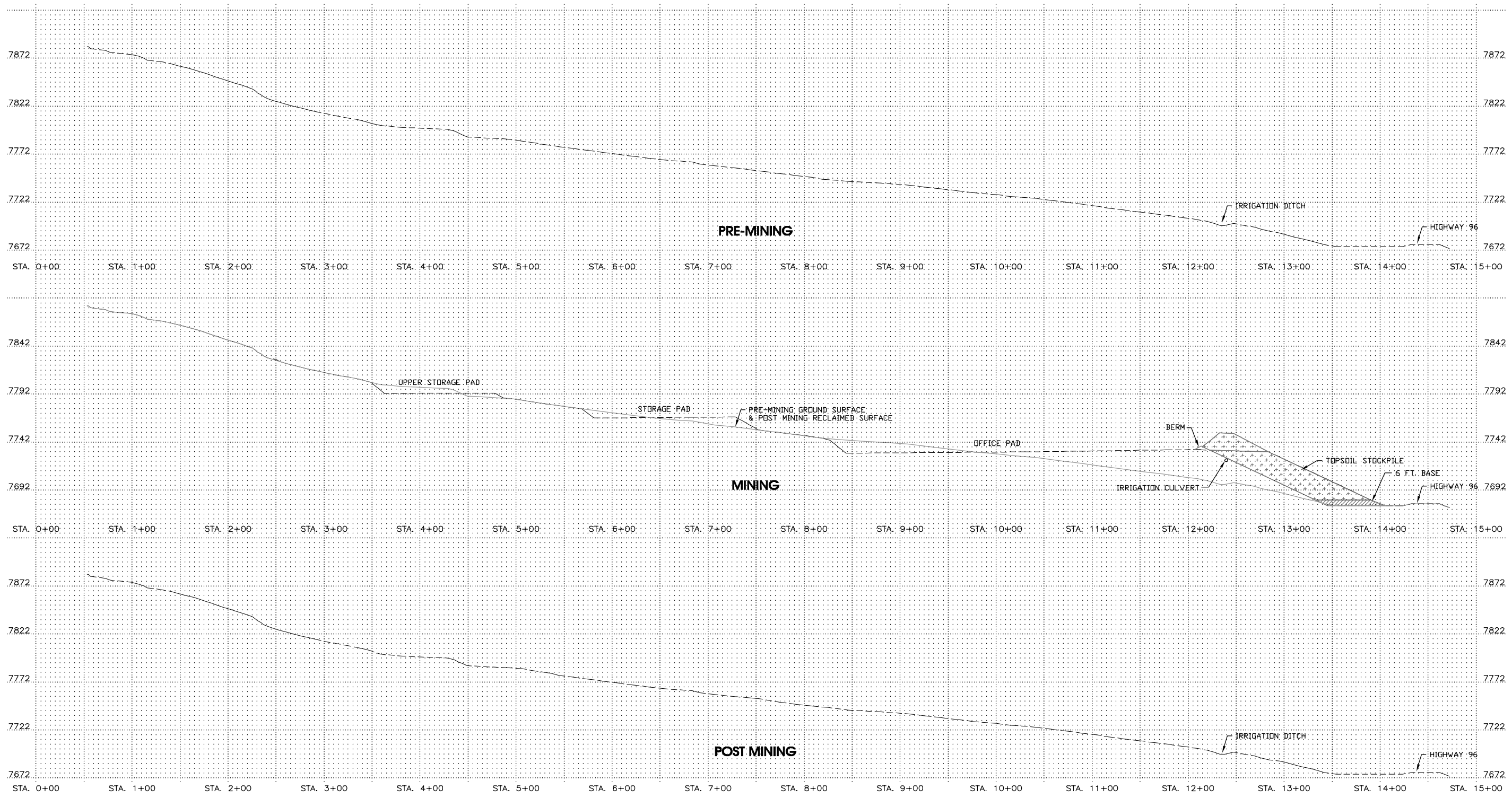
Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 15
MINE PLAN LAYOUT AND PRODUCTION SCHEDULE

DRAWN BY: R.P.	DATE: 1/11
APPROVED BY: G.H.	DATE: 1/11

P.O. Box 954
Sandia Park, NM 87047



REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
STATE OF UTAH

NOTES:
1. **SEE MAP 13 FOR CROSS SECTION LOCATIONS**

SCALE AS SHOWN

SECTION A-A'

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1				

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 16
MINE SURFACE FACILITIES AREA
PRE-MINING, MINING & POST MINING
CROSS SECTIONS

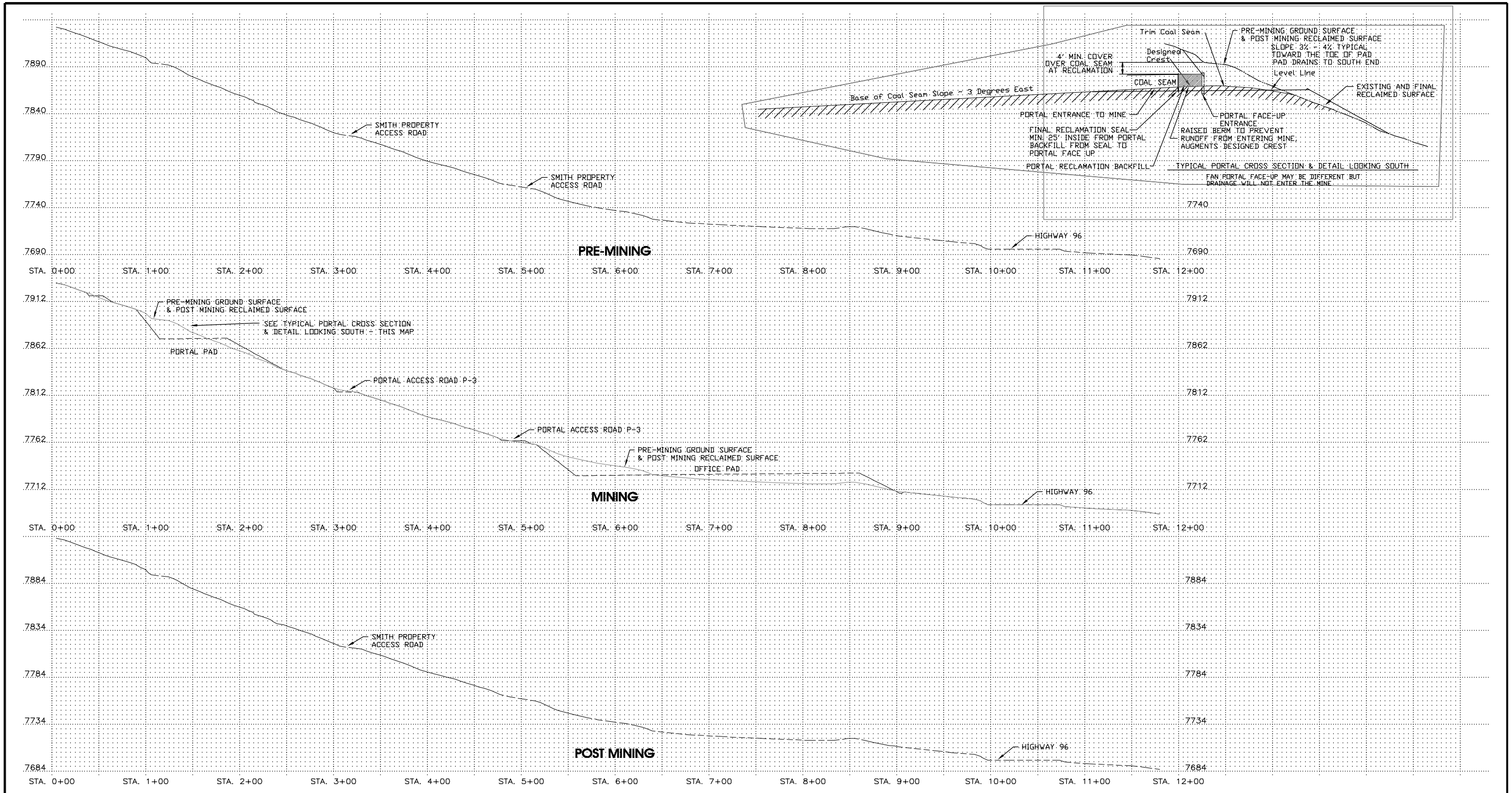
DRAWN BY: **J.B, B.G.** DATE: **9/28/10**

APPROVED BY: **G.H** DATE: **9/28/10**

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:



NOTES:

1. **SEE MAP 13 FOR CROSS SECTION LOCATIONS.**
2. **ALL COAL SEAMS WILL HAVE A MINIMUM OF 4 FEET OF COVER PLACED ON THEM FOR FINAL RECLAMATION.**

SCALE AS SHOWN

SECTION B-B'

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1	**ADDED PORTAL BACKFILL NOTE**	**3/3/11**	**B.G.**	**G.H.**

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 17

MINE SURFACE FACILITIES AREA

PRE-MINING, MINING & POST MINING

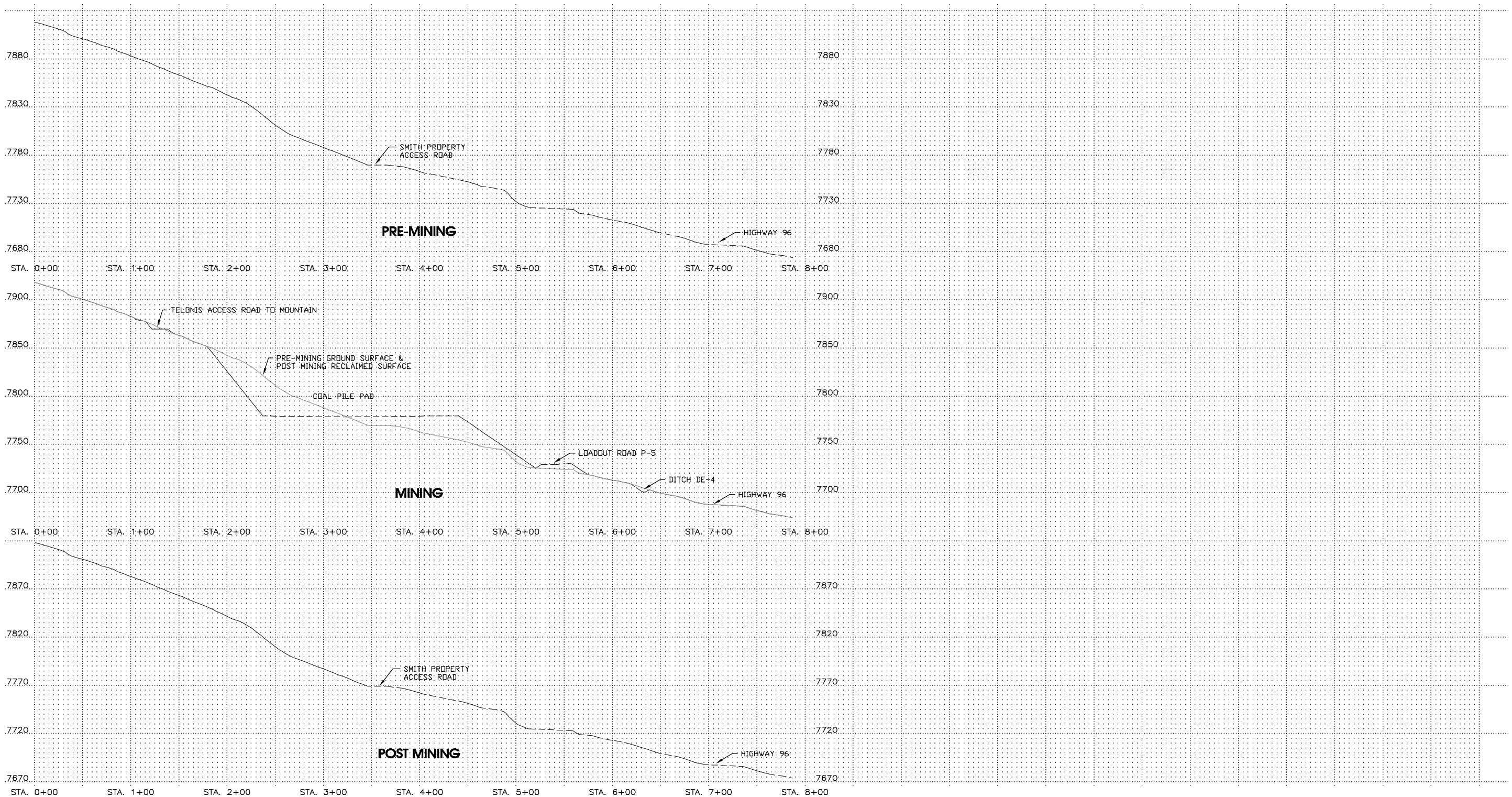
CROSS SECTIONS

DRAWN BY: **J.B, B.G.** DATE: **9/28/10**

APPROVED BY: **G.H** DATE: **9/28/10**

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:



NOTES:
1. **SEE MAP 13 FOR CROSS SECTION LOCATIONS**

SCALE AS SHOWN

SECTION C-C'

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1				

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 18
MINE SURFACE FACILITIES AREA
PRE-MINING, MINING & POST MINING
CROSS SECTIONS

DRAWN BY: **J.B, B.G.** DATE: **9/28/10**

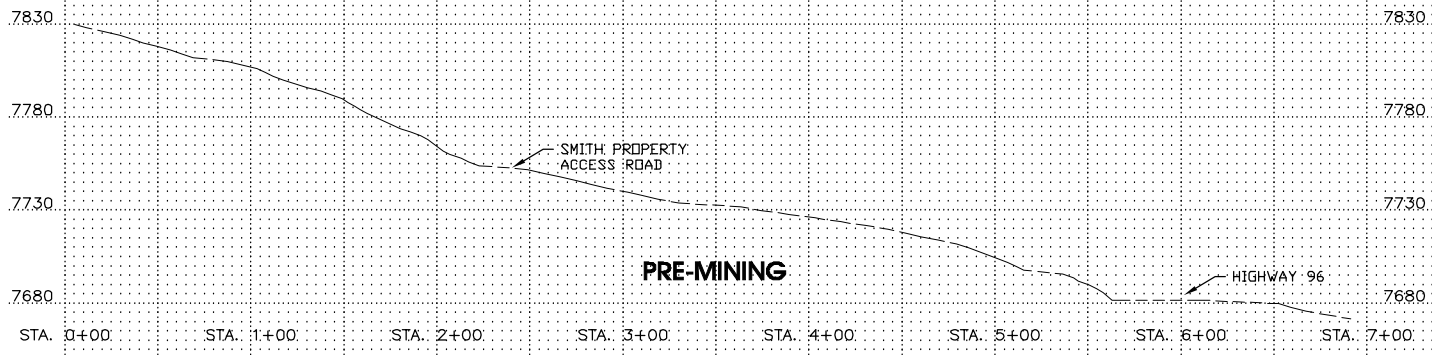
APPROVED BY: **G.H** DATE: **9/28/10**

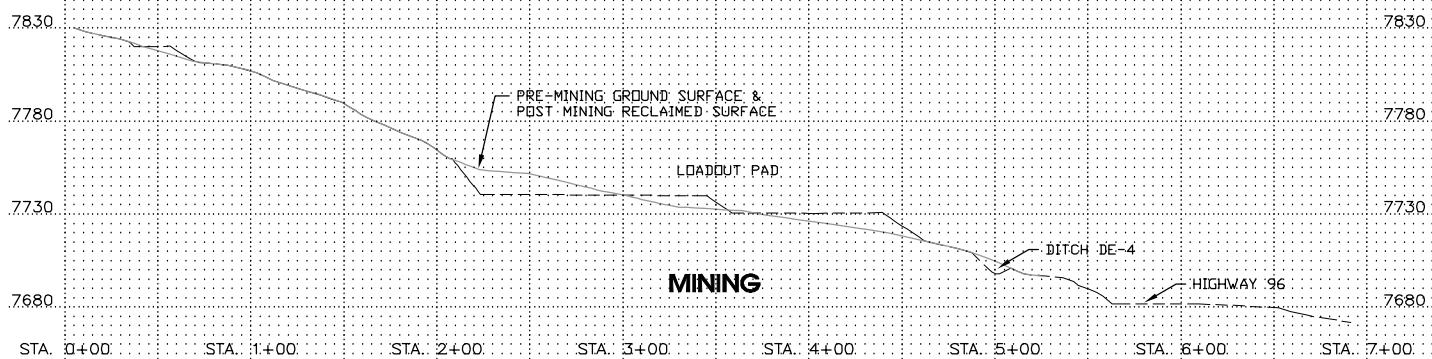
Carbon Resources
Coal For Carbon County

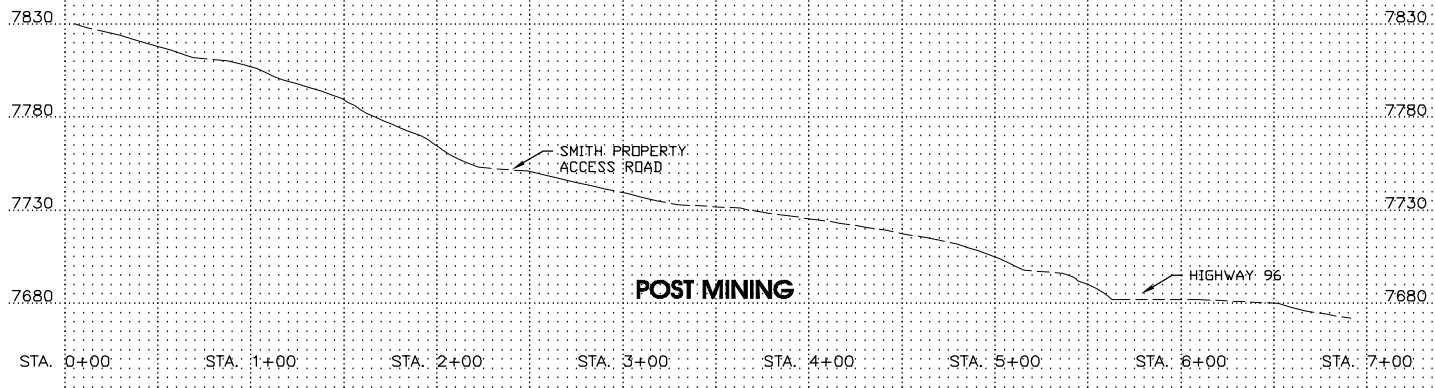
P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:

SECTION D-D'

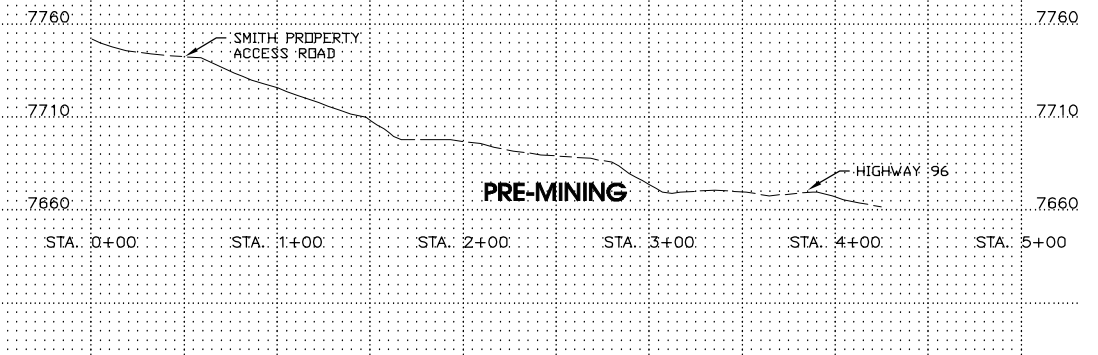


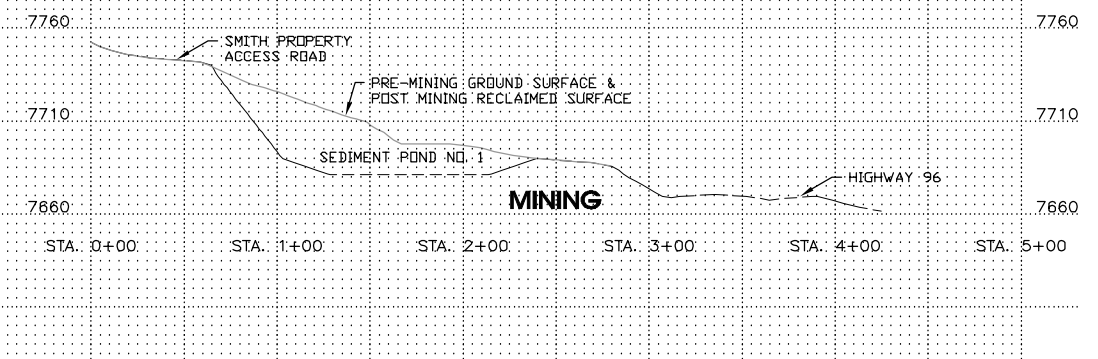


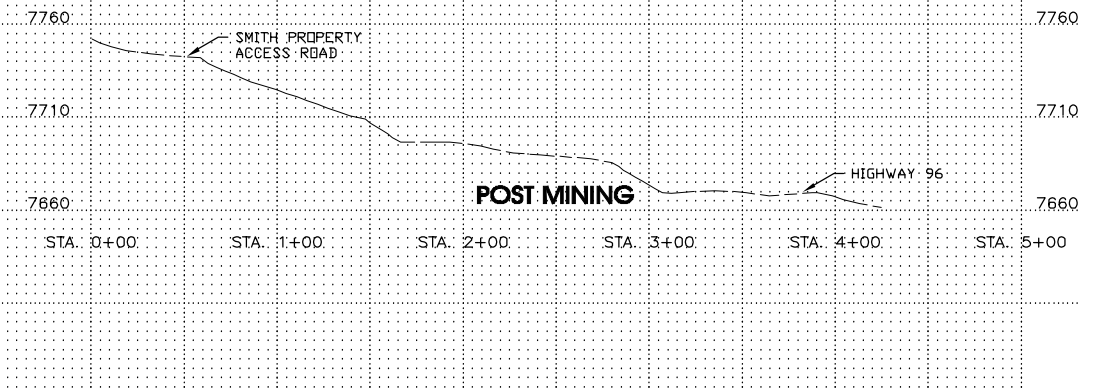


SECTION D-D'

SECTION E-E'







SECTION E-E'

NOTES:
1. **SEE MAP 13 FOR CROSS SECTION LOCATIONS**

SCALE AS SHOWN

SECTION D-D' & SECTION E-E'

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1				

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 19
MINE SURFACE FACILITIES AREA
PRE-MINING, MINING & POST MINING
CROSS SECTIONS

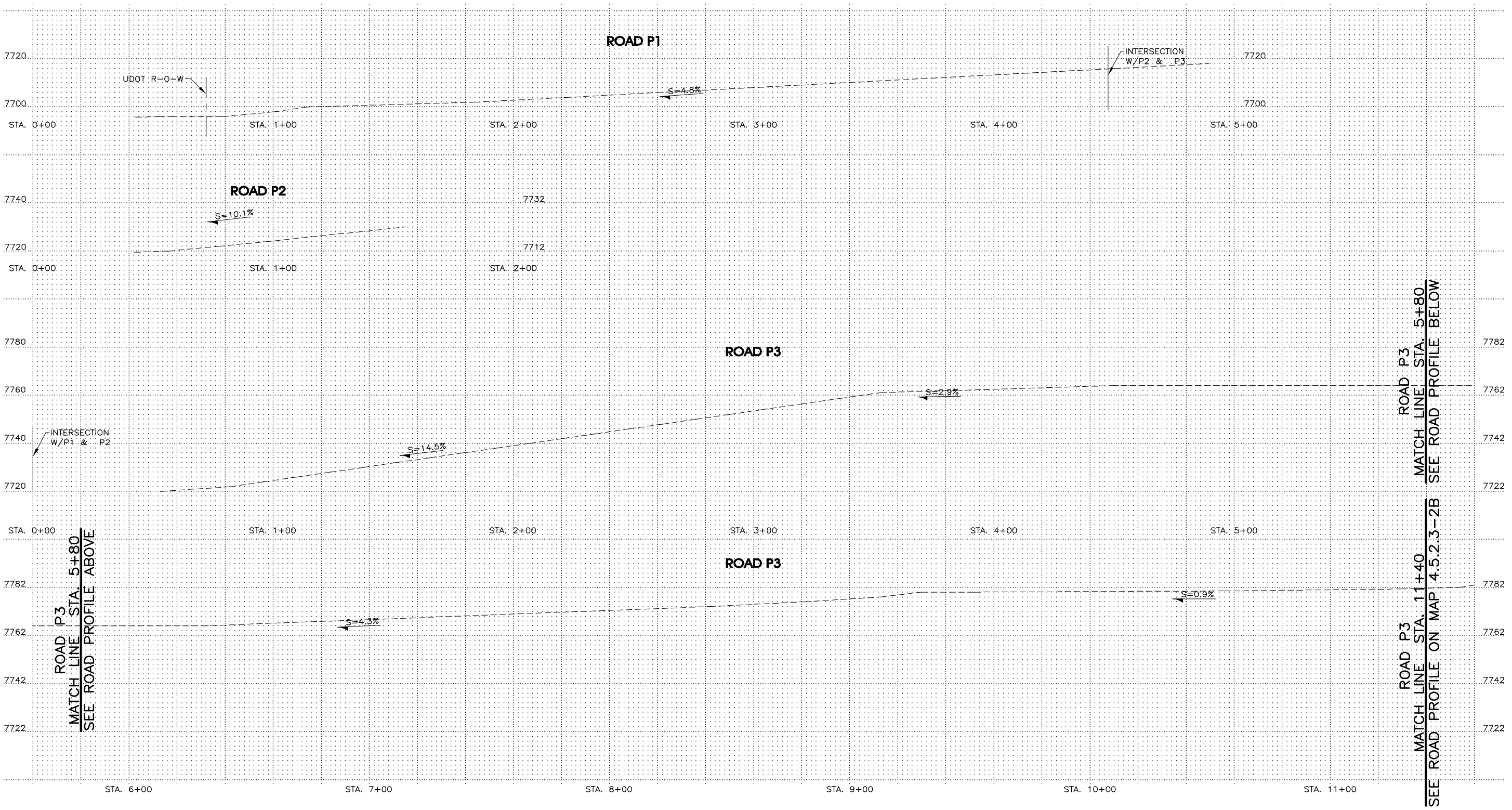
DRAWN BY: **J.B, B.G.** DATE: **2/08**

APPROVED BY: **G.H** DATE: **2/08**

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:



REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRAVES
3/28/11
STATE OF UTAH

NOTES:

1. PROFILES ARE AT CENTERLINE OF ROAD.
2. SEE MAP 13 FOR ROAD LOCATIONS.

SCALE AS SHOWN

ROADS P1, P2 & P3

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1	CERTIFIED	3/5/11	B.G.	G.H.

Carbon Resources LLC

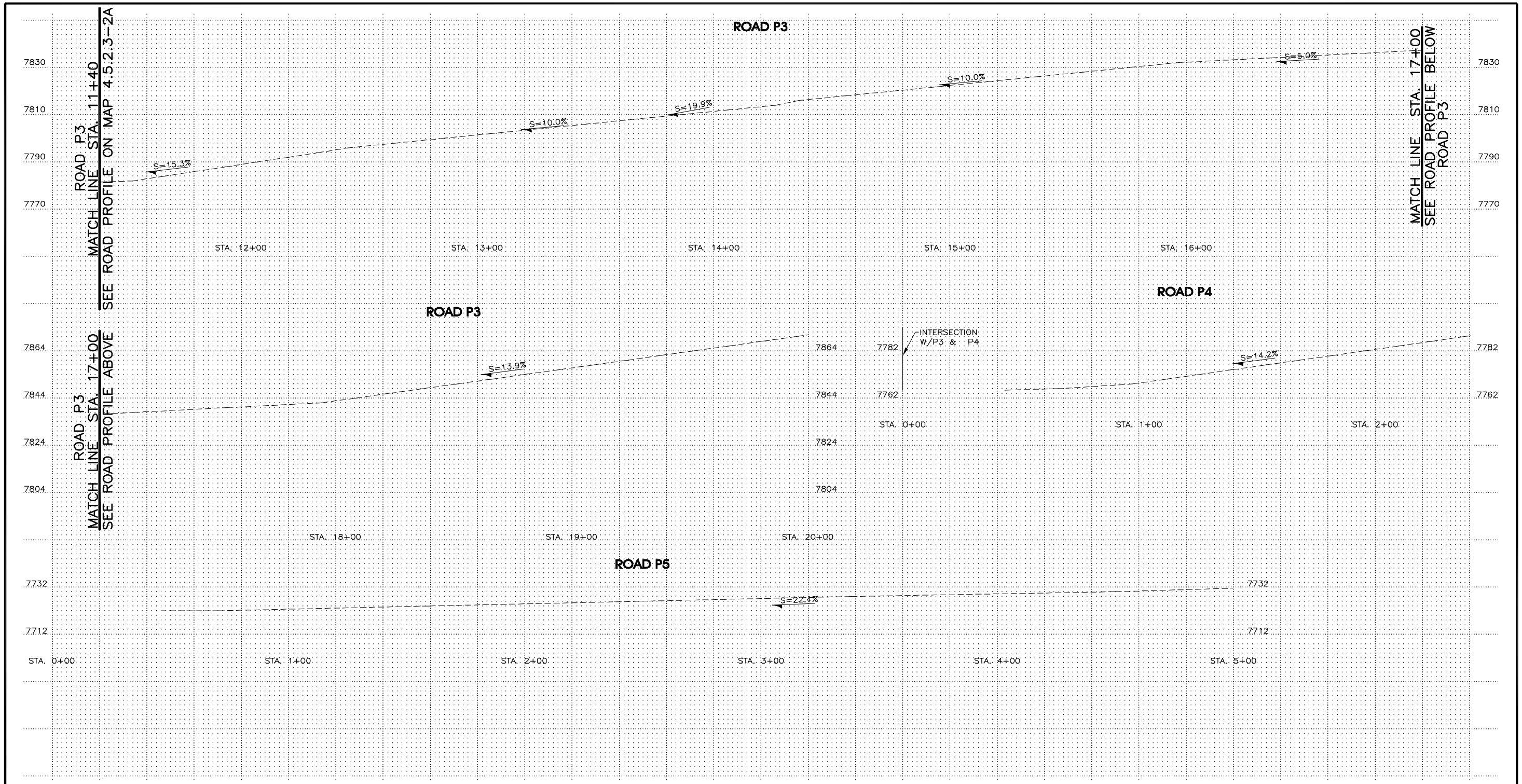
KINNEY NO. 2 MINE
MAP 20
MINE SURFACE FACILITIES
ROAD PROFILES

DRAWN BY: JDB, BAG DATE: 9/28/10
APPROVED BY: G.H. DATE: 9/28/10

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:



REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
STATE OF UTAH
2/28/11

NOTES:

1. PROFILES ARE AT CENTERLINE OF ROAD.
2. SEE MAP 13 FOR ROAD LOCATIONS.

SCALE AS SHOWN

ROADS P3, P4 & P5

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2				
1	CERTIFIED	3/5/11	B.G.	G.H.

Carbon Resources LLC

KINNEY NO. 2 MINE
MAP 21
MINE SURFACE FACILITIES
ROAD PROFILES

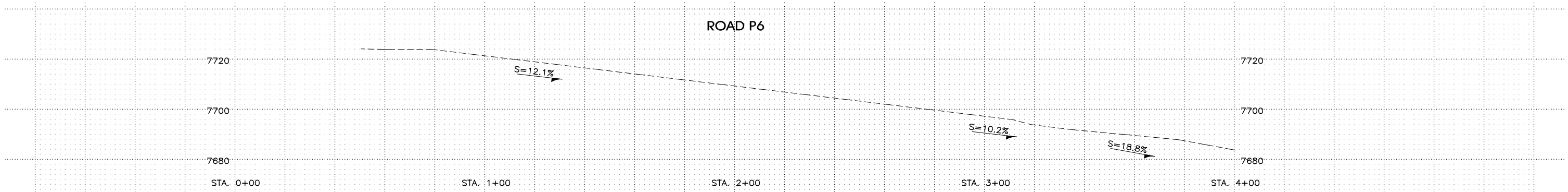
DRAWN BY: JDB, BAG DATE: 1/2008
APPROVED BY: G.H. DATE:

Carbon Resources
Coal For Carbon County

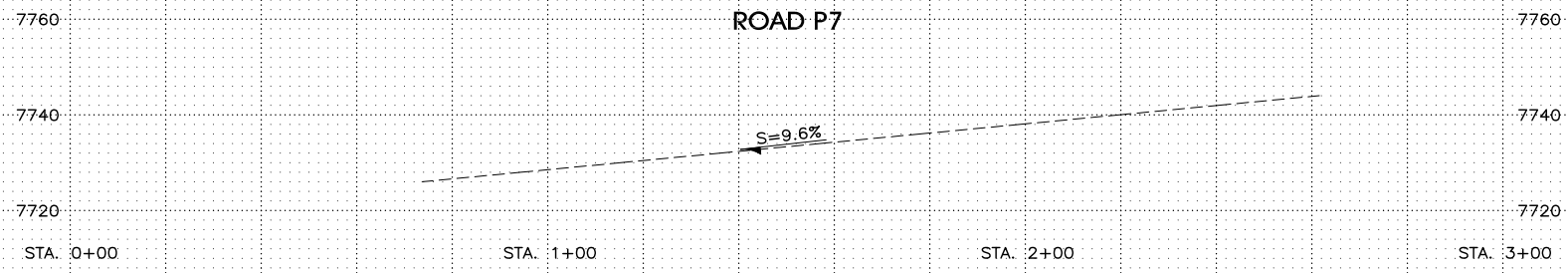
P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:

ROAD P6



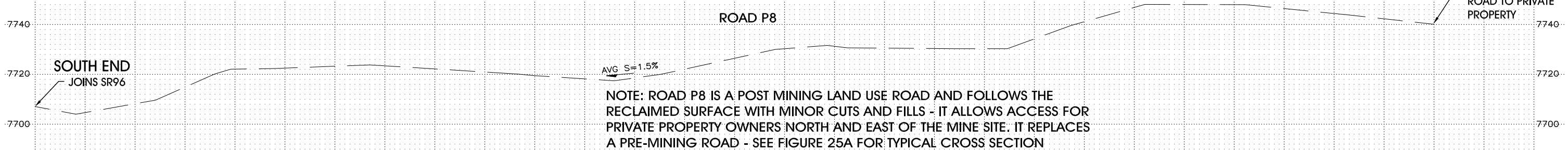
ROAD P7



ROAD P8

SOUTH END
JOINS SR96

NORTH END
JOINS EXISTING ROAD TO PRIVATE PROPERTY

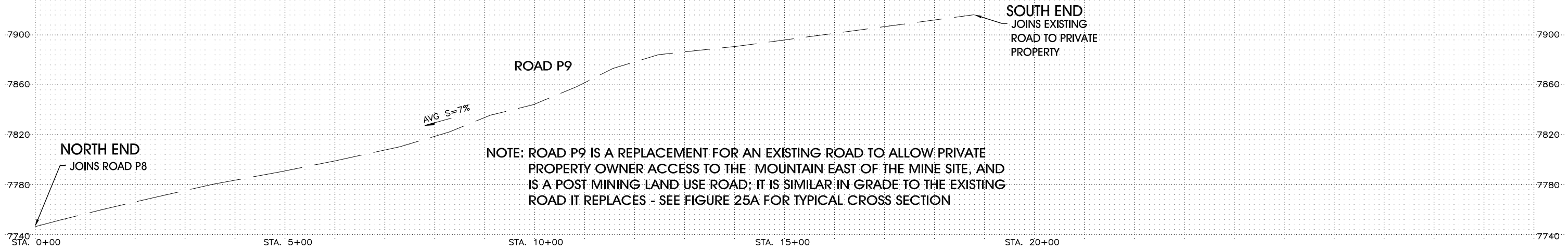


NOTE: ROAD P8 IS A POST MINING LAND USE ROAD AND FOLLOWS THE RECLAIMED SURFACE WITH MINOR CUTS AND FILLS - IT ALLOWS ACCESS FOR PRIVATE PROPERTY OWNERS NORTH AND EAST OF THE MINE SITE. IT REPLACES A PRE-MINING ROAD - SEE FIGURE 25A FOR TYPICAL CROSS SECTION

ROAD P9

SOUTH END
JOINS EXISTING ROAD TO PRIVATE PROPERTY

NORTH END
JOINS ROAD P8



NOTE: ROAD P9 IS A REPLACEMENT FOR AN EXISTING ROAD TO ALLOW PRIVATE PROPERTY OWNER ACCESS TO THE MOUNTAIN EAST OF THE MINE SITE, AND IS A POST MINING LAND USE ROAD; IT IS SIMILAR IN GRADE TO THE EXISTING ROAD IT REPLACES - SEE FIGURE 25A FOR TYPICAL CROSS SECTION

REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
2/28/11
STATE OF UTAH

NOTES:

1. PROFILES ARE AT CENTERLINE OF ROAD.
2. SEE MAPS 13 & 29A FOR ROAD LOCATIONS.

SCALE AS SHOWN

ROADS P6, P7, P8 & P9

NO.	REVISION	DATE	BY	CHKD
8				
7				
6				
5				
4				
3				
2	ADDED ROADS P8 & P9	4/23/11	B.G.	G.H.
1	CERTIFIED	3/5/11	B.G.	G.H.

Carbon Resources LLC

KINNEY NO. 2 MINE

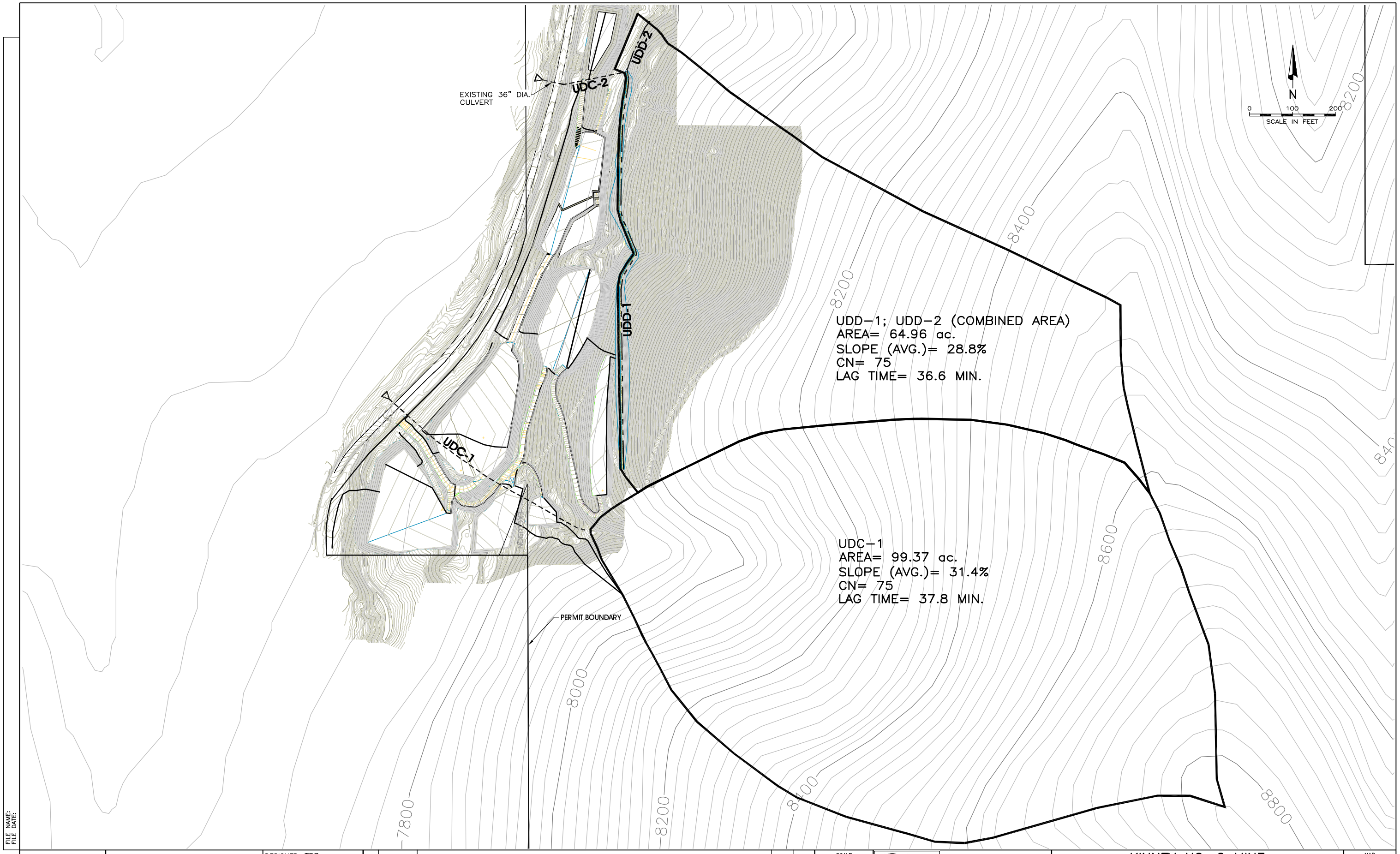
MAP 22
MINE SURFACE FACILITIES
ROAD PROFILES

DRAWN BY: JDB, BAG DATE: 1/2008
APPROVED BY: G.H. DATE:

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:



FILE NAME:
FILE DATE:

DESIGNED .TDS	3						
DRAFTED .JDB	2						
CHECKED .GH	1						
DATE .	NO.	DATE	REVISIONS		BY	APVD.	

SCALE: AS SHOWN

Carbon Resources
Coal For Carbon Country

P.O. Box 954
Sandia Park, NM 87047

KINNEY NO. 2 MINE
DRAINAGE AND SEDIMENT CONTROL PLAN
UNDISTURBED DRAINAGE AREAS

MAP 23

3/04

N

0 50 100
SCALE IN FEET

UDD-2
UDD-1
SEDIMENT POND 1
UDC-2
DC-4
DC-3
DC-2
CC-1
DC-5
DC-6
CP-1
CP-2
PAD C
DC-1
CB-2
CB-1
4' X 4' SURFACE INLET BOX
4' X 4' SURFACE INLET BOX
4' X 4' SURFACE INLET BOX
4' X 4' SURFACE INLET BOX
PAD A
DA-1
PAD B
CD-1
CD-2
DE-2
DE-4
CE-1
DD-1
DD-2
CD-1
DD-3
UDC-1
PAD G
EXCLUSION
DE-1
CD-2
PAD D
PAD E
DE-3
DE-2
CF-1
DE-1
DF-4
DF-3
DF-5
PAD F
CATTLE GUARD
(DITCH DF-5 FLOWS THROUGH)
6' X 6' JUNCTION BOX W/SURFACE GRATE FOR HIGHWAY RUNOFF
PERMIT BOUNDARY
TOPSOIL STOCKPILE AREA W/SILT FENCE
RIPRAP ENERGY DISSIPATION FAN (SEE DETAIL DESIGN IN EXHIBIT 16)
TOPSOIL STOCKPILE AREA W/SILT FENCE
EXISTING HIGHWAY DITCH
UDOT HIGHWAY R-O-W
RIPRAP ENERGY DISSIPATION FAN (SEE DETAIL DESIGN IN EXHIBIT 16)
AREA ENLARGED AT LEFT – TOPSOIL STOCKPILE & INTERSECTION AREA DRAINAGE DETAIL A
EXISTING CULVERT
IRRIGATION BYPASS CULVERT
TOPSOIL STOCKPILE & INTERSECTION - SEE DRAINAGE DETAIL A - THIS MAP
UDOT HIGHWAY R-O-W
EXISTING CULVERT
AREA ENLARGED AT LEFT – TOPSOIL STOCKPILE & INTERSECTION AREA DRAINAGE DETAIL A

CATTLE GUARD
DE-3
DF-4
UDC-1
DF-5
ALT C-1
ALT B-1
EXISTING IRRIGATION DITCH
SEDIMENT TRAPS
TOPSOIL STOCKPILE DRAINAGE DITCH
RIPRAP ENERGY DISSIPATION FAN (SEE DETAIL DESIGN IN EXHIBIT 16)
UNDISTURBED DRAINAGE – IRRIGATION CULVERT
EXISTING 24" DIA. CULVERT
BERM
IBC-1
EXISTING HIGHWAY DITCH
ALT A-1
TOPSOIL STOCKPILE DRAINAGE DITCH
SEDIMENT TRAP – TOPSOIL STOCKPILE W/SILT FENCE OUTLET
PAVEMENT EDGE
ALT A-2
TOPSOIL STOCKPILE DRAINAGE DITCH
UDOT R-O-W
BERM
EXISTING CULVERT
EXISTING HIGHWAY DITCH

TOPSOIL STOCKPILE & INTERSECTION AREA
DRAINAGE DETAIL A
NTS

LEGEND

- ALTERNATE SEDIMENT CONTROL AREA
- SEDIMENT TRAP
- CLEANOUT BOX W/BOLT DOWN LID
- DRAINAGE BOUNDRY
- SURFACE DRAINAGE
- DITCH
- CULVERT – ROAD
- CULVERT – UNDISTURBED DRAINAGE
- POND
- BERM
- INLET BOX

GENERAL NOTE:
PAD GRADING TO CONTROL AND DIRECT FLOW TO DITCH OR CULVERT

FILE NAME:
FILE DATE:

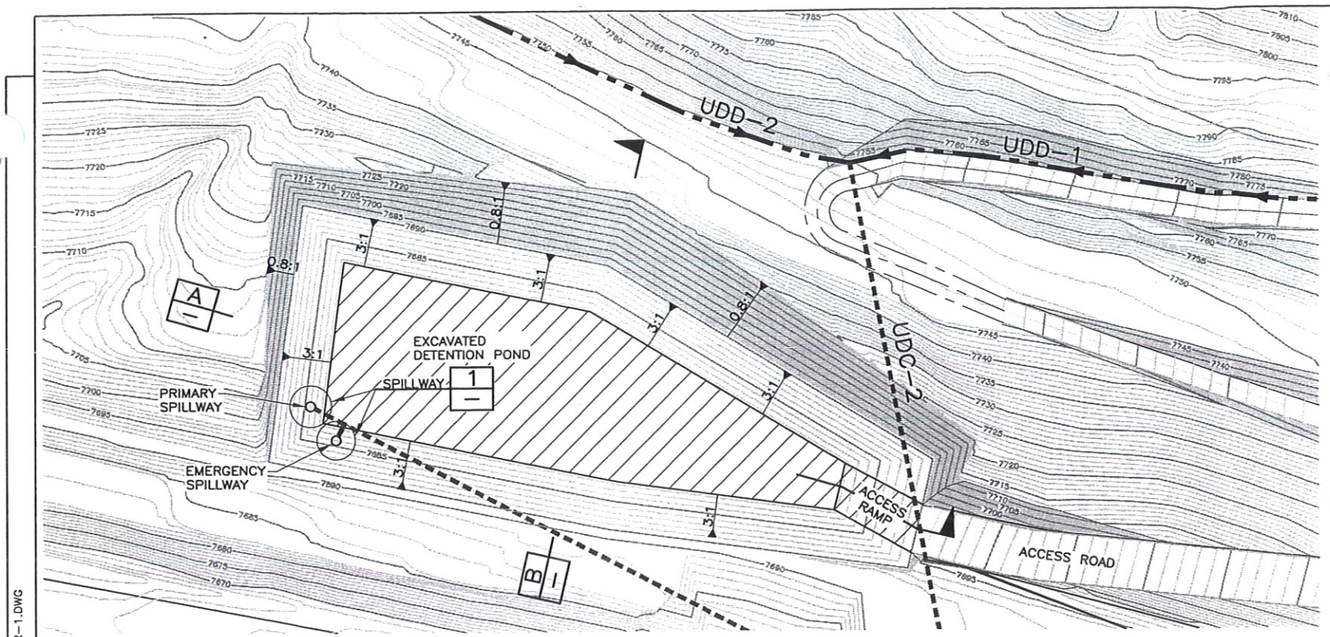
DESIGNED TDS	3					
DRAFTED JDB	2					
CHECKED GH	1					
DATE AUGUST 2010	NO.	DATE	REVISIONS	BY	APVD.	

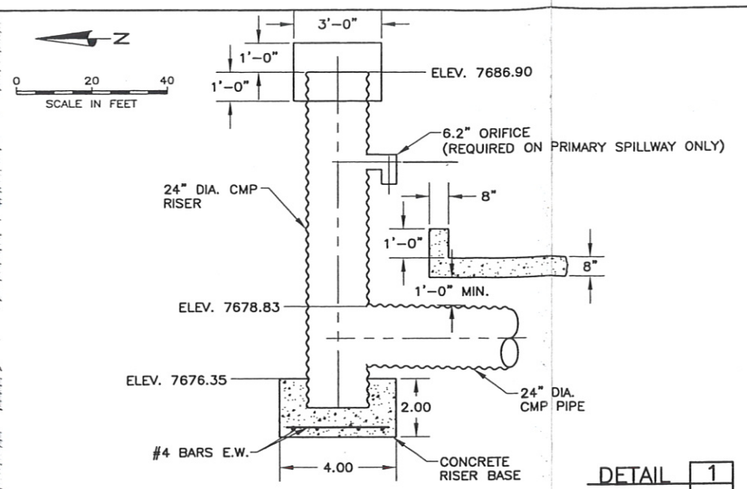
SCALE: AS SHOWN

KINNEY NO. 2 MINE
DRAINAGE AND SEDIMENT CONTROL PLAN
DISTURBED DRAINAGE AREAS

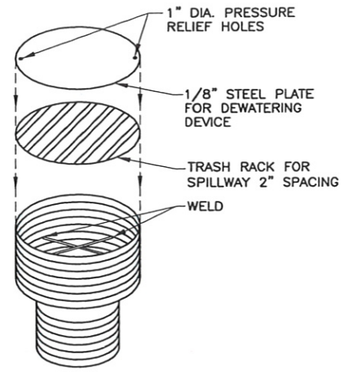
MAP 24

3/04

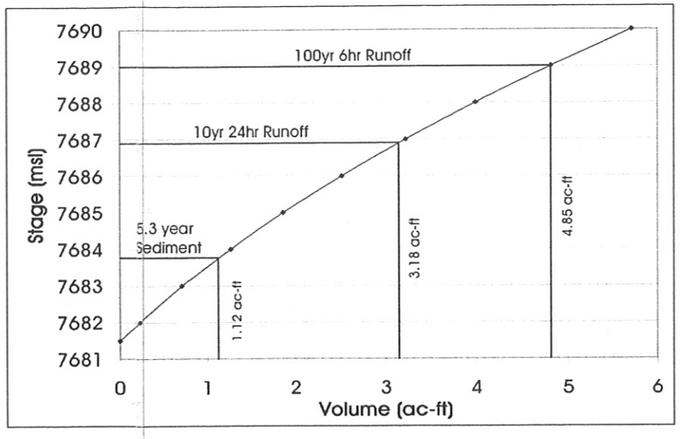


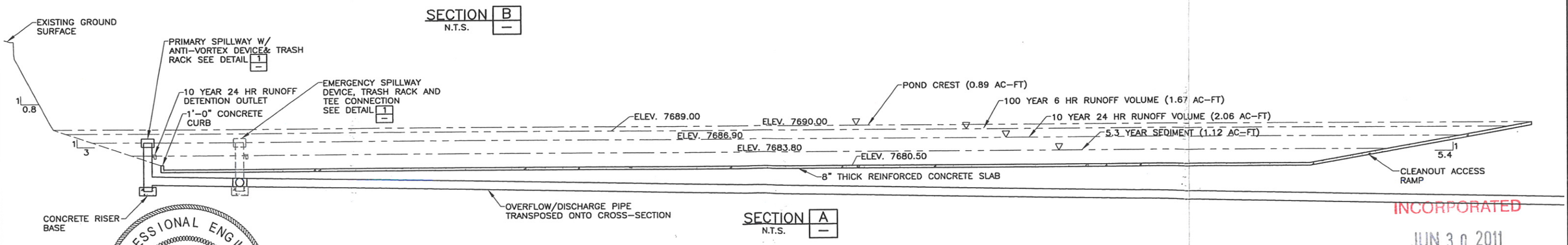


DETAIL 1 — N.T.S.



NOTES:
1. CYLINDER SHOULD BE WELDED TO THE TOP OF THE RISER.
2. SUPPORT BARS AND TRASH RACK ARE #6 REBAR.
3. TRASH RACK FOR SPILLWAY SHOULD BE WELDED TO CYLINDER.
4. PRIMARY AND EMERGENCY RISER DESIGNS ARE THE SAME.





SECTION B — N.T.S.

SECTION A — N.T.S.

INCORPORATED
JUN 30 2011
Div. of Oil, Gas & Mining

PROFESSIONAL ENGINEER
No. 171930 2302
DAVID J. HANSEN
STATE OF UTAH
8/5/10

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED .TDS	3				
DRAFTED .JDB	2				
CHECKED .GH	1				
DATE JANUARY 2008	NO.	DATE	REVISIONS	BY	APVD.

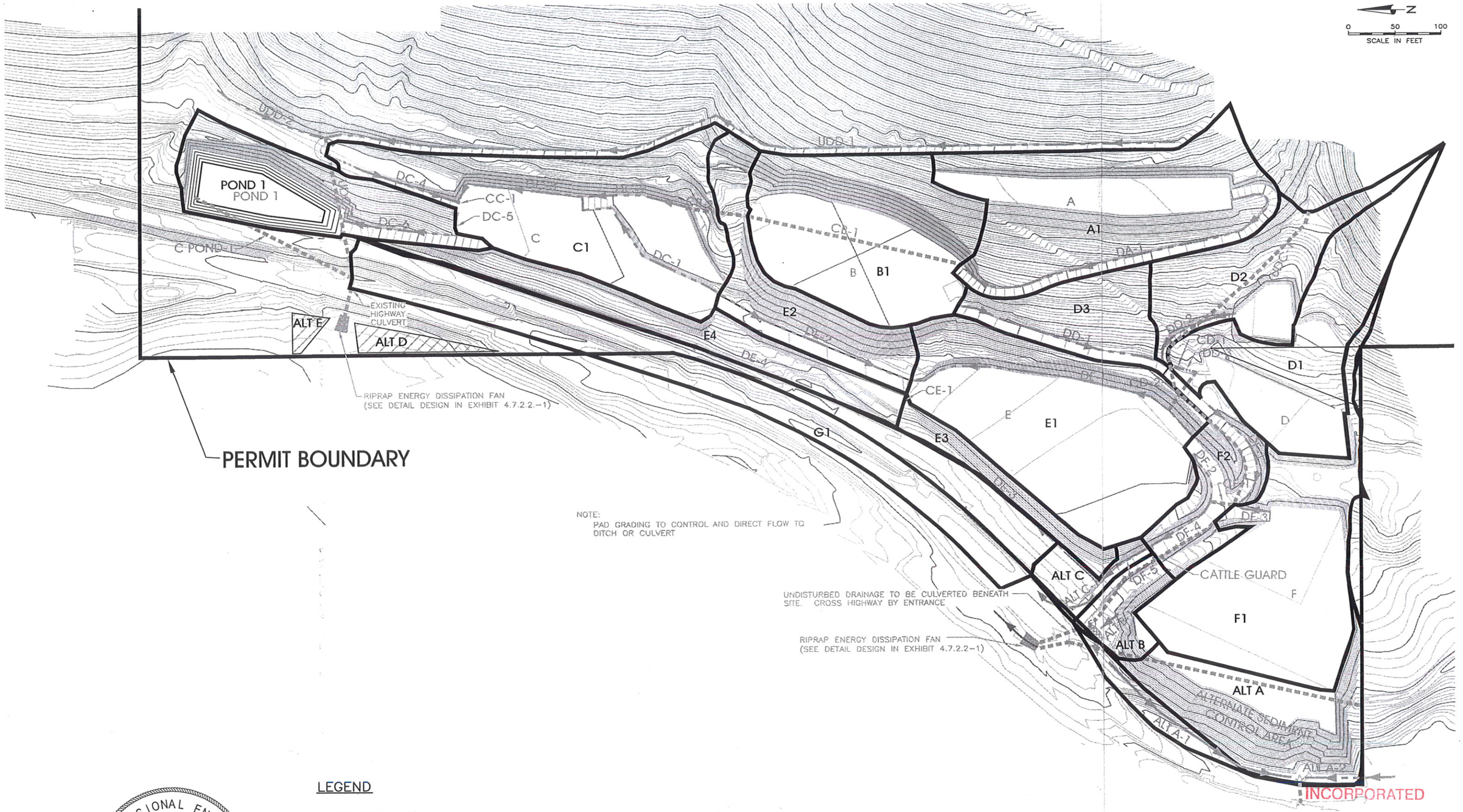
SCALE: AS SHOWN

KINNEY NO. 2 MINE
SEDIMENTATION POND 1
SECTIONS & DETAILS

MAP 25

FILE NAME: ...ECTS\308 - CARBON RESOURCES\01.600 - 2010 UPDATE RESPONSE\CAD\MAPS\MAP 4.7.2.1-3 ...ENT POND NO.1 - R-1.DWG
FILE DATE: 8.5.2010 08:11:53 (CAH)

3/04



LEGEND

- DRAINAGE BOUNDRY
- DITCH
- CULVERT – ROAD
- CULVERT – UNDISTURBED DRAINAGE
- POND
- BERM

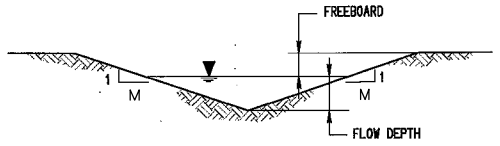
PROFESSIONAL ENGINEER
No. 171930-2202
STATE OF UTAH
DAVID L. HANSEN
8/5/2010

INCORPORATED
JUN 30 2011
Div. of Oil, Gas & Mining

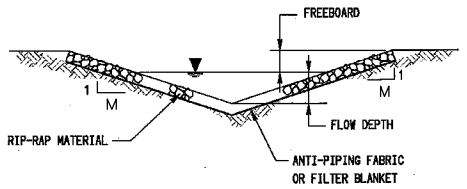
HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED .TDS	3					SCALE	KINNEY NO. 2 MINE DRAINAGE AND SEDIMENT CONTROL PLAN DISTURBED DRAINAGE SUB-BASINS
DRAFTED .JDB	2					AS SHOWN	MAP 26
CHECKED GH	1						
DATE AUGUST 2010	NO.	DATE	REVISIONS	BY	APVD.		

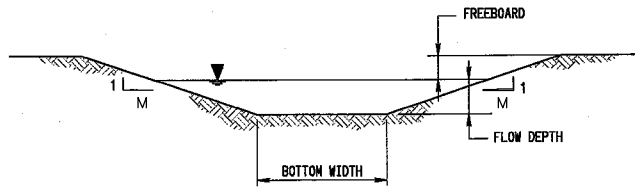
FILE NAME: J:\PROJECTS\308 - CARBON RESOURCES\01.600 - 2010 UPDATE RESPONSE\CAD\CADFILES AUGUST 2010\MAP 4.7.2.1-4 DIST. DRAINAGE SUBBASINS.DWG
FILE DATE: 8.5.2010 08:10:06 (GAH)
3704



TYPICAL TRIANGULAR CHANNEL SECTION

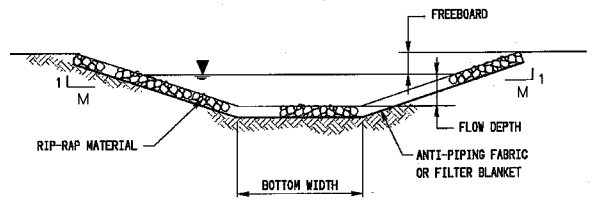


TYPICAL TRIANGULAR CHANNEL SECTION



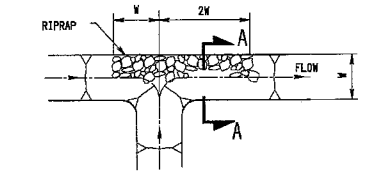
TYPICAL TRAPEZOIDAL CHANNEL SECTION

TYPICAL EARTHEN DRAINAGE STRUCTURE DETAIL

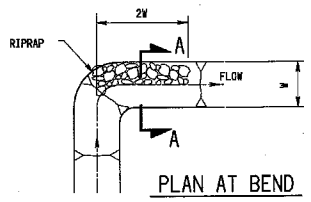


TYPICAL TRAPEZOIDAL CHANNEL SECTION

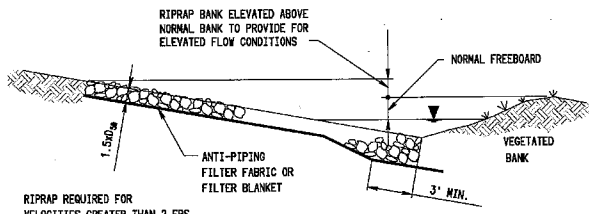
TYPICAL EARTHEN DRAINAGE WITH RIPRAP STRUCTURE DETAIL



PLAN AT "TEE" JUNCTION

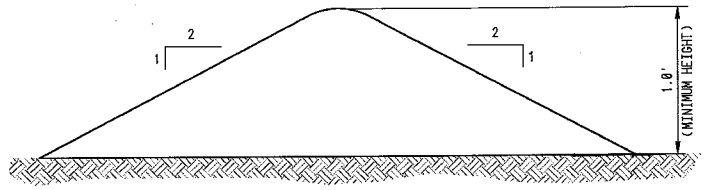


PLAN AT BEND



SECTION A-A

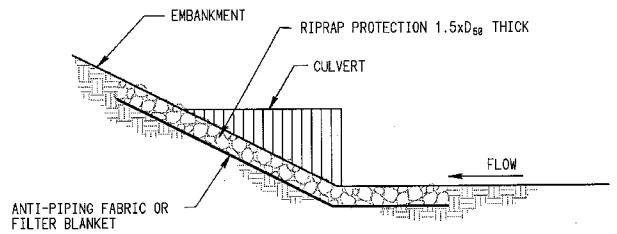
TYPICAL CHANNEL BANK RIPRAP DETAIL



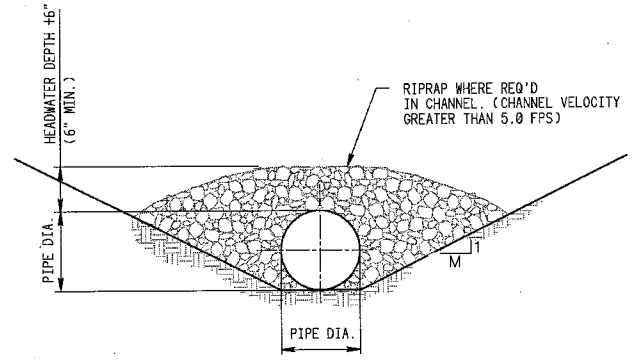
DRAINAGE BERM DETAIL

NOTE: EARTHEN BERM SHALL CONSIST OF ON SITE NATIVE SOILS. BERMS SHALL BE REGULARLY MAINTAINED.

TYPICAL EARTHEN BERM DETAIL

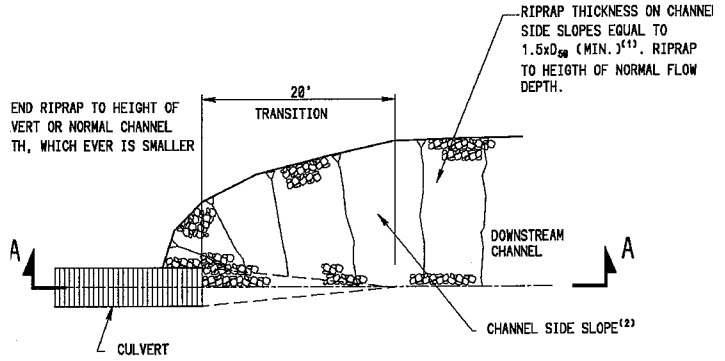


PROFILE VIEW



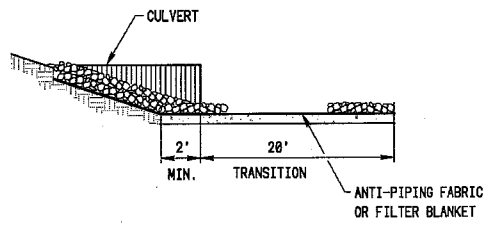
FRONT VIEW

TYPICAL RIPRAP HEAD WALL PROTECTION DETAIL



PLAN VIEW

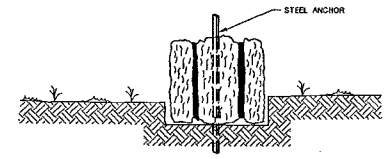
FOR VELOCITIES GREATER THAN 5 FPS (3)



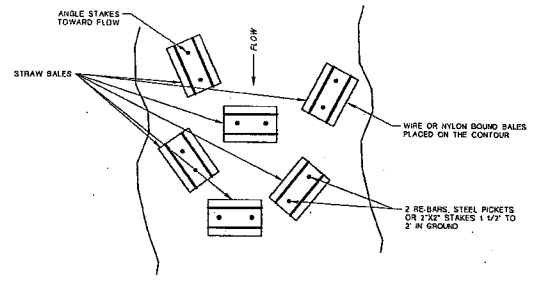
SECTION A-A

NOTES:
1. RIPRAP ON DOWNSTREAM CHANNEL ONLY APPLICABLE FOR LINED

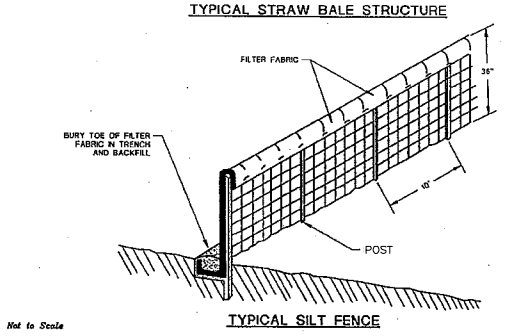
TYPICAL CULVERT OUTLET EROSION PROTECTION DETAIL



EMBEDDING DETAIL



TYPICAL STRAW BALE STRUCTURE



Not to Scale

TYPICAL SILT FENCE

TYPICAL SEDIMENT CONTROL DETAIL

FILE NAME:
FILE DATE:

3/04

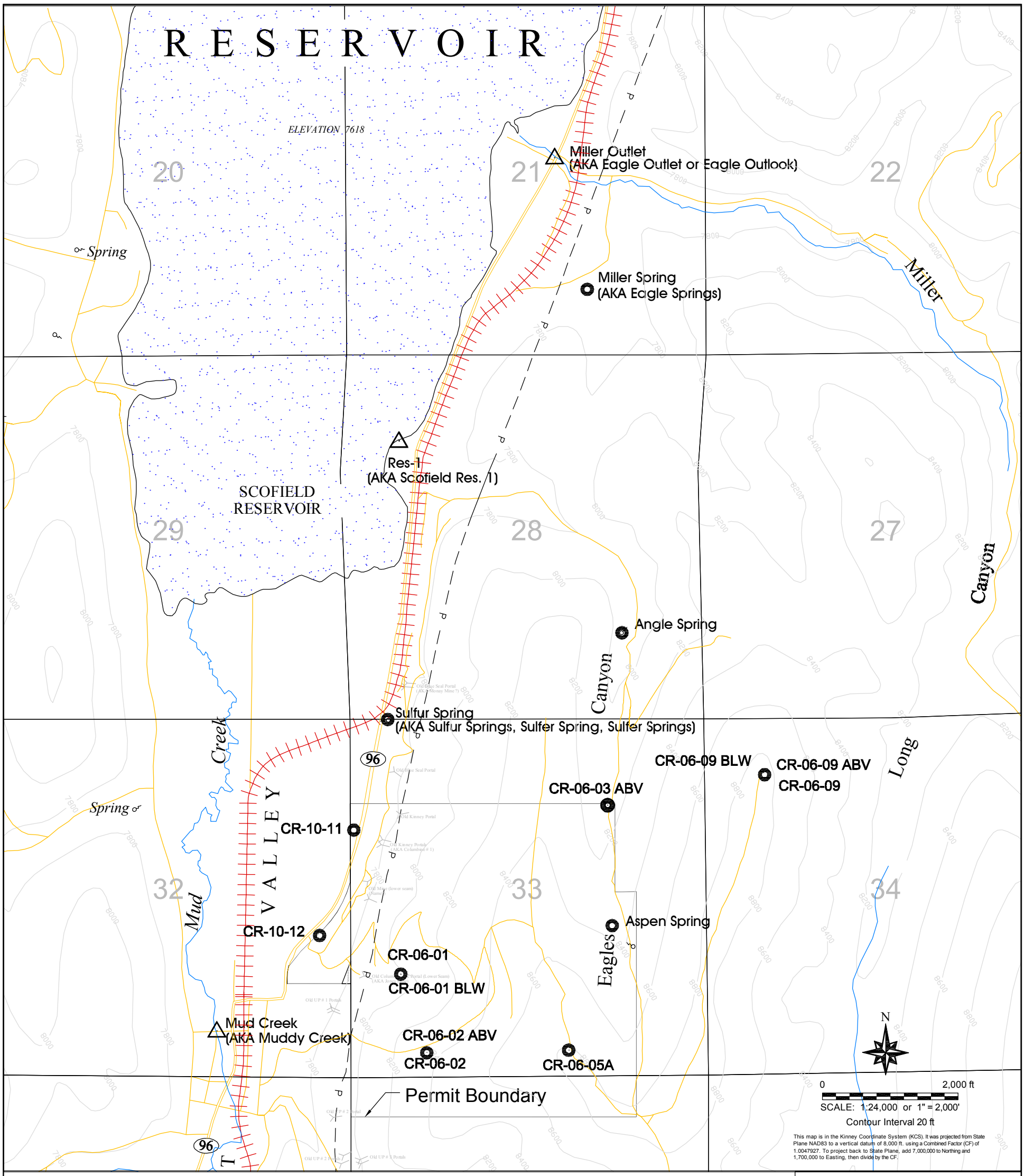
DESIGNED .	3					SCALE NOT TO SCALE
DRAFTED JDB	2					
CHECKED .	1					
DATE .	NO.	DATE	REVISIONS	BY	APVD.	

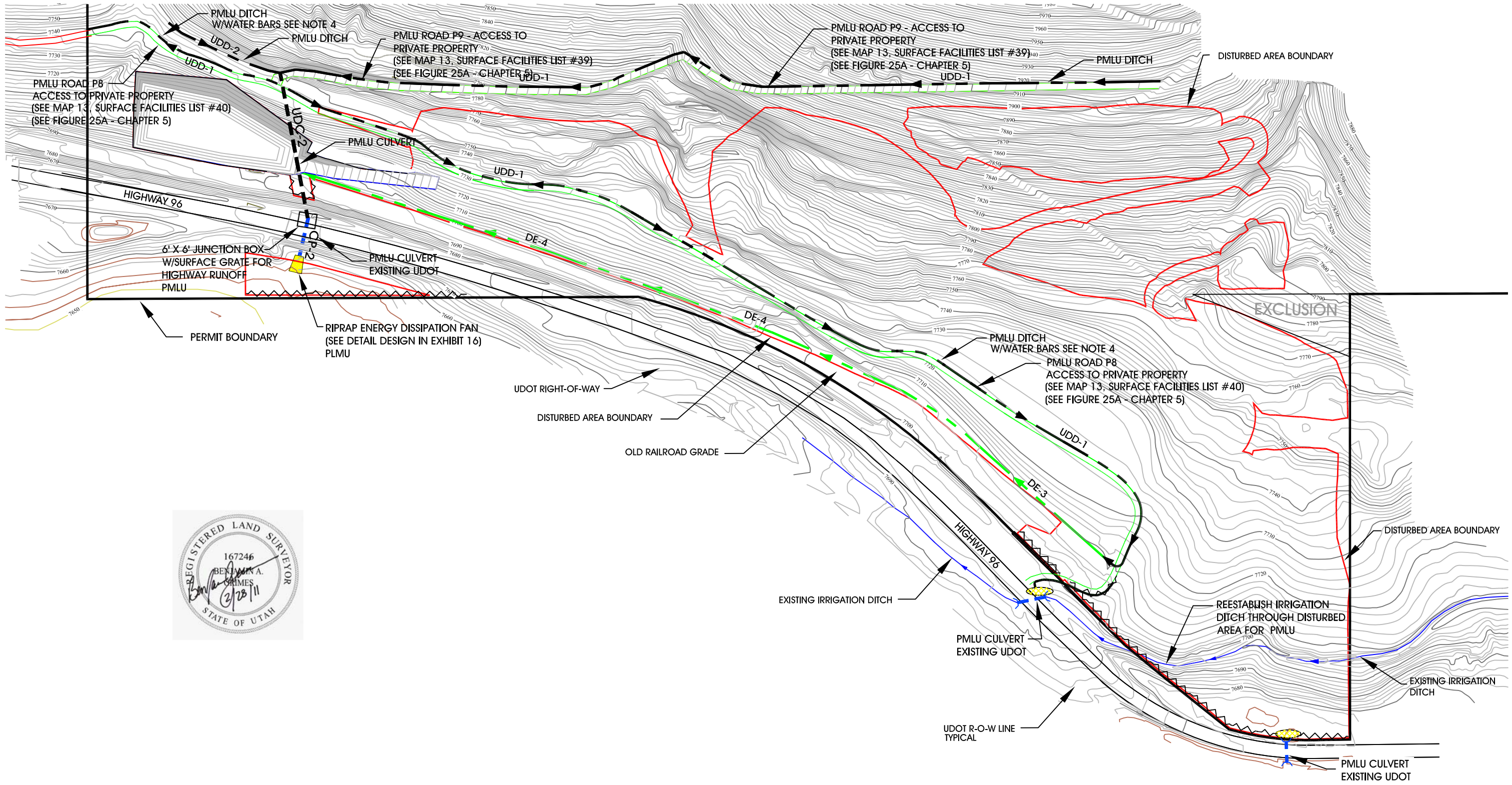
Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

KINNEY NO. 2 MINE
RUNOFF CONTROL DETAILS

MAP
27


RESERVOIR
ELEVATION 7618
20
21
22
Spring
Miller Outlet
(AKA Eagle Outlet or Eagle Outlook)
Miller Spring
(AKA Eagle Springs)
Miller
Canyon
Res-1
(AKA Scofield Res. 1)
SCOFIELD
RESERVOIR
29
28
27
Angle Spring
Canyon
Sulfur Spring
(AKA Sulfur Springs, Sulfer Spring, Sulfer Springs)
Creek
96
CR-06-09 BLW
CR-06-09 ABV
CR-06-09
Long
CR-06-03 ABV
Spring
CR-10-11
VALLEY
32
33
34
Mud
CR-10-12
Aspen Spring
Eagles
CR-06-01
CR-06-01 BLW
Mud Creek
(AKA Muddy Creek)
CR-06-02 ABV
CR-06-02
CR-06-05A
Permit Boundary
96
NT
N
0
2,000 ft
SCALE: 1:24,000 or 1" = 2,000'
Contour Interval 20 ft
This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back to State Plane, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.
LEGEND
Mud Creek
AKA Muddy Creek
Surface Water Monitoring Location
CR-06-02
Ground Water Monitoring Location
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
8000
SURFACE ELEVATION
OLD MINE PORTAL
ROADS
RAILROAD
ELECTRICAL LINES
PERMIT BOUNDARY
Carbon Resources LLC
KINNEY NO. 2 MINE
MAP 28
Surface & Ground Water Monitoring Sites
DRAWN BY: GLH
DATE: 9/28/10
APPROVED BY: GLH
DATE: 9/28/10
Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047
FILE: Surf & GW Mon Loc 8-12-07



REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
2/28/11
STATE OF UTAH

NOTES:

1. ALTERNATIVE SEDIMENT CONTROLS TO BE REMOVED AT END OF BOND PERIOD EXCEPT WHERE LABELED PMLU.
2. SEDIMENT POND AND POND ACCESS ROAD TO BE REMOVED AT END OF PHASE 1 BOND PERIOD.
3. CONTOURS SHOWN INSIDE THE DISTRUBED AREA BOUNDARY INDICATE APROXIMAET ORIGINAL CONTOUR CONFIGURATION EXECPT FOR THE SEDIMENT POND AND IT'S ACCESS ROAD, WHICH WILL BE RECLAIMED AT THE END OF PHASE I BOND PERIOD.
4. ROAD P8 SHALL HAVE WATER BARS CONSTRUCTED AT 300 FOOT SPACING OR AS RECOMMENDED IN US FOREST SERVICE PUBLICATION NO.7700 – TRANSPORTATION SYSTEMS, 2500 – WATERSHED AND AIR MANAGEMENT, SEPT. 1998.

LEGEND

- PMLU — POST MINING LAND USE WHERE APPLICABLE
- SEDIMENT TRAP
- CULVERT – UNDISTURBED DRAINAGE PMLU
- PRE–MINING CULVERTS
- ALTERNATIVE SEDIMENT CONTROL
- INLET BOX PMLU
- POST MINING IRRIGATION DITCHES
- DITCHES TO BE RECLAIMED WHEN SEDIMENT PONDS IS RECLAIMED
- POST MINING ROAD
- MINING DISTURBANCE BOUNDARY
- PERMIT BOUNDARY
- POST MINING LAND USE DITCHES

N

0 100 200 300 ft

SCALE
Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

REVISED 2/25/11 ADDED INTERIM DRAINAGE CONTROLS

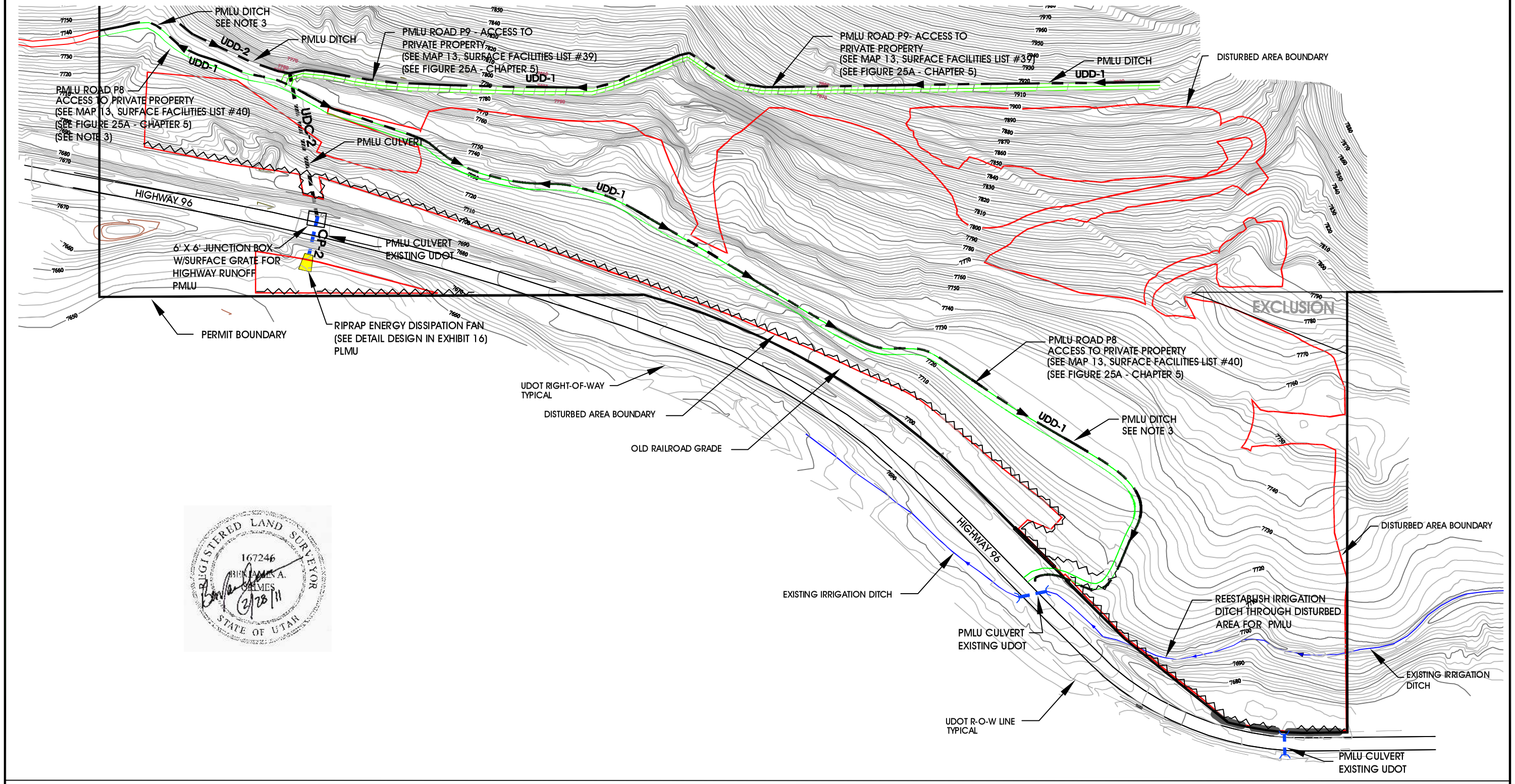
Carbon Resources LLC

KINNEY NO. 2 MINE
MAP 29
MINE SURFACE FACILITIES AREA
POST MINING TOPOGRAPHY
& INTERIM DRAINAGE CONTROL

DRAWN BY:	B.G.	DATE: 2/25/11
APPROVED BY:	G.H.	DATE: 2/25/11

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park , NM 87047

DWG. NAME:



REGISTERED LAND SURVEYOR
167246
BRIAN A. GRIMES
2/28/11
STATE OF UTAH

NOTES:

1. ALTERNATIVE SEDIMENT CONTROLS TO BE REMOVED AT END OF BOND PERIOD
2. THE CONTOURS SHOWN INSIDE THE DISTURBED AREA BOUNDARY REPRESENT THE GROUND SURFACE AS IT WILL BE RECLAIMED TO THE APPROXIMATE ORIGINAL CONTOUR.
3. ROAD P8 SHALL HAVE WATER BARS CONSTRUCTED AT 300 FOOT SPACING OR AS RECOMMENDED IN US FOREST SERVICE PUBLICATION NO.7700 – TRANSPORTATION SYSTEMS, 2500 – WATERSHED AND AIR MANAGEMENT, SEPT. 1998.

LEGEND

- PMLU — POST MINING LAND USE WHERE APPLICABLE
- CULVERT – UNDISTURBED DRAINAGE PMLU
- INLET BOX PMLU
- PRE–MINING CULVERTS
- MINING DISTURBANCE BOUNDARY
- PERMIT BOUNDARY
- POST MINING LAND USE IRRIGATION DITCH
- ALTERNATE SEDIMENT CONTROLS
- POST MINING LAND USE ROADS
- POST MINING LAND USE DITCHES

N

0 100 200 300 ft

SCALE
Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

REVISED 4/23/2011 - ADDED NOTES TO PMLU ROADS

Carbon Resources LLC

KINNEY NO. 2 MINE
MAP 29A

MINE SURFACE FACILITIES AREA
POST MINING TOPOGRAPHY

DRAWN BY:	B.G.	**DATE:**	2/25/11
APPROVED BY:	G.H.	**DATE:**	2/25/11

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park , NM 87047

DWG. NAME:

91-4891/E1934
91-4891/E1934
91-4891/E1934
91-4891/E1934
SCOFIELD RESERVOIR
91-5069
a34946
91-5106
91-3401
91-3402
E164
91-4889
E1912
SCOFIELD TOWN
91-4909
E2567
91-5165
a34604
PERMIT BOUNDARY
GROUND WATER RIGHTS WITHIN 2 MILE RADIUS
T12S
T13S
R7E
R8E
Canyon
Miller
Johnston
Long
Eagles
Mud
Creek
Quarters
Jump
Green
Spring
RR TRACKS
PLEASANT VALLEY
U.P. Canyon
0 1000 2000 3000
SCALE

LEGEND

- CONTOUR LINES
- POWER LINES
- ROADS
- STREAMS
- RAILROAD TRACKS
- 91-4889 GROUND WATER RIGHTS
- a34606 GROUND WATER RIGHTS CHANGE POINT OF DIVERSION
- E2467 GROUND WATER RIGHTS EXCHANGE

NO.	REVISION	DATE	BY	CHKD
9				
8				
7				
6				
5				
4				
3				
2				
1	UPDATED WATER RIGHTS	3-10-11	B.G.	G.H.

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 30

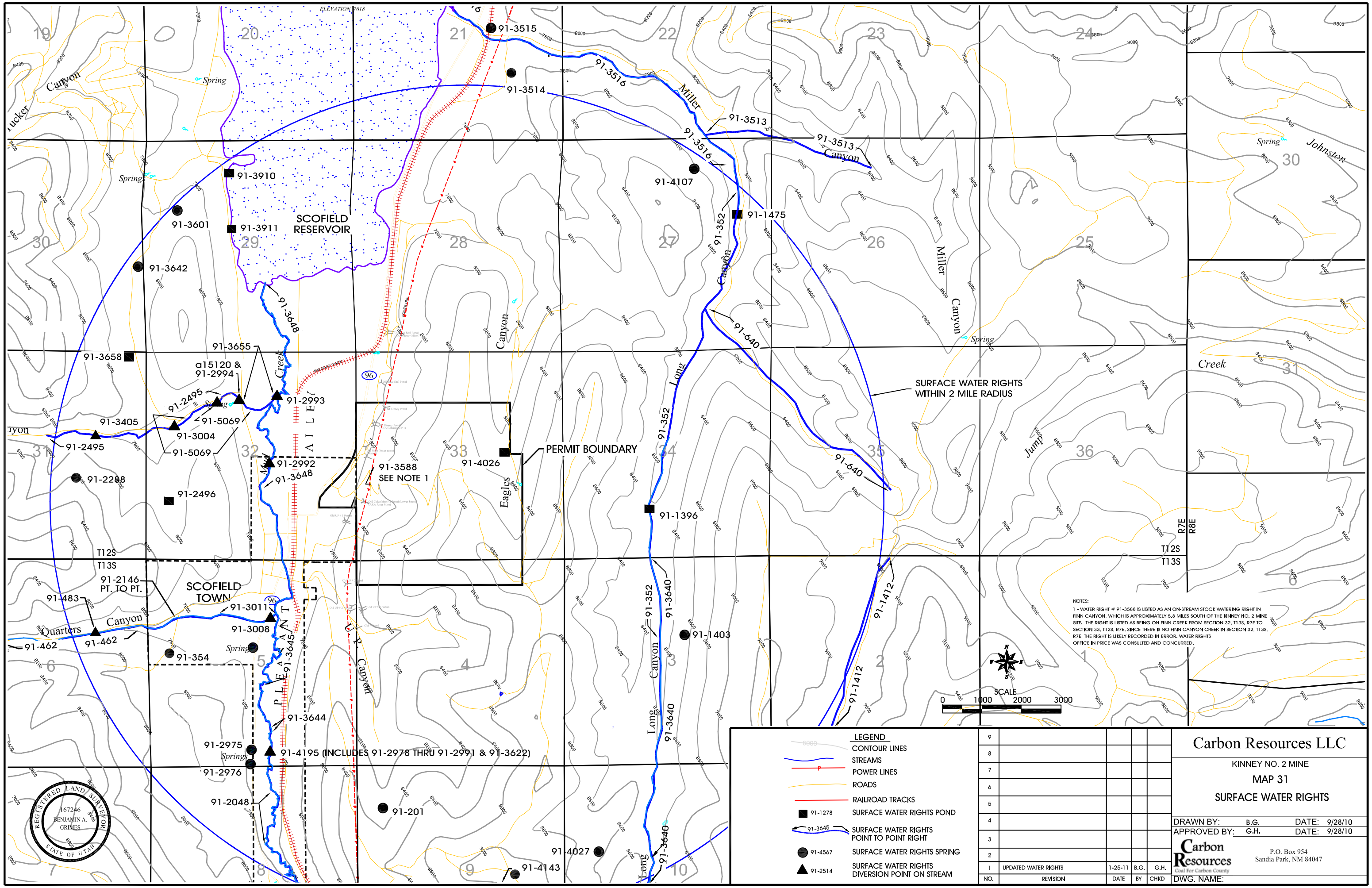
GROUND WATER RIGHTS

DRAWN BY: B.G. DATE: 9/28/10

APPROVED BY: G.H. DATE: 9/28/10

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 84047

DWG. NAME:



NO.	REVISION	DATE	BY	CHKD
9				
8				
7				
6				
5				
4				
3				
2				
1	UPDATED WATER RIGHTS	1-25-11	B.G.	G.H.

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 31

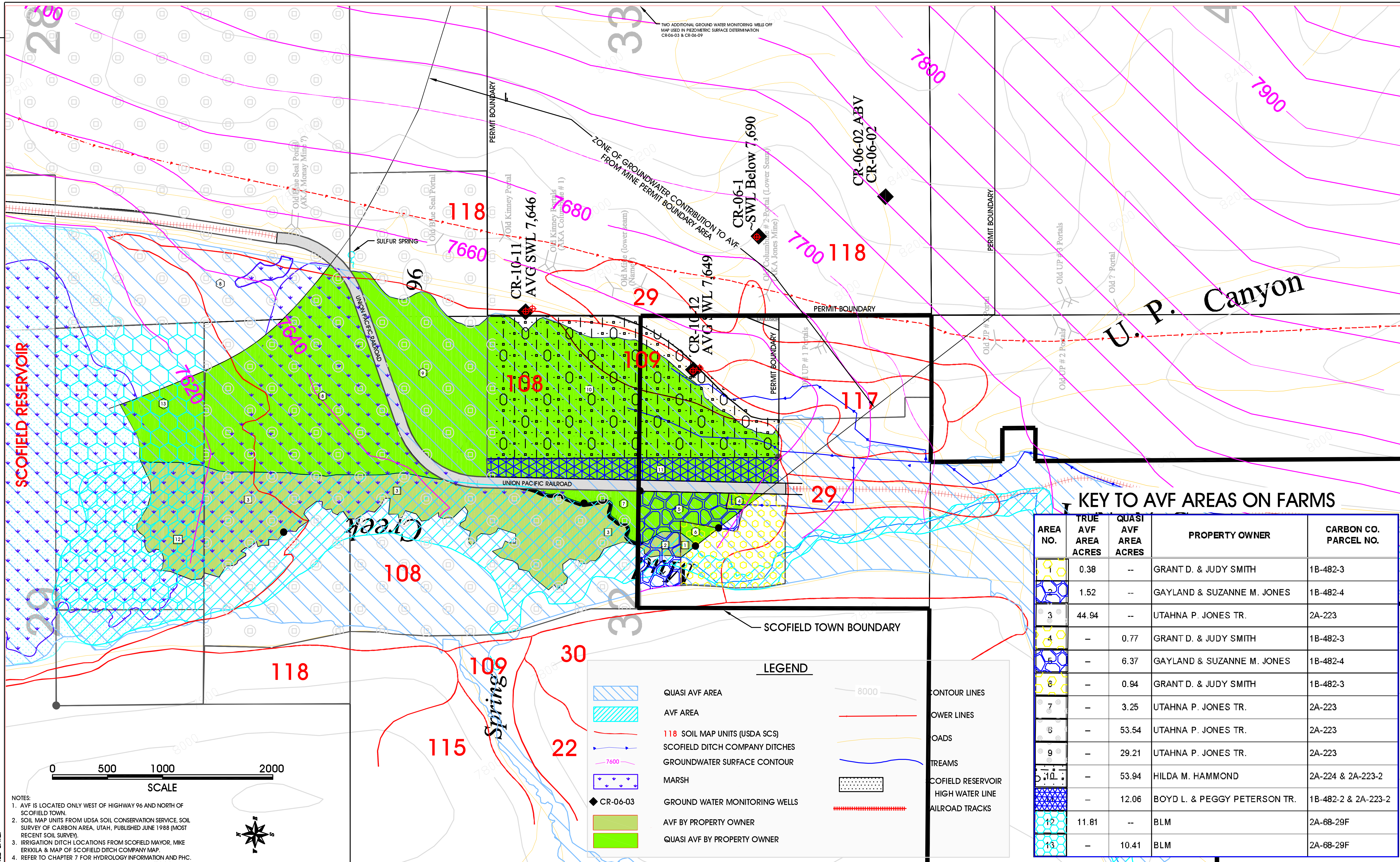
SURFACE WATER RIGHTS

DRAWN BY: B.G. DATE: 9/28/10

APPROVED BY: G.H. DATE: 9/28/10

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 84047

DWG. NAME:



KEY TO AVF AREAS ON FARMS

AREA NO.	TRUE AVF AREA ACRES	QUASI AVF AREA ACRES	PROPERTY OWNER	CARBON CO. PARCEL NO.
1	0.38	--	GRANT D. & JUDY SMITH	1B-482-3
2	1.52	--	GAYLAND & SUZANNE M. JONES	1B-482-4
3	44.94	--	UTAHNA P. JONES TR.	2A-223
4	–	0.77	GRANT D. & JUDY SMITH	1B-482-3
5	–	6.37	GAYLAND & SUZANNE M. JONES	1B-482-4
6	–	0.94	GRANT D. & JUDY SMITH	1B-482-3
7	–	3.25	UTAHNA P. JONES TR.	2A-223
8	–	53.54	UTAHNA P. JONES TR.	2A-223
9	–	29.21	UTAHNA P. JONES TR.	2A-223
10	–	53.94	HILDA M. HAMMOND	2A-224 & 2A-223-2
11	–	12.06	BOYD L. & PEGGY PETERSON TR.	1B-482-2 & 2A-223-2
12	11.81	--	BLM	2A-68-29F
13	–	10.41	BLM	2A-68-29F

LEGEND

- QUASI AVF AREA
- AVF AREA
- 118 SOIL MAP UNITS (USDA SCS)
- SCOFIELD DITCH COMPANY DITCHES
- 7600 GROUNDWATER SURFACE CONTOUR
- MARSH
- CR-06-03 GROUND WATER MONITORING WELLS
- AVF BY PROPERTY OWNER
- QUASI AVF BY PROPERTY OWNER
- 8000 CONTOUR LINES
- OWER LINES
- OADS
- TREAMS
- COFIELD RESERVOIR HIGH WATER LINE
- AILROAD TRACKS

SCALE: 0 500 1000 2000

NOTES:
1. AVF IS LOCATED ONLY WEST OF HIGHWAY 96 AND NORTH OF SCOFIELD TOWN.
2. SOIL MAP UNITS FROM UDSA SOIL CONSERVATION SERVICE, SOIL SURVEY OF CARBON AREA, UTAH, PUBLISHED JUNE 1988 (MOST RECENT SOIL SURVEY).
3. IRRIGATION DITCH LOCATIONS FROM SCOFIELD MAYOR, MIKE ERKKILA & MAP OF SCOFIELD DITCH COMPANY MAP.
4. REFER TO CHAPTER 7 FOR HYDROLOGY INFORMATION AND PHC.

FILE NAME:
FILE DATE:

DESIGNED	B.G.	3				
DRAFTED	B.G.	2				
CHECKED	G.H.	1				
DATE	8/30/10	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

KINNEY NO. 2 MINE
MAP 32
AVF EVALUATION MAP

MAP 32

3/04

Planned Disturbance

UNIT	ACRES	CUBIC YDS.
DA-1	0.59	1,180.3
DA-2	0.24	469.5
DA-3	12.78	25,371.7
DA-4	0.45	889.9
DA-5	0.07	147.3
Sub-Tot	**14.10**	**28,058.7**
DB-1	0.02	43.1
DB-2	0.99	1,969.5
DB-3	0.04	79.3
DB-4	2.84	5,643.3
DB-5	1.95	3,875.0
DB-6	0.39	773.5
DB-7	0.01	17.5
Sub-Tot	**6.24**	**12,401.1**
1B-1	0.06	274.6
1B-2	0.22	1,023.0
1B-3	0.33	1,520.2
Sub-Tot	**0.60**	**2,817.8**
2A-1	0.66	3,147.9
2A-2	3.15	15,005.4
2A-3	0.11	528.9
2A-4	0.07	336.4
2A-5	0.02	82.4
2A-6	0.27	1,305.0
2A-7	0.06	279.8
2A-8	0.21	1,014.9
Sub-Tot	**4.56**	**21,700.8**
2B-1	0.05	84.0
2B-2	0.96	1,645.7
2B-3	0.23	393.1
2B-4	0.44	754.5
Sub-Tot	**1.68**	**2,877.3**
3AN	0.08	242.8
3A S	0.20	409.0
3A	0.10	236.7
Sub-Tot	**0.38**	**888.6**
TOTAL	**27.6**	**68,744.3**

SOIL TYPES and Planned Disturbance Areas

- DA Disturbed Lands, 0-20% Slopes
- DB Disturbed Lands, 20-50% Slopes
- 2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
- 1B Typic Argicryoll Consociaion, 35-70% Slopes
- 2B Typic Argixeroll Consociation, 35-70% Slopes
- 3A Cumulic Haplocryoll, 0-3% Slopes

LEGEND

- SP 2A1 — Soil Survey Sample Pit 2006 Field Work w/Lab Analysis
- 6 SP 07 — Soil Survey Sample Pit 2007 Field Work w/Lab Analysis
- WSF-2 — Soil Stability Sample Pit 2007 Field Work; Soil Horizion Data Only, NO /Lab Analysis
- 3-CP — Reclaimed Coal, Measurement & Sample Plt
- Reclaimed Coal Distribution Outline
- Permit Boundary (Portal Block)
- Averaged 30% Slope Break LIne Barbs Point Up-Hill

N

0 200 ft

SCALE: 1:2,400 or 1" = 200'

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

Map 34
Top Soil to be DISTURBED

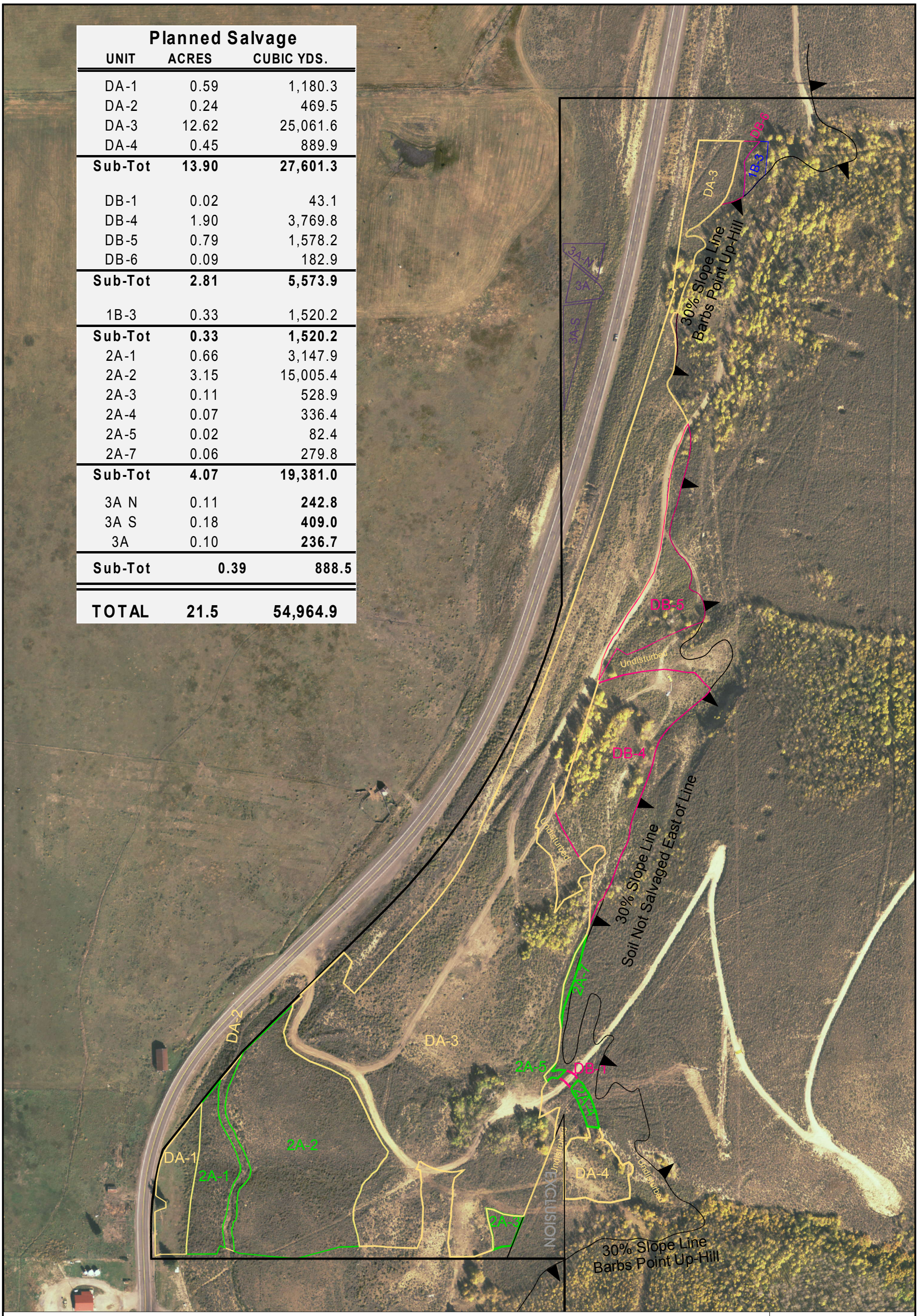
DRAWN BY: GLH DATE: 9-1-2010
APPROVED BY: BG DATE: 9-15-2010

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

File: Map 34 Disturbed TS

Planned Salvage

UNIT	ACRES	CUBIC YDS.
DA-1	0.59	1,180.3
DA-2	0.24	469.5
DA-3	12.62	25,061.6
DA-4	0.45	889.9
Sub-Tot	**13.90**	**27,601.3**
DB-1	0.02	43.1
DB-4	1.90	3,769.8
DB-5	0.79	1,578.2
DB-6	0.09	182.9
Sub-Tot	**2.81**	**5,573.9**
1B-3	0.33	1,520.2
Sub-Tot	**0.33**	**1,520.2**
2A-1	0.66	3,147.9
2A-2	3.15	15,005.4
2A-3	0.11	528.9
2A-4	0.07	336.4
2A-5	0.02	82.4
2A-7	0.06	279.8
Sub-Tot	**4.07**	**19,381.0**
3A N	0.11	**242.8**
3A S	0.18	**409.0**
3A	0.10	**236.7**
Sub-Tot	**0.39**	**888.5**
TOTAL	**21.5**	**54,964.9**



SOIL TYPES and
Planned Salvage Areas

DA Disturbed Lands, 0-20% Slopes
DB Disturbed Lands, 20-50% Slopes
1B Coarse-Loamy Typic Argicryoil Consociation
2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
3A Cumulic Haplocryoll, 0-3% Slopes

LEGEND

Averaged 30% Slope Break Line
Barbs Point Up-Hill

Permit Boundary (Portal Block)

N

0 200ft

SCALE: 1:,400 or 1" = 200'

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

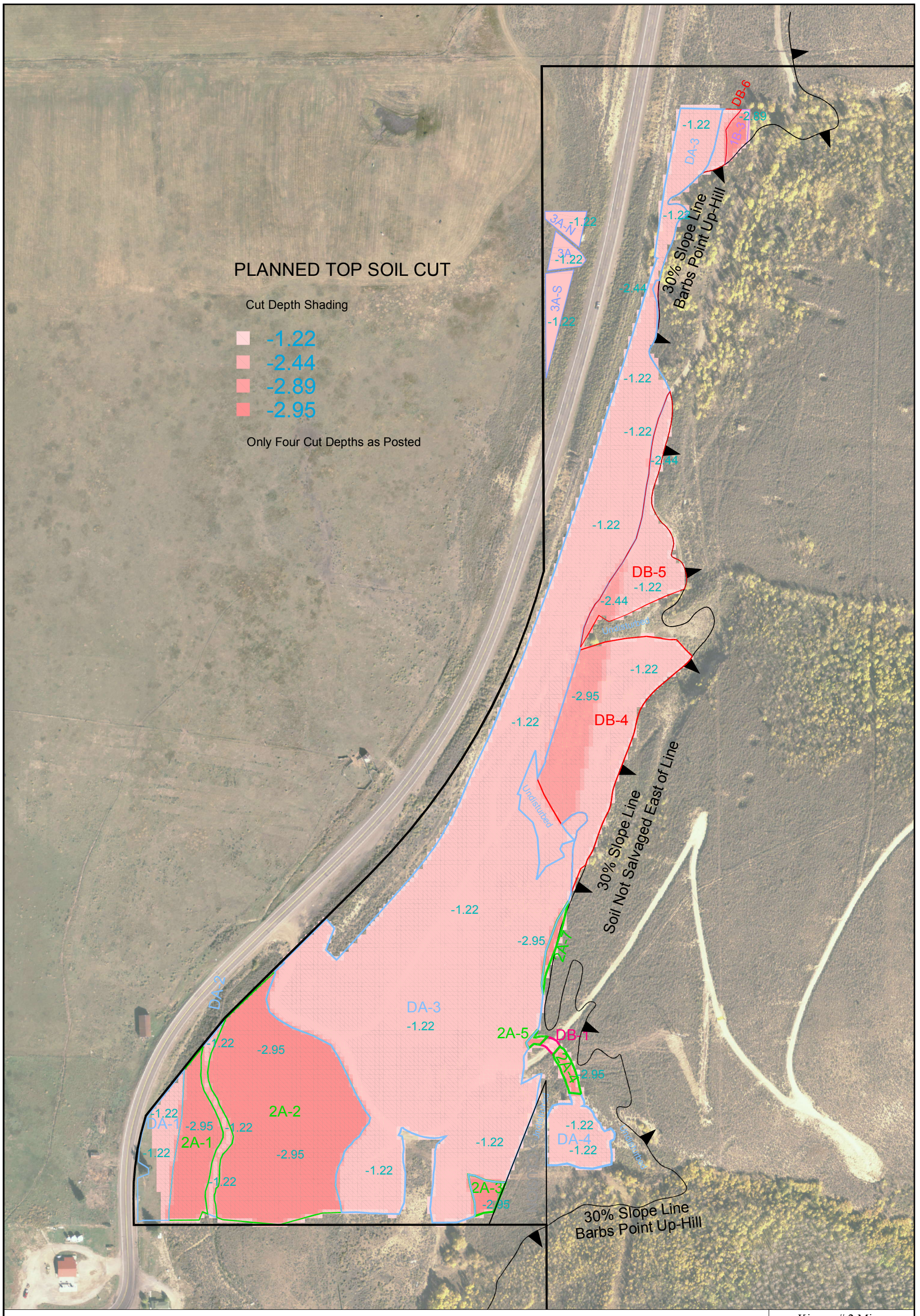
MAP 36

Planned Salvage Area Soil Map

DRAWN BY: BC & GLH DATE: 9/5/-2010
APPROVED BY: BG DATE: 9/10/2010

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: Map 36 planned salvage area soil map



SOIL TYPES and
Planned Disturbance Areas

DA Disturbed Lands, 0-20% Slopes
DB Disturbed Lands, 20-50% Slopes
1B Coarse-Loamy Typic Argicryoil Consociation
2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
3A Cumulic Haplocryoll, 0-3% Slopes

LEGEND

Averaged 30% Slope Break Line
Barbs Point Up-Hill

Permit Boundary (Portal Block)

N

0 200ft

SCALE: 1:,400 or 1" = 200'

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

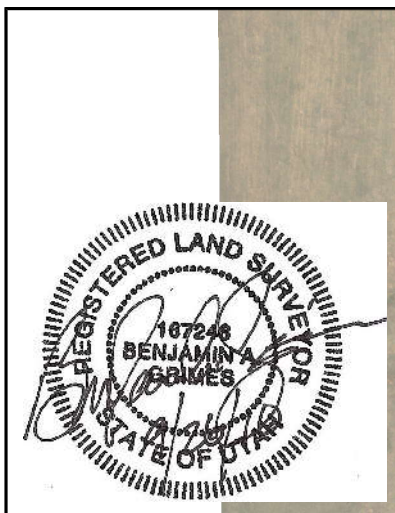
MAP 37

Planned Topsoil Cut Design

DRAWN BY: BC & GLH	DATE: 9/5/-2010
APPROVED BY: GLH	DATE: 9/10/2010

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

File: Map 37 Total TS Cut Design



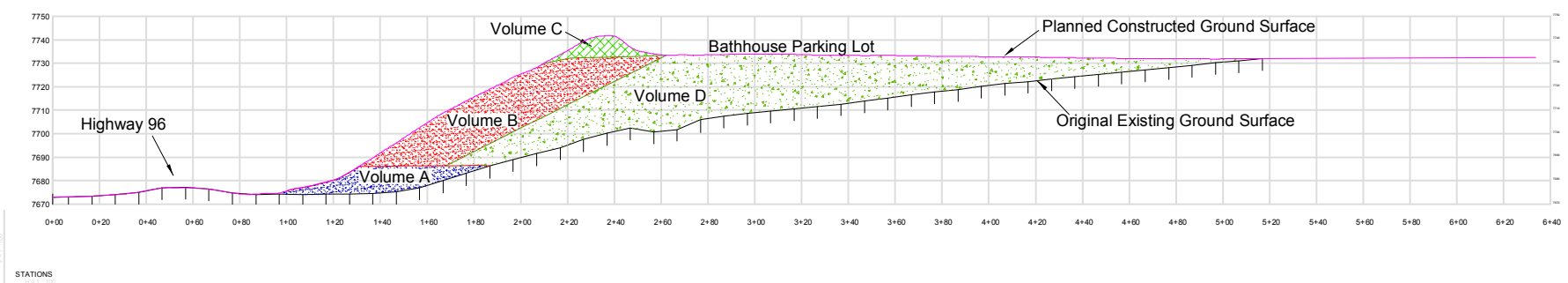
FILL - TOPSOIL STORAGE PILES

A-Horizon Storage	Cubic Yds
VOL B: SW of Parking Lot TS Pile	18,223
West of Highway N	612
West of Highway S	1,436
VOL C: Additional Capacity, TOP SW Parking Lot	2,077
A-Horizon Storage Capacity Total	22,348
A-Horizon Storage Capacity Needed	20,271
Previously Disturbed Soil & B-Horizon Storage	
VOL D: Parking Lot Storage Capacity	89,420
Previously Disturbed Soil & B-Horizon Storage Capacity Needed	33,175

W

SOIL X-Section, Bathhouse Area

E



X-Section LEGEND

Volume D = Previously Disturbed Soil Fill Beneath Parking Lot (Capacity 33,175 CY)
Volume C = A-Horizon Additional Storage Capacity (2,077 CY Capacity)
Volume B = A-Horizon Main TS Stockpile (18,223 CY Capacity)
Volume A = Underlayment of Volume B
Keeps Volume B Topsoil Protected from Road Salt Etc.

MAP LEGEND

SOIL TYPES

DA Disturbed Lands, 0-20% Slopes
DB Disturbed Lands, 20-50% Slopes
2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
1B Typic Argicryoll Consociaion, 35-70% Slopes
2B Typic Argixeroll Consociation, 35-70% Slopes
3A Cumulic Haplocryoll, 0-3% Slopes

Permit Boundary

N
0 200 ft
SCALE: 1:2,400 or 1" = 200'
Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

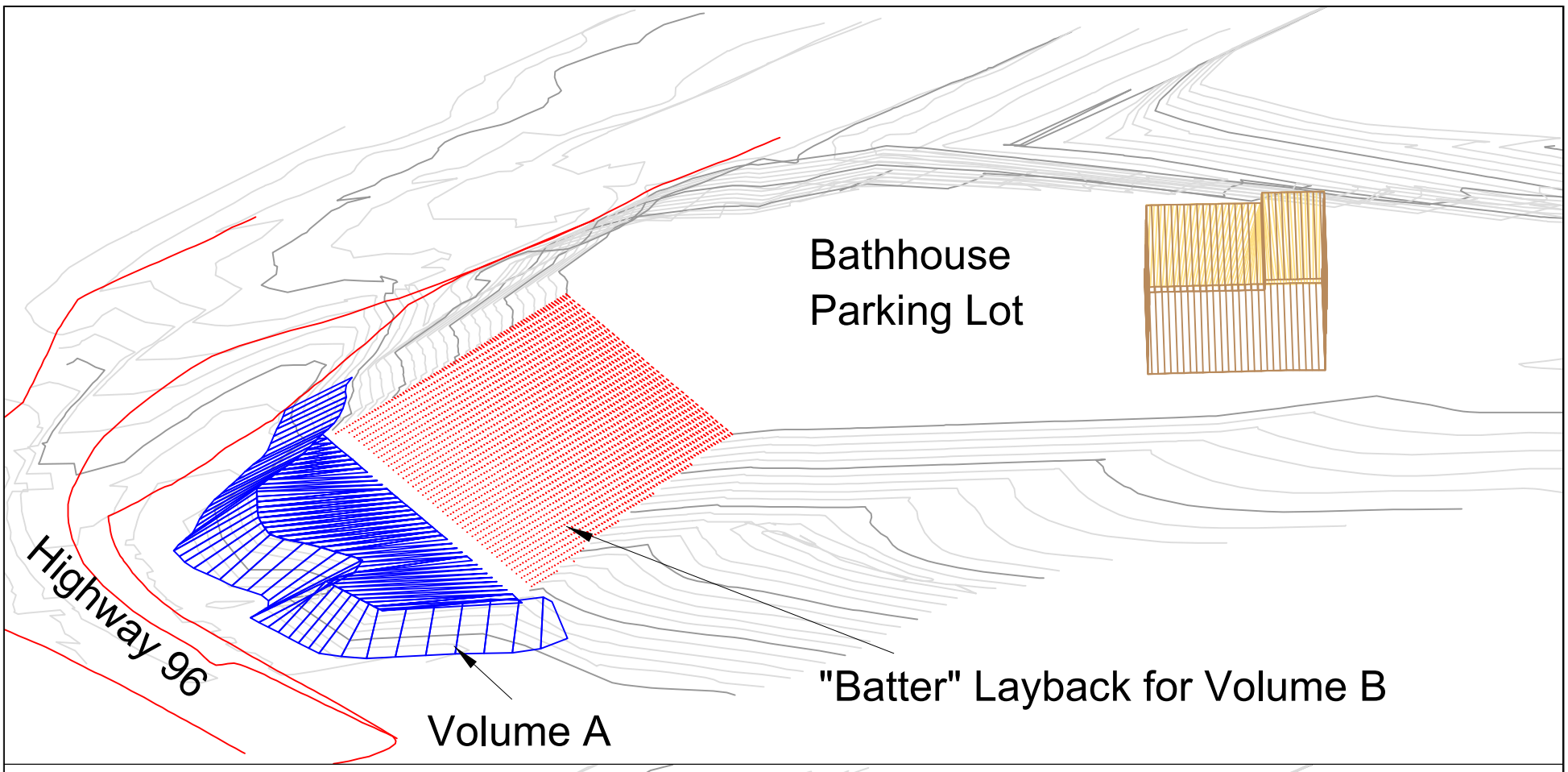
Kinney # 2 Mine

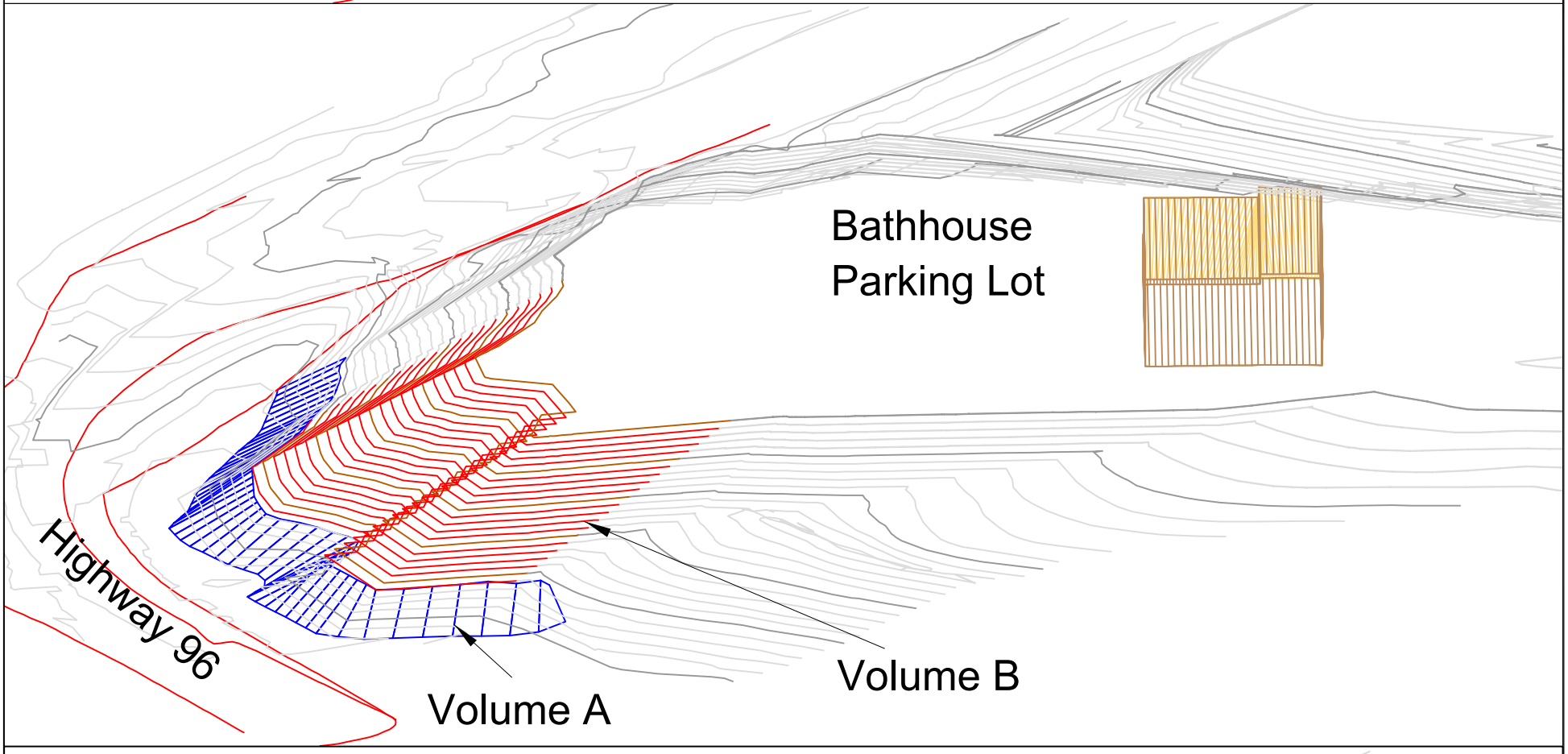
MAP 38
Top Soil Storage

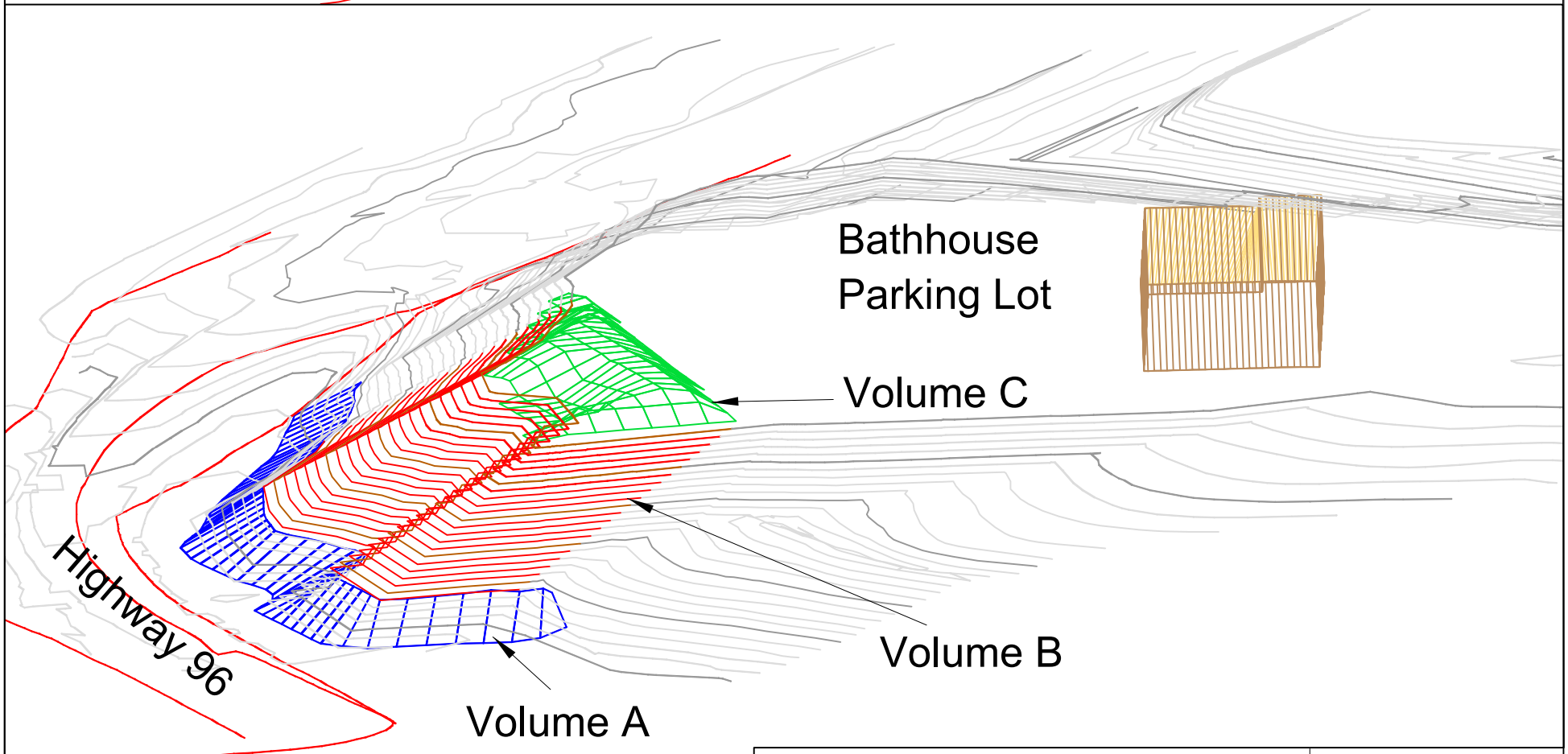
DRAWN BY: GLH	DATE: 9/2/09
APPROVED BY: GLH	DATE: 9/2/2009

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: Map 38 topsoil storage







LEGEND

VOLUME C

VOLUME B

VOLUME A

See Map S4 for location of this TS Stock Pile

N

NOT TO SCALE

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

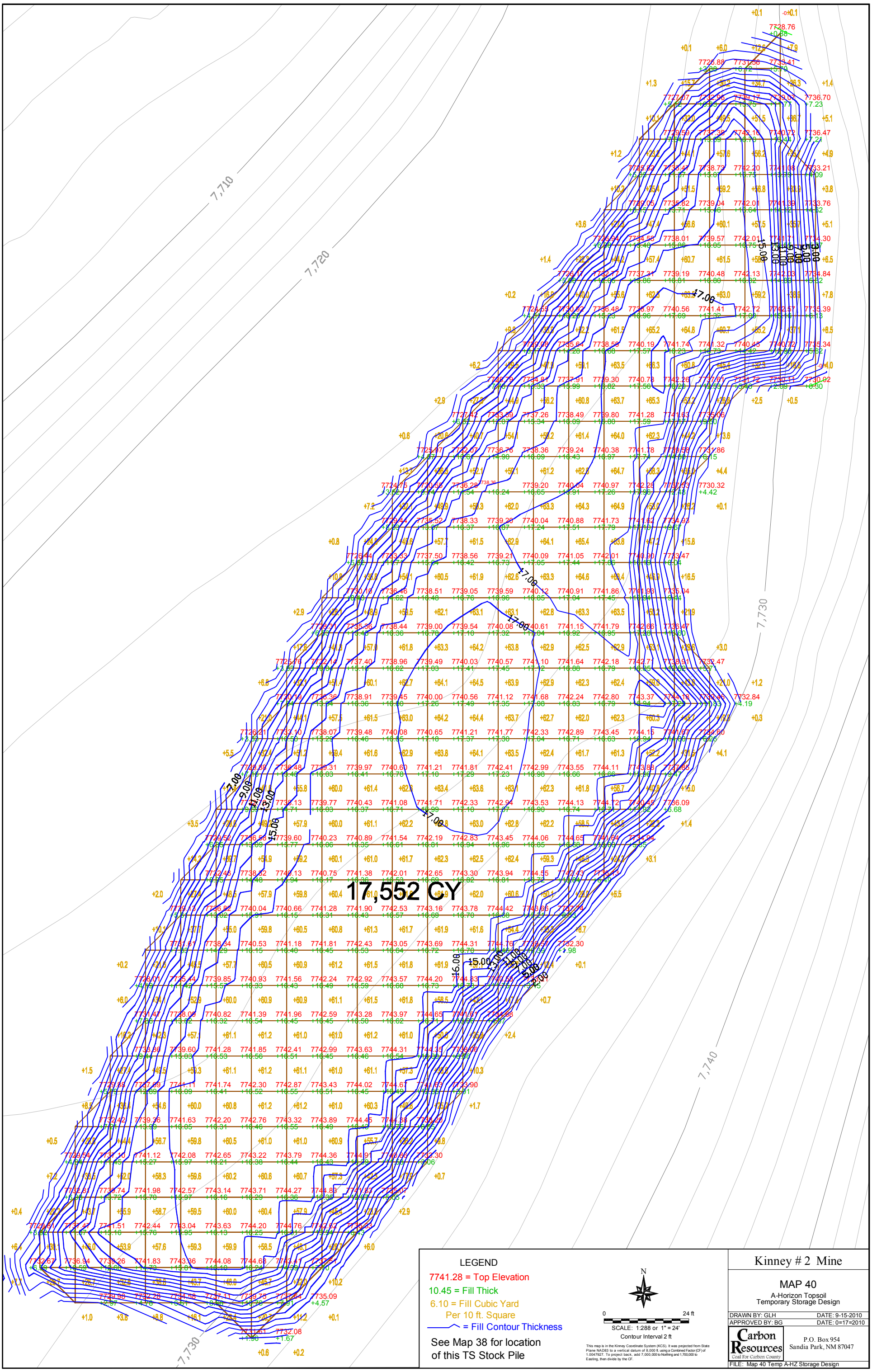
MAP 39
Topsoil Storage 3D Sequence
Perspective, Bathhouse Pad

DRAWN BY: GLH DATE: 9-15-10

APPROVED BY: GLH DATE: 9-15-10

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 39 TS 3D sequence


7,710
7,720
7,730
7,740
17,552 CY
17.08
15.00
13.00
11.00
9.00
7.00
5.00
3.00
LEGEND
7741.28 = Top Elevation
10.45 = Fill Thick
6.10 = Fill Cubic Yard
Per 10 ft. Square
= Fill Contour Thickness
See Map 38 for location
of this TS Stock Pile
N
0
24 ft
SCALE: 1:288 or 1" = 24'
Contour Interval 2 ft
This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.
Kinney # 2 Mine
MAP 40
A-Horizon Topsoil
Temporary Storage Design
DRAWN BY: GLH
DATE: 9-15-2010
APPROVED BY: BG
DATE: 0=17=2010
Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047
FILE: Map 40 Temp A-HZ Storage Design

HW 96 ROW

Volume A FILL

Approx. 8,000 Cubic Yards

Existing Topography

7730

7720

7710

7700

7690

7680

LEGEND

7741.28 = Top Elevation

10.45 = Fill Thick

6.10 = Fill Cubic Yard Per 10 ft. Square

= Fill Contour Thickness

= Fill ZERO Contour

See Maps 38 for location of this FILL

N

0 30 ft

SCALE: 1:360 or 1" = 30'

Contour Interval 10 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

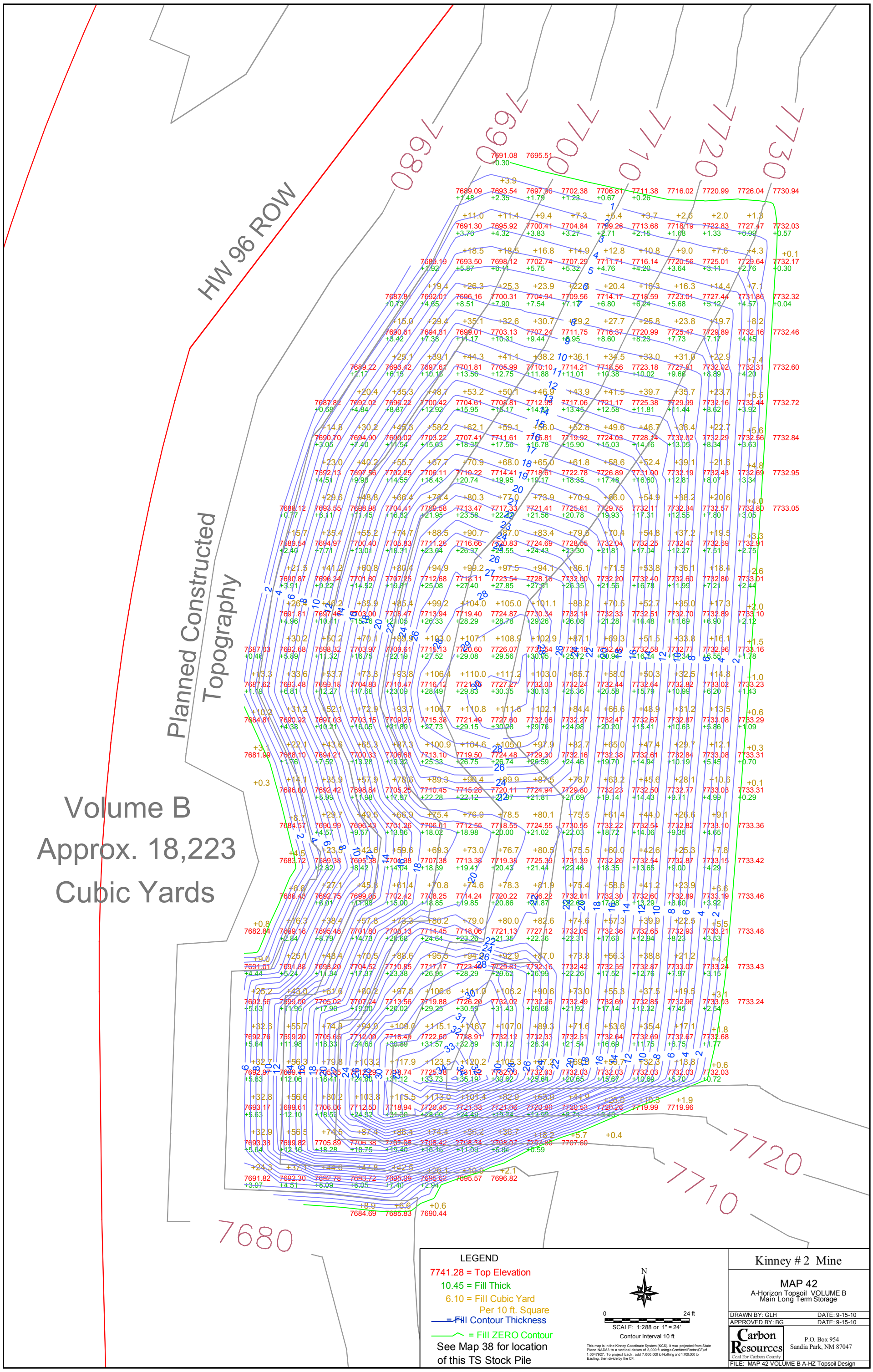
MAP 41
VOLUME A
FILL Design

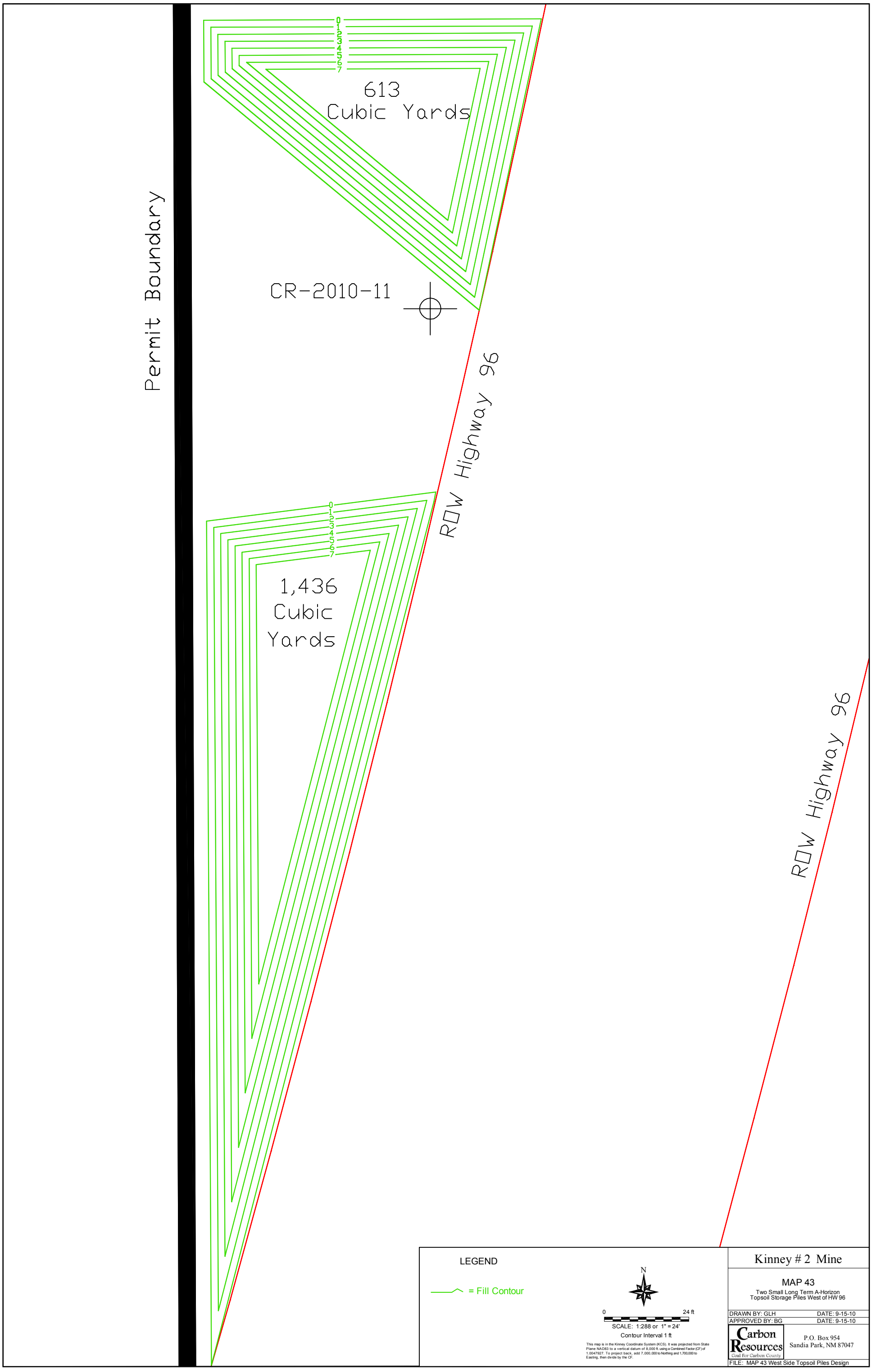
DRAWN BY: GLH DATE: 9-15-10

APPROVED BY: GLH DATE: 9-15-10

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 41 volume A fill design


HW 96 ROW
Planned Constructed Topography
7680
7690
7700
7710
7720
7730
Volume B
Approx. 18,223
Cubic Yards
LEGEND
7741.28 = Top Elevation
10.45 = Fill Thick
6.10 = Fill Cubic Yard
Per 10 ft. Square
= Fill Contour Thickness
= Fill ZERO Contour
See Map 38 for location
of this TS Stock Pile
N
0
24 ft
SCALE: 1:288 or 1" = 24'
Contour Interval 10 ft
This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.
Kinney # 2 Mine
MAP 42
A-Horizon Topsoil VOLUME B
Main Long Term Storage
DRAWN BY: GLH
DATE: 9-15-10
APPROVED BY: BG
DATE: 9-15-10
Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047
FILE: MAP 42 VOLUME B A-HZ Topsoil Design


Permit Boundary
613
Cubic Yards
CR-2010-11
ROW Highway 96
1,436
Cubic
Yards
ROW Highway 96
LEGEND
= Fill Contour
N
0
24 ft
SCALE: 1:288 or 1" = 24'
Contour Interval 1 ft
This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.
Kinney # 2 Mine
MAP 43
Two Small Long Term A-Horizon
Topsoil Storage Piles West of HW 96
DRAWN BY: GLH
DATE: 9-15-10
APPROVED BY: BG
DATE: 9-15-10
Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047
FILE: MAP 43 West Side Topsoil Piles Design

VOLUME C
Extra A-Horizon TS Storage
Approx. 2,000 Cubic Yards

HW 96 ROW

7730
7720
7710
7680
7690
7700
7710
7720
7730

LEGEND

7741.28 = Top Elevation
10.45 = Fill Thick
6.10 = Fill Cubic Yard
Per 10 ft. Square
= Fill Contour Thickness
= Fill ZERO Contour
See Map 38 for location of this fill

N

0 24 ft

SCALE: 1:288 or 1" = 24'

Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

MAP 44
A-Horizon Topsoil VOLUME C
EXTRA Storage Design

DRAWN BY: GLH DATE: 9-10-2010
APPROVED BY: GLH DATE: 9-15-2010

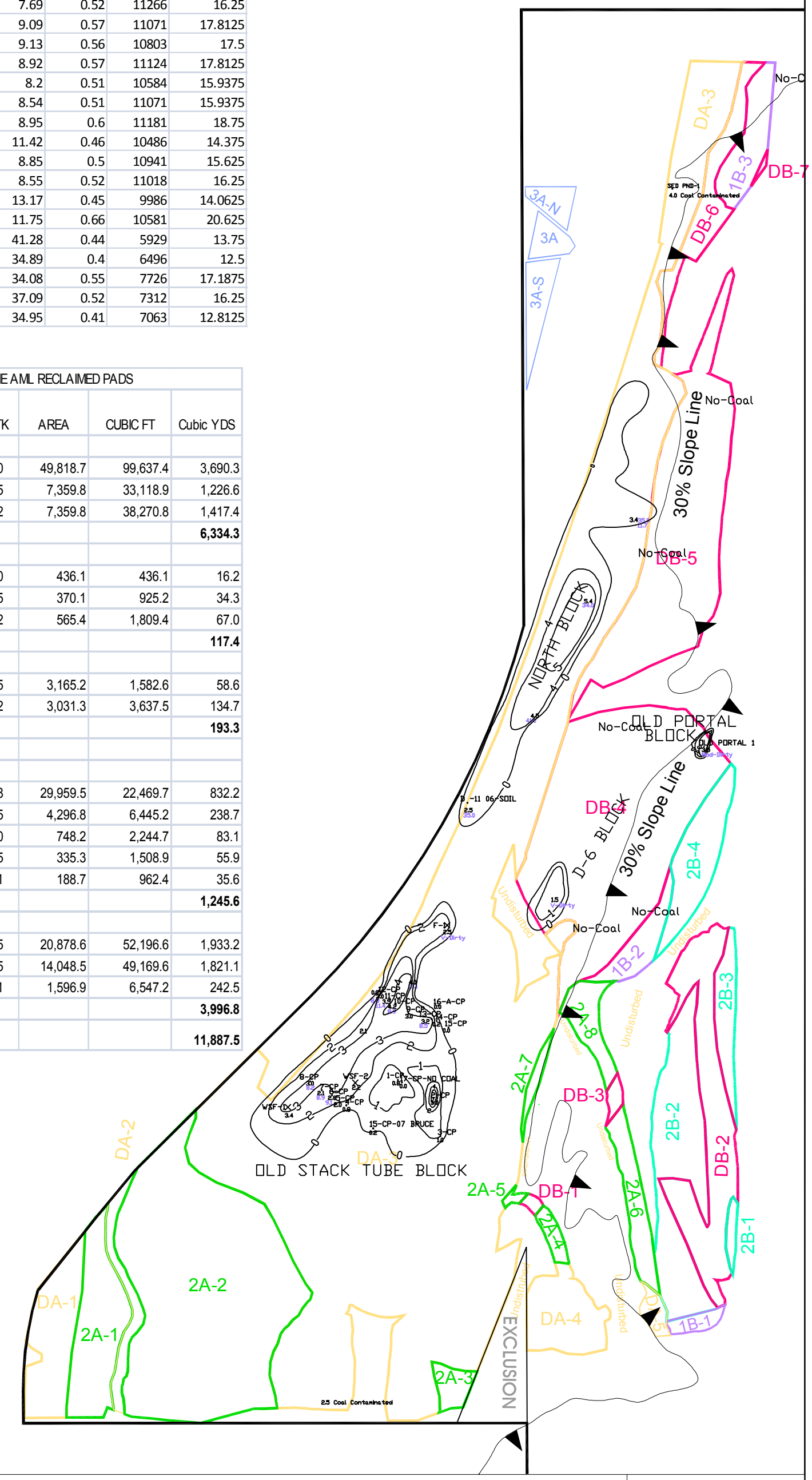
Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 44 VOLUME C Extra TS Storage

RECLAIMED COAL, October 2007 SGS Lab Analysis						
		As Received Basis				Acid
Sample ID	Location	Moisture	Ash	Sulfur	Btu/lb	Potential*
4-CP	Old Stack Tube	9.92	7.69	0.52	11266	16.25
5-CP	Old Stack Tube	9.6	9.09	0.57	11071	17.8125
6-CP	Old Stack Tube	9.86	9.13	0.56	10803	17.5
7-CP	Old Stack Tube	9.16	8.92	0.57	11124	17.8125
8-CP	Old Stack Tube	12.09	8.2	0.51	10584	15.9375
9-CP	Old Stack Tube	9.51	8.54	0.51	11071	15.9375
10-CP	Old Stack Tube	8.81	8.95	0.6	11181	18.75
11-CP	Old Stack Tube	10.61	11.42	0.46	10486	14.375
12-CP	Old Stack Tube	9.46	8.85	0.5	10941	15.625
13-CP	Old Stack Tube	10.42	8.55	0.52	11018	16.25
15-CS-1	Old Stack Tube	9.22	13.17	0.45	9986	14.0625
9-B	North Block	8.48	11.75	0.66	10581	20.625
D-4	North Block	12.47	41.28	0.44	5929	13.75
DA-9-B	North Block	15.19	34.89	0.4	6496	12.5
D9-A Coal	North Block	7.29	34.08	0.55	7726	17.1875
D9-A	North Block	6.81	37.09	0.52	7312	16.25
D-11	North Block	11.33	34.95	0.41	7063	12.8125

RECLAIMED COAL VOLUME AML RECLAIMED PADS					
BLOCK	ZONE	AVG TK	AREA	CUBIC FT	Cubic YDS
NORTH High Ash					
~30 to 42% Ash	0-4 ft.	2.0	49,818.7	99,637.4	3,690.3
~30 to 42% Ash	4-5 ft.	4.5	7,359.8	33,118.9	1,226.6
~30 to 42% Ash		5.2	7,359.8	38,270.8	1,417.4
TOTAL					**6,334.3**
OLD Portal	0-2 ft.	1.0	436.1	436.1	16.2
Mod Ash ~13%	2-3 ft.	2.5	370.1	925.2	34.3
	3+ ft.	3.2	565.4	1,809.4	67.0
TOTAL					**117.4**
D-6 Block High Ash	0-1 ft.	0.5	3,165.2	1,582.6	58.6
~ 35%	1+ ft.	1.2	3,031.3	3,637.5	134.7
TOTAL					**193.3**
OLD Stack Tube					
Mod Ash <14%	0-1 + 2	0.8	29,959.5	22,469.7	832.2
Mod Ash <14%	1-2 ft.	1.5	4,296.8	6,445.2	238.7
Mod Ash <13%	2-4 ft.	3.0	748.2	2,244.7	83.1
Mod Ash <12%	4-5 ft.	4.5	335.3	1,508.9	55.9
Mod Ash <12%	5 +	5.1	188.7	962.4	35.6
SUB-TOTAL					**1,245.6**
Low Ash <10%	2-3 ft.	2.5	20,878.6	52,196.6	1,933.2
Low Ash <10%	3-4 ft.	3.5	14,048.5	49,169.6	1,821.1
Low Ash <10%	4 +	4.1	1,596.9	6,547.2	242.5
SUB-TOTAL					**3,996.8**
TOTAL					**11,887.5**



SOIL TYPES and Planned Disturbance Areas

- DA Disturbed Lands, 0-20% Slopes
- DB Disturbed Lands, 20-50% Slopes
- 2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
- 1B Typic Argicryoll Consociaion, 35-70% Slopes
- 2B Typic Argixeroll Consociation, 35-70% Slopes
- 3A Cumulic Haplocryoll, 0-3% Slopes

LEGEND

- 15 CP — Coal Pit Thickness Measurement Point. Some are also Sample Points with Ash Content Posted.
- 2.3 Coal Thickness ft.
- 9.1 % Ash Content
- 1.0 — Reclaimed Coal Thickness Contour
- Averaged 30% Slope Break Line, Barbs Point Up-Hill
- Permit Boundary (Portal Block)

N

0 200 ft

SCALE: 1:2,400 or 1" = 200'

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

Map 45

RECLAIMED COAL Thickness & Top Soil to be DISTURBED

DRAWN BY: GLH	DATE: 9-1-2010
APPROVED BY: BG	DATE: 9-15-2010

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: Map 45 Reclaimed Coal

EXHIBIT 1

Documentation of Existing Site Conditions

Refer to Map 14 For Photograph Locations

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

180 Degree Panorama

EXHIBIT 2

Prime Farmland Determination

NRCS
Natural Resources Conservation Service
240 West Highway 40 333-4
Roosevelt, UT 84066
(435) 722-4621
FAX (435) 722-9065

March 9, 2006

Ben Grimes
Hansen, Allen & Luce Engineers
23 South Carbon Avenue, Suite #21
P.O. Box 777
Price, UT 84501

Re: Prime, State Important and Unique Farmlands Determination for Kinney No. 2 Mine, near Scofield, UT; Job # 308.01.100

Dear Mr. Grimes:

We have reviewed your request for a determination of prime, state important and unique farmlands.

The soils do not meet the criteria for prime, state important or unique farmlands for one or more of the following reasons:

1. The soils have a temperature regime that is Cryic. The mean summer temperature is less than 59 degrees F. (15 degrees C.); and or

2. The product of K (erodibility factor) x percent slope is greater than 2.0 for prime farmlands, and is greater than 5.0 for state important farmlands; and or

3. More than 10 percent of the surface layer (upper 6 inches) in these soils consists of rock fragments coarser than 3 inches (7.6 cm); and or

4. The soils have a pH of greater than 8.6 in some horizons within a depth of 20 inches; and or

5. The area does not have a developed irrigation system that is of adequate quality or quantity to grow the commonly grown crops adapted to the region in 7 or more years out of 10; and or

6. The area is urban land.

7. Carbon County has not designated any lands as unique farmlands.

I am enclosing a Form AD-1006, FARMLAND CONVERSION IMPACT RATING for your use.

Robert H. Fish
Soil Scientist

Cc: Wayne Greenhalgh, DC, NRCS, Price, UT

Enclosure

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 – Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 – Originator will send copies A, B and C together with maps indicating locations of site(s), to the Natural Resources Conservation Service (NRCS) local field office and retain copy D for their files. (Note: NRCS has a field office in most counties in the U.S. The field office is usually located in the county seat. A list of field office locations are available from the NRCS State Conservationist in each state).

Step 3 – NRCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step '4 – In cases where farmland covered by the FPPA will be converted by the proposed project, NRCS field offices will complete Parts II, IV and V of the form.

Step 5 – NRCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for NRCS records).

Step 6 – The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 – The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County And State" questions list all the local governments that are responsible for local land controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.

2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5 (b) of CFR. In cases of corridor-type projects such as transportation, powerline and flood control, criteria #5 and #6 will not apply and will, be weighed zero, however, criterion #8 will be weighed a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 12 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned relative adjustments must be made to maintain the maximum total weight points at 160.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site Assessment maximum is 200 points, and alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site "A."}$$

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 3/8/06
Name Of Project Kinney No. 2 Mine (Scofield, UT)	Federal Agency Involved
Proposed Land Use Coal Mine	County And State Carbon County, Utah
PART II *(To be completed by NRCS)*	Date Request Received By NRCS 3/8/06

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☐	No ☑	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Amount Of Farmland As Defined in FPPA Acres: %	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System		Date Land Evaluation Returned By NRCS	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	0.0	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	0	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS	160	0	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	0	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	0	0	0	0

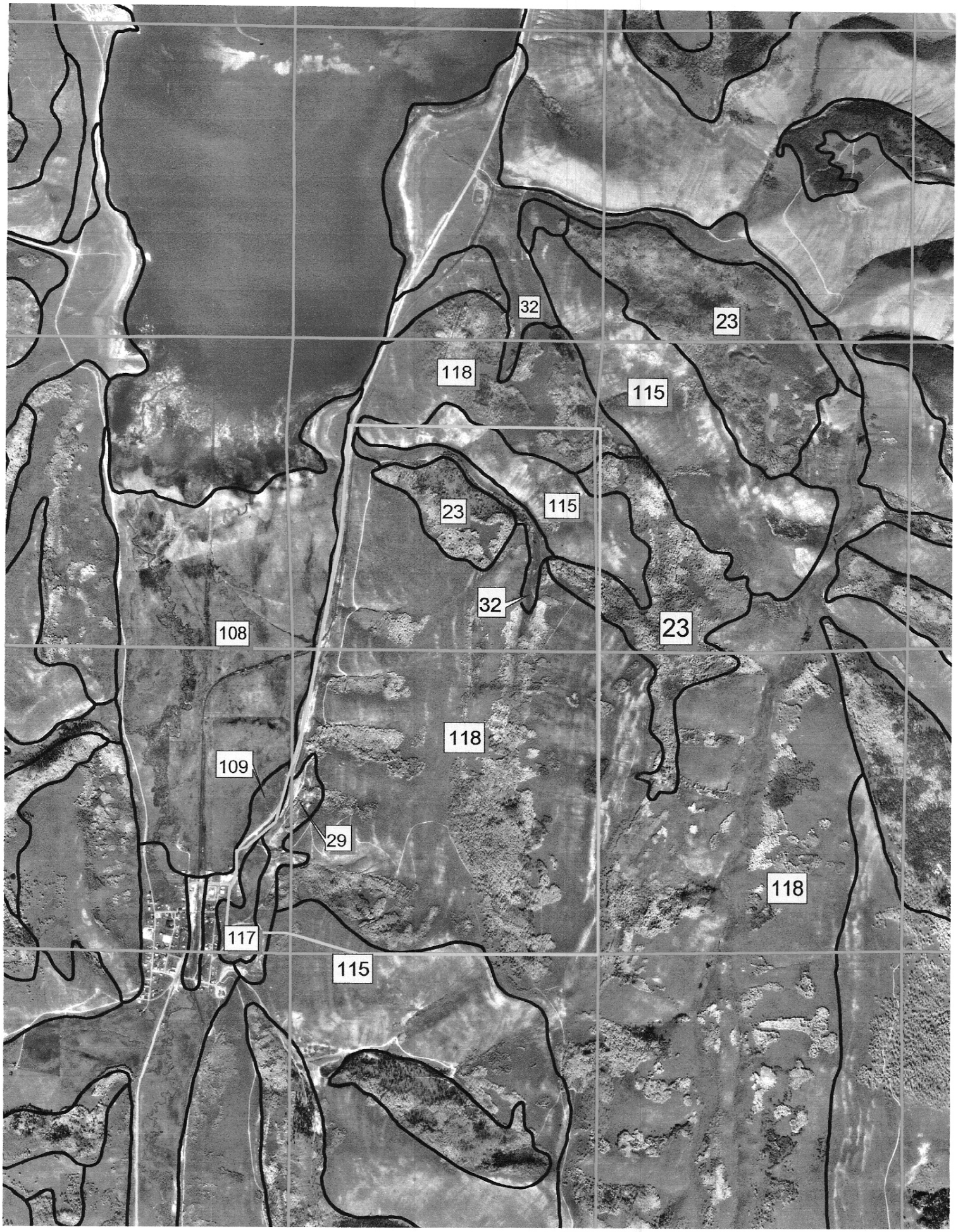
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side)

Form AD-1006 (10-83)

This form was electronically produced by National Production Services Staff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HANSEN ALLEN & LUCE INC.

23 South Carbon Ave, Suite #21
Price, Utah 84501
Phone: (435) 636-8269
Fax: (435) 636-8269

Fax Transmission

Consulting Engineers Specializing in Water Resources, Civil Engineering and the Environment

To: ROBERT FISH NRCS	
Date: 3/8/06	Fax#: 435-722-9065
Job #: 308.01.100	Project:

NO. PAGES	DATE	ITEM
2		

SUBMITTED

☐ For Approval	☑ For Review & Comments
☐ As Requested	☐ For Use
☐ Approved as Submitted	☐ Returned for Corrections
☐ Approved as Noted	☐ Other _____

Copies to:

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- Complex Analytical Analyses
- Studies
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- Wastewater Disposal
- Storm Drainage and Flood Control
- Hydrology
- Hydraulics
- Water Quality Management
- Solid and Hazardous Waste
- Environmental Permitting

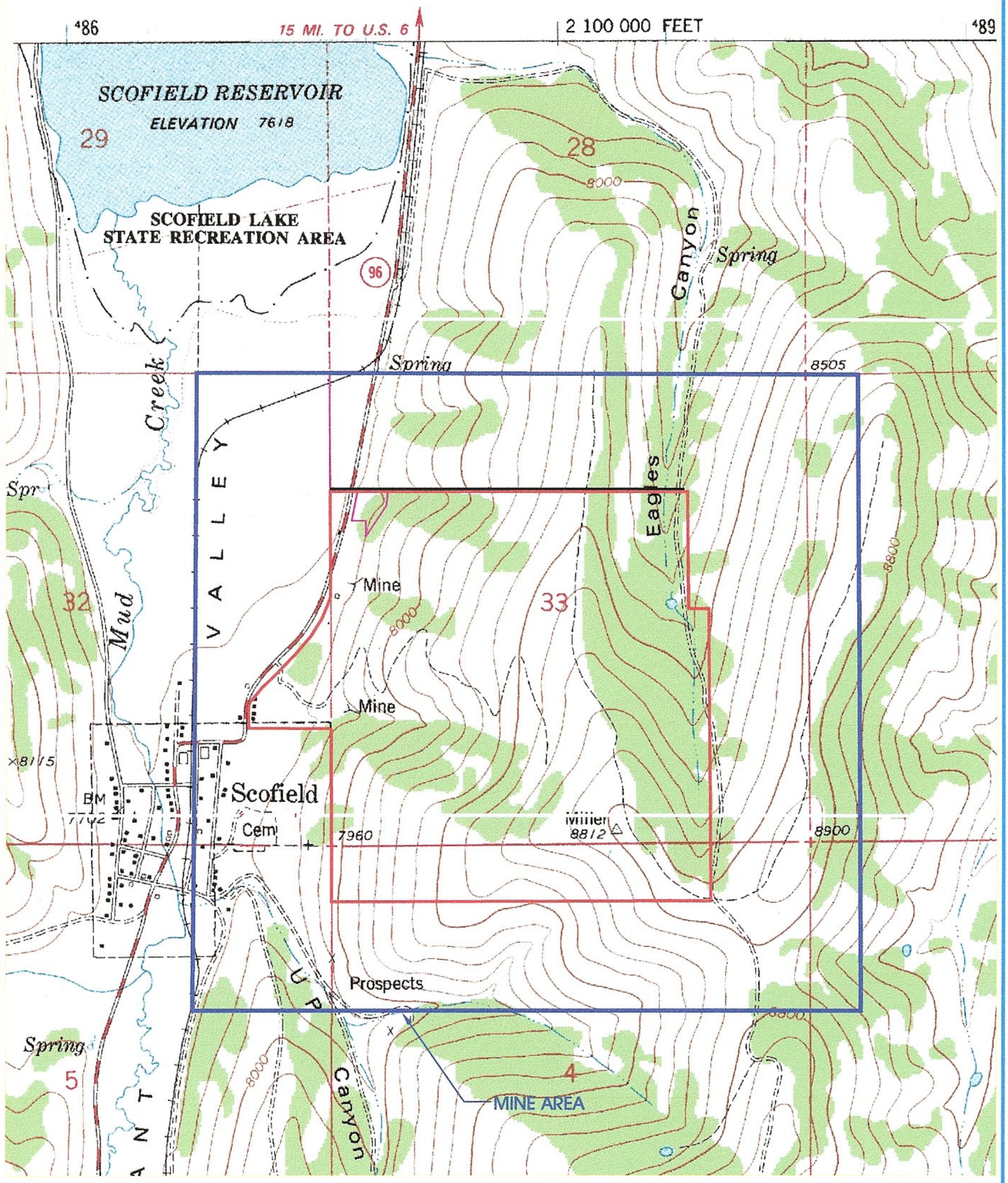
GENERAL COMMENTS

PLEASE PROVIDE PRIME FARMLAND DETERMINATION FOR:
- KINNEY No. 2 MINE -
- AREA SHOWN ON ATTACHED MAP
- SEND TO: BEN GRIMES
HANSEN, ALLEN & LUCE ENGINEERS
P.O. BOX 777
PRICE, UT 84501

Signed:

SCOFIELD QUADRANGLE
UTAH
7.5 MINUTE SERIES (TOPOGRAP

NW/4 SCOFIELD 15' QUADRANGLE



HANSEN ALLEN & LUCE Inc
ENGINEERS

KINNEY NO. 2 MINE
PRIME FARMLAND DETERMINATION REQUEST

FIGURE
1

EXHIBIT 4

UDOT Highway Access Permit

MSHA Permit

Carbon County Conditional Use Permit

Utah DNR Div. of Water Rights, Small Dam

Permit (Negative Determination)

Utah Department of Commerce License Number

Dwelling within 300 Feet Waiver Letter

Raptor Nest #1541 Permit with US Fish & Wildlife Service

Environmental Citations

UDOT Highway Access Permit

MSHA Permit Number

Carbon County Conditional Use Permit

Utah DNR Div. of Water Rights, Small Dam Permit (Negative Determination)

GARY R. HERBERT
Governor
GREG BELL
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of Water Rights
KENT L. JONES
State Engineer/Division Director

August 31, 2010

Ben Grimes
Carbon Resources, LLC
P.O. Box 954
Sandia Park, NM 87047

Re: Application to construct a small dam - Kinny No. 2 Mine

We have completed our review of your application to construct a small dam in Carbon County, Utah (section 33, T12S, R7E, SLB&M); the proposed structure will impound 3.18 acre-feet of water.

According to the application and attached drawings, the reservoir will be dug into the natural ground with no water storage above the natural grade. As such, this facility will not be considered to be a dam and Dam Safety approval is not necessary.

Water right issues must be resolved with the South Eastern regional office in Price, Utah. They can be contacted at 435-613-3750.

Sincerely,

David K. Marble, P.E.
Assistant State Engineer / Dam Safety

DKM/jm

cc: Marc Stilson – Regional Engineer
Hansen, Allen & Luce

Exhibit 4

Utah Department of Commerce

Verification of Business Entity

Dwelling within 300 Feet Waiver Letter

February 9, 2009

Clay Wisdom, CFO
Carbon Resources, LLC
P.O. Box 11789
Albuquerque, NM 87192

Dear Mr. Wisdom:

As the owner of the property described on the attached Exhibit A, which property lies within 300 feet of the boundary of property upon which Carbon Resources, LLC seeks to secure a permit from the Utah Department of Oil, Gas and Minerals to conduct coal mining and reclamation activities, please be advised that we have no objection to those activities.

We waive any and all objections to your conducting coal mining and reclamation activities within 300 feet of our property.

Very truly yours,

L2H Enterprises, Inc.

By: Jim Levanger, President

Exhibit 4

US Fish & Wildlife Service

Nest 1451 Deterrent Action

Letter of Authorization

&

Utah Division of Wildlife Resources Concurrence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Migratory Bird Permit Office, Region 6

IN REPLY REFER TO:
USFWS/PERMITS

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center (60154)
Denver, Colorado 80225

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228

April 26, 2011

Gregory Hunt
Carbon Resources LLC
P.O. Box 954
Sandia Park, NM 87047

Dear Mr. Hunt:

The letter serves as authorization for you and any other persons under direct control of, under contract to, or employed by you, to carry out activities only to the extent necessary in accomplishing the purpose authorized below.

You are authorized to temporarily deter nesting activities of one (1) inactive Red-tailed Hawk (*Buteo jamaicensis*) or Swainson's Hawk (*Buteo swainsoni*) nest #1541, located at UTM coordinates 487008.6949 and 4397609.6045 Kinney No. 2 Mine, Carbon County, Utah during the 2011 breeding season. The nest must be verified that it is inactive before applying the nest deterrent.

This authorization expires 90 days from the date of this letter and is issued for this one nest only. If the deterring of nest activities does not occur, please notify this office within five (5) days.

You and any other persons under direct control of, under contract to, or employed by you, shall comply with all mitigation efforts coordinated and approved by the U.S. Fish and Wildlife, Ecological Services Field Office, Salt Lake City, Utah (801) 975-3330.

You and any other persons under direct control of, under contract to, or employed by you, shall implement the above activities, and monitor the status of the nest during the 2011 breeding season.

A narrative summary of all activities conducted under this authorization shall be sent to the Migratory Bird Permit Office, Denver, Colorado.

This authorization is contingent upon approval of the Utah Department of Natural Resources, and a copy shall accompany anyone exercising its authority.

Sincerely,

for Janell Suazo
Chief, Migratory Bird Permit Office

Gmail by Google

Ben Grimes <bagrimes@gmail.com>

Kinney Mine Nest #1541

5 messages

Ben Grimes <bagrimes@gmail.com> **Wed, Apr 27, 2011 at 4:22 PM**
To: leroymead@utah.gov

We got the Letter of Authorization from the USFWS. The letter says that we need Utah Dept. of Natural Resources approval also. What do we need from DNR/DWR? Time is of the essence, we would like to do the nesting deterrent this weekend since we are getting late in the nesting season.

I will try to get you by phone also, but I hear you have a new assignment and may be very busy.

Thanks,
Ben Grimes

Leroy Mead <leroymead@utah.gov> **Thu, Apr 28, 2011 at 8:23 AM**
To: Ben Grimes <bagrimes@gmail.com>

Ben,

I feel like I've already given my approval. If you want something more formal, then it will take weeks to run it through our Salt Lake office.

Leroy

435-613-3718 (office)
435-636-5359 (cell)

>>> Ben Grimes <bagrimes@gmail.com> 4/27/2011 4:22 PM >>>
[Quoted text hidden]

Ben Grimes <bagrimes@gmail.com> **Thu, Apr 28, 2011 at 12:24 PM**
To: Gregory Hunt <geohuntllc@gmail.com>, Joe Helfrich <joehelfrich@utah.gov>, nathan_darnall@fws.gov

[Quoted text hidden]

Ben Grimes <bagrimes@gmail.com> **Thu, Apr 28, 2011 at 12:24 PM**
To: Ben Grimes <ben.grimes@carbon.utah.gov>

[Quoted text hidden]

Ben Grimes <bagrimes@gmail.com> **Sat, Apr 30, 2011 at 11:23 AM**
To: Gregory Hunt <geohuntllc@gmail.com>

---------- Forwarded message ----------
From: **Leroy Mead** <leroymead@utah.gov>
Date: Thu, Apr 28, 2011 at 8:23 AM
Subject: Re: Kinney Mine Nest #1541
[Quoted text hidden]

Environmental Citations

Alton Coal Development, LLC
Coal Hollow Mine
History of Citations

Permit Number	MSHA	Violation Number	Date of Issuance	Issuing Agency	State	Current Status of NOV
C250005	42-02519	10078	3/9/2011	UDOGM	Utah	Terminated
C250005	42-02519	10079	3/9/2011	UDOGM	Utah	Vacated
C250005	42-02519	10084	5/2/2011	UDOGM	Utah	Terminated
C250005	42-02519	10085	5/25/2011	UDOGM	Utah	Terminated
C250005	42-02519	10092	12/5/2011	UDOGM	Utah	Terminated
C250005	42-02519	10123	6/19/2013	UDOGM	Utah	Vacated
C250005	42-02519	10135	1/15/2015	UDOGM	Utah	Terminated
C250005	42-02519	16149	1/26/2015	UDOGM	Utah	Terminated
C250005	42-02519	16150	4/1/2015	UDOGM	Utah	Terminated
C250005	42-02519	18150	4/28/2015	UDOGM	Utah	Terminated
C250005	42-02519	21162	1/20/2016	UDOGM	Utah	Terminated
C250005	42-02519	21163	1/20/2016	UDOGM	Utah	Terminated
C250005	42-02519	21164	1/20/2016	UDOGM	Utah	Terminated
C250005	42-02519	21165	3/9/2016	UDOGM	Utah	Terminated
C250005	42-02519	21166	3/9/2016	UDOGM	Utah	Terminated
C250005	42-02519	21167	3/9/2016	UDOGM	Utah	Terminated
C250005	42-02519	21174	4/6/2016	UDOGM	Utah	Terminated
C250005	42-02519	21183	6/3/2016	UDOGM	Utah	Terminated
C250005	42-02519	21185	9/7/2016	UDOGM	Utah	Terminated
C250005	42-02519	21191	12/8/2016	UDOGM	Utah	Terminated
C250005	42-02519	21193	3/15/2017	UDOGM	Utah	Terminated
C250005	42-02519	21194	3/15/2017	UDOGM	Utah	Terminated

CONFIDENTIAL

Coal Energy Group 3, LLC
Wildcat Loadout

Permit Number	MSHA	Violation Number	Date of Issuance	Issuing Agency	State	Current Status of NOV
C070033	----------NO VIOLATIONS IN PRECEDING # YEARS----------					

EXHIBIT 5

Public Notices and Proof of Publication, Hearing Notices and Documentation

EXHIBIT 6

Soils Report and Appendices

APPENDIX 1: ACZ Spreadsheets &Lab Sheets

APPENDIX 2: IML Analysis Sheets

APPENDIX 3: Field Pedon Descriptions

APPENDIX 4: Soil Pit Profile Photos

APPENDIX 5: Micromonolith Photos

APPENDIX 6: Official Soils Series Descriptions

RECLAIMED COAL: SGS Lab Sheets

SOIL SURVEY REPORT

KINNEY No. 2 MINE

CARBON COUNTY, UTAH

Prepared for:
Carbon Resources, LLC
PO Box 1789
Albuquerque, NM 87192

Prepared by:
Bruce Chesler
PO Box 355
Escalante, Utah 84726

November 6, 2007

Table of Contents

Introduction	page 3
Objectives	page 3
Soil Survey Setting	page 4
Previous Soil Surveys	page 5
Methods	page 6
Lab Analysis and Data Interpretation	page 7
Soil Survey Results	page 8
Soil Salvage	page 12
Potential Soil Management Alternatives	page 15
Primary Growth Medium	page 15
Seed and Microbial Innoculum	page 15
Summary	page 16
References Cited	page 17

Figure 1. Soil Map Unit ID Legend with Sampled Soil profile locations
Figure 2. Prime Farmland Map, from WEB Soil Survey

Table 1 Soil Analysis and Analytical Methods
Table 2 Utah Oil Gas and Mining Soil Suitability/Unsuitability Evaluation Guidelines
Table 3 Soil Map Unit Descriptions and Physical Parameters
Table 4 Soil Family Classifications by Pedon Location
Table 5 Proposed Surface Disturbances by Soil Map Unit
Table 6 Soil Suitability Data
Table 7 Erodibility Factor Calculations and Input Parameters
Table 8 Summary of Soil Limitation, Salvage Depths, and Salvageable Volumes

Appendix 1 ACZ Laboratories, Inc. Lab Analysis Spreadsheets (2006)

Appendix 2 Intermountain Laboratories, Inc. Lab Analyses Spreadsheets (2007)

Appendix 3 Soil Profile Descriptions

Appendix 4 Soil Profile Photographs

Appendix 5 Soil Micromonolith Box Photographs

Appendix 6 Official Soil Series Descriptions

Introduction

During October, 2006, 23 soil profiles were excavated by backhoe within an area containing previous underground coal mining disturbances on approximately 21 acres. An adjacent soil survey and sampling of 13 additional soil profiles was made during September, 2007 on an additional 16 acres to the south west. The southern portion of the survey area is dominantly comprised of disturbed lands containing reclaimed soil with alternative reclamation materials provided through the State of Utah Division of Oil Gas, and Mining Abandoned Mine Lands Program (AML) around 1986. The entire soil survey area, referred to in this report as Kinney No.2 Mine Soil Survey, is 36.7 acres in extent found along a 700 feet wide by approximately 1 mile long strip of private land adjacent to Highway 96. It is located approximately one quarter mile to the northeast of Scofield, Utah. The 27.3 acres shown on Figure 1 is that portion (sub-set) of the 36.7 acres survey area where disturbance is planned for construction of the surface facilities of the mine. The soil survey and sampling of soil profiles were made as part of Carbon Resources, LLC application to mine coal in this area, and is intended to identify and characterize the major soil types found within 36.7 acres of the coal mine permit area. The fieldwork portion of this soil survey was conducted by Bruce Chesler, an independent soil survey contractor, with the assistance of Greg Hunt of Carbon Resources, LLC. As a guide in planning the scope of work to be addressed in this soil survey report, Utah Division of Oil, Gas, and Mining (UDOGM) Guidelines of Management for Topsoil and Overburden (UDOGM, 2005) were consulted.

Objectives:

Map soils at Order 2 level on approximately 37 acres of the Kinney No.2 Mine Permit Area.

Describe and sample representative soil profiles at 6 inch to 24 inch depth increments in previously disturbed (AML) sites. Sample by horizon, and describe and classify soils to family level, in areas with undisturbed soil profiles.

Analyze soil physiochemical parameters for each sample according to methodologies suggested in 2005 UDOGM Guidelines for Management of Topsoil and Overburden.

Rate the soil's ability to be used as plant growth medium in soil reclamation for each soil map unit based on UDOGM guidelines.

Calculate an average salvageable topsoil or alternative reclamation material volume, for each soil map unit within the approximately 37 acres of the Mine Permit Area.

Make recommendations for management practices which may overcome any deficiencies in the quality and quantity of topsoil and alternative reclamation material which may be feasibly salvaged within the Mine Permit Area.

Soil Survey Setting

The survey area is located within portions of Sections 33 and 28, T 12 S, R 7 E, approximately one quarter mile northeast of Scofield, Utah. Elevations range between 7500 and 7900 feet. Previous coal mining in this area has affected over half of the natural landscape with abandoned mine portal and staging areas, coal mine dumps, roads and abandoned railroad grades, cut slopes and haul routes. There have been no previous attempts to salvage topsoil from the previous mining disturbance activities in this area. The present soil and alternate reclamation materials found on-site represents the extent of material available for post mining reclamation efforts at the Kinney No.2 permit area. As the AML alternative reclamation materials comprise a significant proportion of the materials found within the southern half of the survey area, a primary focus of this report will be to address their chemical properties and their plant re-growth potential. The 1986 AML reclaimed acreage generally contains coal/spoil/soil mixtures which I will refer to in this report as alternative reclamation materials. Soil Map Units used to describe these lands are referenced as either Mine Dumps (SCS, 1988) or Disturbed Lands, in this report. The alternative reclamation materials found in this area's backhoe excavations reveal layers of AML- placed subsoil materials covering coal that was historically dumped or spilled during mining, transport, or storage of coal and or coal abandoned in the old stock pile, along with buried natural subsoil horizons. This coal buried by AML will be referred to throughout this report as "reclaimed coal".

Access throughout the survey area was made by driving graded dirt roads on private lands, one which switchbacks up toward a ridgeline from the south end of the property, and one which leads south to north along the axis of the two mile long permit area. The geomorphology of the surrounding landscape is dominated by a fault block graben valley which contains Mud Creek drainage to the west, flowing north into Scofield Reservoir. Along the Mud Creek floodplain is an approximately one acre slice of the Kinney No.2 property, containing alluvial soils which I've sampled to represent the floodplain terrace soil types west of Highway 96. Steeper slopes comprised of colluvium and mass wasted landslide materials derived from Black Hawk Formation sedimentary rocks are the dominant and primary soil forming materials within the Order 2 soil survey area.

The colluvial material may contain less rock fragment content and finer soil materials in concave slope positions and at junctions of several side canyons, which dissect slopes within the survey area from the east. The sedimentary rock parent materials include limestone, calcareous sandstones, and siltstones. Mass wasting soil and colluvial deposits are noticeable within all soil map units and on various slope gradients across the soil survey area. These ancient landslide deposits have randomly distributed soil and geologic parent materials across the survey area in a way which makes predicting soil depths, rock content, and textures of soil profiles challenging for me. The vegetation is characterized by sagebrush on west to southerly aspects of the mountainsides, and pockets of aspen forest with snowberry understory located on north to easterly facing

slopes. The previously disturbed AML reclamation lands are dominated by Rubber Rabittbush and Wyoming Big Sagebrush. Slope gradients are steepest along the east side of the survey area, with moderate to gently sloping areas along the lower side slope and toeslope positions to the west. Soils with rock fragment contents of over 40 percent in their profiles are common within the survey area on all aspects and across all slope shapes.

Previous Soil Surveys

The Order 3 soil survey which includes the Kinney No.2 Mine permit area was reviewed (SCS, 1988). Sheet #6 of the Carbon Area Soil Survey provides 4 map unit delineations mapped by SCS in the Kinney No.2 permit area, which includes six soil map unit components, or Soil Series, and one Miscellaneous Land type. The Trag-Croyden complex (Map Unit 117) represents much of the steeper mountain slope positions, and Trag-Bege-Senchert complex (Map Unit 118) occurs to a lesser extent on toeslope positions along the southern edge of the permit area. Silas loam and Silas-Brycan loams (Map Units 108, 109) are mapped along the one acre of the permit area found within alluvial bottomlands along Mud Creek. One Miscellaneous Land Type, Mine Dumps, was described in the SCS Soil Survey Report for the areas with previous coal mining disturbance.

Trag Series has recently been revised in its extent by NRCS soil scientists in the Carbon County Area, to characterize soil types found with granitic parent material. Tie Creek Series, classified as a Fine-loamy, Typic Argiustoll, is a Soil Series which has been established in other portions of Carbon County. This Series is currently being used to represent sedimentary rock influenced soils found with sagebrush vegetation in frigid soil temperature regimes (personal communications, Leland Sasser, NRCS Price Field Office). Sagebrush vegetation and a frigid soil temperature regime represent the dominant soil ecotypes and climate in this area. The Tie Creek soil profile is very deep, has an argillic subsoil horizon, and includes some calcium carbonate accumulations in its subsoil. Croyden Series, a fine-loamy, Typic Argicryoll, is mapped by SCS on aspen forested sites in this area, and is usually about 50 inches to weathered sandstone bedrock and has an argillic horizon in the subsoil. The Bege soil Series is shallow to sandstone bedrock, and was not found within backhoe excavations to be a representative soil type along colluvium dominated lower side slopes. Senchert Series is a moderately deep to bedrock (20 to 40 inches) soil found under aspen understory, and occurs occasionally on spurs of ridges in this survey area. Official Soil Series descriptions from Carbon Area Soil Survey of several of these related soil types are included in Appendix 6.

There has been no attempt in this report to match soil profile descriptions described in the field to the Soil Series level of soil classification. The focus of this report is to identify

and rate soil properties as they affect feasible topsoil salvage operations. Soil family level classifications were used in documenting soil types.

Methods

In October 2006, 1:24,000 aerial photographs and mine plan schematic maps were reviewed. On a 1:6,000 scaled base map of the survey area, preliminary soil map unit boundaries were drawn. These map units were designed primarily with the intent to separate areas of previous surface disturbances (mainly alternative soil reclamation materials) from natural soil areas. The remote sensing effort was further refined during October 2007, with use of Utah State's (AGRC) high resolution aerial orthophotographs, which examination of has provided more accurate determinations for the extent of AML and other surface disturbances (Ben Grimes, personal comm.). Other factors influencing soil map unit design are slope gradients, aspect, and vegetation changes. The soil map units are designed to accommodate the intent of this project's objective of evaluating the major soil type's ability to be salvaged feasibly and then to be used as a plant growth medium in reclaiming this site. Slopes with steeper than 50 percent gradient, or soils with greater than 50 percent coarse fragments in their profile are regarded as impractical for conventional bulldozer scraping and feasible topsoil salvage practices, and were therefore not sampled in this survey.

On October 15, I met with Greg Hunt of Carbon Resources LLC and backhoe operator Mike Erkkila of Scofield, and began a field reconnaissance of pre-delineated soil map units by driving two access roads which bisect the survey area. Where available, road cut exposures were taken advantage of by cutting back with shovels and backhoe, to sample and describe soils within the survey area. A minimum of one representative soil profile was chosen for each map unit, and in the case of previously disturbed areas, the density of soil backhoe pits was increased due to the greater variability of these soil types. A total of 18 soil profiles were excavated and recorded during the following three days according to A Field Guide for Describing and Sampling Soils Version 2.2 (Schoeneberger, et al., 2005). Photographs were taken of each soil pit, and micromonolith sample boxes were assembled from each soil profile, photographed, and then stored for reference.

An average of 4 to 5 sample increments of soil materials and coal samples were taken from each soil profile, placed in gallon-sized plastic bags, and shipped to ACZ Laboratories, Inc. (ACZ) in Steamboat Springs. The amount of soil samples sent to the lab total 96 increments, and the number of coal samples sampled within five of the soil profiles total six. On November 3, 2006, all 102 of the samples had been received by ACZ. Samples were analyzed according to UDOGM Guidelines (Topsoil Guidelines, Tables 2 and 3, 2005) and results were reported on December 21, 2006.

An additional sampling and soil survey trip was made to Kinney No.2 soil survey area during September, 2007. This 3 day sampling excursion was dedicated to describing the

soil resources of the Hansen Surface (about 15.3 acres) located to the south and west of the 2006 sampling area. During this trip, a partial review of the soil profiles excavated during 2007 was made on-site with UDOGM soil scientist Priscilla Burton. Thirteen additional soil profiles were excavated by backhoe, and a total of 52 soil horizons, including 2 coal buried samples, were delivered to Intermountain Laboratories, Inc. (IML), Sheridan Wyoming on September 8. Results of the IML lab analyses were made available on Sept. 18, 2007.

Laboratory Analysis and Data Interpretation

Laboratory analysis of soil samples collected from 31 backhoe pits, hand-dug holes, and road cut excavations were conducted to determine chemical and physical properties of soils within the 36.7 acre Kinney No.2 soil survey area. Areas of previously disturbed land found within the southern portion of the soil survey area containing a majority of the planned coal mining building facilities were given closer scrutiny by increasing the soil sampling frequency. The laboratory analyses performed on all of the soil samples and the associated coal samples are provided in Table 1. In addition to the standard UDOGM lab parameter for topsoil suitability, Acid-Base Potential, Boron, Selenium, and Sulfur, and Total Organic Carbon percentages were analyzed for coal samples taken at 9 sample locations and for the 13 associated soil horizons (AML) at the following sites: D-3, D-4, D-9A, D-9B, and D-11, 06 –SP-07, 13-SP-07.

These data, along with soil profile and map unit descriptions, were used to classify soil types (USDA, 2006) and to assess the suitability of soils as primary plant growth medium for reclamation. The Utah Division of Oil, Gas, and Mining topsoil suitability ratings are listed in Table 2. Soil suitability criteria and four rating categories are also provided in Table 2. Based on numeric values assigned to each category (1 to 4), an average (or overall), cumulative, and maximum (highest) score determines the ultimate rating for each sample. However, some parameters are more important than others and some plant growth limiting factors may be readily overcome using proper management practices. For instance, available water holding capacity and soil erodibilty (K-factor), when adjusted for the higher coarse fragment content of these particular soils, is often rated less than if only the fine earth fraction of the soils are considered. The higher percentage of rock volume found in these soils may contain additional pockets of moisture beneath them, which are stored and used by plants during dryer periods of the year. Also, the higher coarse fragment contents of soil effectively shelter silty and other finer-textured soil particles from wind and water erosion.

Estimates of soil available water holding capacity (AWHC) were made using Saxton, et al. SPAW Soil Modeling Calculator, available on the Web. Permeability class (Rawls et al. 1982), and hydrologic group (Rawls et al. 1982) were based on soil texture of the major component of each soil map unit and adjusted for coarse fragment contents. The procedures found in Soil Survey Manual (USDA 1993b) were used to estimate surface

runoff class. The estimated root restricting depths were based on soil profile observation in the field, by such characteristics rock distribution, or bedrock layers.

The soil erodibility factors (K factors) were calculated based on the numerical representation of the nomographs typically used to calculate the erodibility of the fine earth fraction (Kf) and entire soil including rock fragments (Kw). This calculation involves the use of several variables including: the percentage of silt and very fine sand, soil organic matter, soil structure, and permeability. The procedures and calculation used to estimate the soil erodibility factors are provided in the National Soil Survey Handbook (USDA 1993a pages 618-30 and 618-32). The higher the K value, the more susceptible the soil is to sheet and rill erosion by water.

Soil Survey Results

Six soil map units were identified at the Order 2 level on 36.7 acres of the permit area. Figure 1 shows the location of the Kinney No.2 Mine Order 2 Soil Survey area, Soil Map Unit Identification Legend, and 31 of 36 soil sample site locations. Five locations are north of the present permit application boundary and not shown on this map. The Soil Map Unit ID Legend includes 5 natural soil map units and two previously disturbed map units. Family level soil classifications are provided for each of the natural soil map unit components. Three slope breaks, A: 0-35 percent, and B: 35-70 percent, C: 0-3 percent, were used to differentiate natural soil mapping units. Two slopes breaks, 0-20 percent, and 20-50 percent were used to differentiate the Disturbed Lands (DA, DB) map units. Of the 31 soil sample locations, 16 are located within previously disturbed/reclaimed areas and 15 were sampled from non-disturbed, natural soil landscapes.

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Important and prime farmland determinations for this area were assessed during September 2007 using the NRCS WEB SOIL SURVEY. Figure 2. Contains a page printed form this website listing the Soil Map units found in the area of this soil survey, and their Prime Farmland suitability ratings (NRCS, 2007). There are no prime farmland soils or soils of statewide importance found within areas of concern in this soil survey report, primarily limited by a cold climate (growing season length), slope steepness and rock fragment contents.

The laboratory data from ACZ (2006 sampling, including 5 sample sites located outside of present permit application) are presented in Appendix 1. Intermountain Laboratories, Inc. data (from 2007) are shown in Appendix 2. Soil pedon descriptions for the 36 profiles are provided in Appendix 3. Soil profile photographs with sampled depth increments are shown in Appendix 4. Soil micromonolith box samples for the 36 sites are provided in Appendix 5. Appendix 6 contains three Official Soil Series Descriptions which closely resemble soils described in this report, and are published in the Soil Survey of Carbon Area, Utah Report (SCS, 1988).

Table 1 lists the soil analyses and the laboratory methods used by ACZ and IML to determine soil physiochemical properties. Table 3 shows the six Map Units, their major components, and the physical parameters typically used to assess impacts to soil resources and feasible soil management and handling options. Table 4 identifies each soil sample site with its family taxonomic classification. Classifications for profiles described within previously disturbed areas are listed as Disturbed Area Soils. Table 5 lists the soil map unit delineations by their acreage. Table 6 contains the laboratory data used to assess soil suitability and the various rating (highest, average, and cumulative ranking) based on comparison with the UDOGM topsoil suitability rating guideline provided in Table 2. Table 7 contains soil erodibility (K factor) calculations and input parameters. Table 8 is a summary of all of the identified soil limitations, and estimated soil salvage depth and salvage volumes by soil map unit.

Two Soil Orders were described within the undisturbed lands (Map Units 1B, 2A, 2B, 3A) of Kinney No.2 Mine Order 2 soil survey area, Mollisol, and to a lesser extent, Alfisol. Inclusions of Inceptisols were also noted. A 10 –15 inch dark topsoil layer (A horizon) with 2 to 3 feet of very stony to bouldery coarse textured subsoil (B to C horizons) characterize the soils of these areas. Soils with over 10 percent coal fines on the surface are common in the disturbed/reclaimed area of the survey area, and these "reclaimed coal" dump areas are identified in this report as Disturbed Area Soils (Map Units DA and DB). It has proven difficult for me to model or predict the depths to and extent of "reclaimed coal" fines and chunks that occurs within the previously disturbed area. Soils located within Disturbed Areas contain a highly variable mixture of soil and rock material, mixed with "reclaimed coal" deposits. A common feature of both undisturbed and reclaimed sites across the survey area is the high percentage of coarse fragments found throughout these profiles. Exceptions to this case are found in soils located on concave lower slope positions (Map Unit 1B), and along floodplain terraces and drainages (map unit 3A).

Following are brief descriptions of the six map units.

DA. Disturbed area soils, 0-20 percent slopes

This map unit occurs in previously disturbed AML reclamation area throughout the soil survey area which includes former dumps, portals, and staging areas, and along abandoned haul and rail roads. The entire area appears to have been regraded since 1986 to conform to the moderate to slightly sloping toeslopes in context with the adjacent natural slope gradients. Mixtures of soil with alternative reclamation materials from the area are combined with "reclaimed coal" chunks and fines, and are distributed in a way making soil taxonomy inapplicable. Vegetation is a mixture of seeded grasses and Rubber rabbitbrush. Slope gradients are between 0 and 20 percent, the soil is well drained, and has a moderate permeability. Some concrete foundations of abandoned structures are found within this map unit. Eighty percent of the map unit are classified

Disturbed land soils, and 10 percent each are Fine-loamy and Loamy-skeletal, Typic Haploxerolls found on undisturbed soil landscapes with sagebrush and grass vegetation.

DB. Disturbed area soils, 20-50 percent slopes

This map unit is also located within previously disturbed AML reclamation areas, located primarily in the southern portion of the survey area. Parent materials include sandstone, limestone, and mudstones, Slopes range between 20 and 50 percent and soils are well drained and have a moderate permeability. There is a mixture of reclaimed materials, up to 20 inches depth comprised of subsoil with "reclaimed coal" covering the natural soil profiles. Depths of the reclaimed material covering the natural soils profile vary considerably across the map unit, and are not easily predicted by surface features. Eighty percent of this map unit is comprised of Disturbed land soil containing "reclaimed coal" and alternative reclamation materials. Vegetation is comprised of seeded grasses and Rubber Rabbitbrush, with a small proportion of sagebrush and aspen trees. Included are 10 percent Loamy-skeletal Typic Haploxeroll soils on undisturbed lands, with a mix of sagebrush and aspen vegetation. Another ten percent inclusion are Fine-loamy Typic Argixeroll soils on undisturbed land found on concave slope positions.

1B. Typic Haplocryoll loamy skeletal – Typic Argicryoll, coarse-loamy Complex, 35-70 percent slopes

This soil map unit is found on steeper mountain side slopes of the permit area with aspen vegetation and slopes above 35%. The parent materials are colluvial sandstones, shale, and limestones from the Blackhawk Formation. Soils are moderately deep to deep, well drained, and have a moderate permeability. Typic Haplocryoll, loamy-skeletal comprise 50 percent of this map unit. Typic Argicryoll, coarse-loamy comprise 40 percent of this map unit. Included in the map unit are ten percent Pachic Haplocryoll fine loamy soils located on concave slope positions.

2A. Typic Argixeroll, loamy-skeletal – Typic Haploxeroll, loamy-skeletal Complex, 0-35 percent slopes

This map unit is located on colluvial side slopes and toeslopes with sagebrush vegetation and slopes less than 35%. Soils are deep to very deep, well drained, and have a moderate permeability. Soils with south to westerly aspects under sagebrush vegetation types in this area have a frigid temperature regime. Loamy–skeletal, Typic Argixerolls comprise 50 percent of this map unit, and Fine-loamy Typic Haploxeroll comprise 35 percent of the map unit on concave slopes. Included in the map unit are 10 percent soils with pachic epipedons on concave lower sideslopes (Senchert Series), and 5% soils that are shallow to bedrock on ridges and convex sideslopes (Bege Series).

2B. Typic Argixeroll, loamy-skeletal Consociation, 35 - 70 percent slopes

This map unit is found on steep colluvial sideslopes with sagebrush and grass dominated vegetation. Mixed sedimentary rocks are the parent materials. The south to westerly aspects have a frigid temperature regime. Slopes are between 35% and 70% and soils are moderately deep to deep and well drained, with a moderate permeability. Loamy-skeletal Typic Argixerolls comprise 80 percent of this map unit. Included in the map unit are 10 percent shallow to bedrock soils on convex slopes, and 10 percent Pachic Haploxerolls on concave slope positions.

3A. Cumulic Argicryoll Fine-loamy, Consociation, 0-3 percent slopes

This map unit is of limited extent (0.8 acre) within the Kinney No.2 permit area, and is located west of Highway 96 on alluvial terrace bottomlands of the Mud Creek drainage. No backhoe pits were excavated in this map unit; soil sampling was by hand-excavated pits to 40 inches. The area is characterized by seasonally moist subsoil resulting from groundwater and Scofield Reservoir level fluctuations in the area. Soils are very deep, with stratified loam to silt loam textures, and are faintly mottled below 40 inches. Vegetation includes grass, sedges, and weeds. Ninety percent of this map unit is Silas Series soil types. Included in this map unit are five percent soils with 20 inches cover of coal fines with alternative reclamation material, found along depositional areas adjacent to the highway berms and associated drainage culverts, and five percent soils with a coarse- loamy particle size class in their control section.

Soil Salvage

The determination of soil suitability depends on the intended use of the soil. Soil intended for reclamation should have a sufficient depth and quantity to permit economic salvage and be of suitable quality and texture. Soils management considerations include the development of practical methods for soil salvage, stockpile construction, redistribution onto regraded spoil, seedbed preparation, erosion protection, and the rapid establishment of perennial and permanent vegetation.

Soil map unit salvageability, plant growth limiting factors, and the estimated volume of plant growth medium within the 27.3 acre Kinney No.2 Mine planned disturbance area provided in Table 8 which is a subset of the 36.7 soil survey area within the controlled property. These estimates were based on soil profile descriptions (Appendix 3), comparison of the suitability rating guidelines (Table 2) with physicochemical soils data (Table 6), size of the map unit within the proposed disturbance (Table 5), estimated depths of suitable soil in each map unit component, and the proportion of each map unit component for which soil salvage was considered feasible.

The factors limiting soil suitability in the 27.3 acre Kinney No.2 Mine Order 2 soil survey include Total Organic Carbon content (found in most alternative reclamation materials), available water holding capacity in the soils with over 40% coarse fragments, K-factor of the fine-earth fraction soil material of A horizons with minimal coarse fragment content, and slope gradients of over 50%. These limitations were identified based on the review of laboratory data and field description of coal distribution around and within the soil profiles, soil texture, and the ocular estimation for percentage rock content observed in the soil profiles. Slope gradients were determined using hand held clinometer.

Of the 154 samples tested within the 31 soil profiles, all tested good for electrical conductivity, SAR, and CaC03 percentage. All samples tested good for pH, with the exception of one sample (13-SP-07) which had pH values of slightly less then 6.5.

The water content, at saturation, of 151 of the samples rated good. Two sample increments from one site (1B-1) rated poorly, and one from site 13-SP-07 was fair, with saturation percentage of between 67 and 80 percent. The calculated available water capacity (AWHC), when corrected for coarse fragment content, for 87 of the soils rated good, 49 rated fair, and 18 were rated poor. The calculated soil erodibilty or K-factor for the fine earth fraction includes 123 rated good, 16 rated fair, and 15 rated poor. When coarse fragment contents are factored into the K-factor calculations, 144 samples are rated good, 3 are rated fair, and 7 are rated poor.

Soil textures of 152 of the coal and soil samples rated fair to good, with the majority of soils having a sandy loam, loam, or silt loam textures. Two of the subsurface soils rated poor with textures of silty clay (sites D-10, and 2A-5) and 2 coal samples (sites D-3 and 13-SP-07) had a poorly rated sand texture. The amount of very fine sand as proportion of total sand was generally between 15 and 30 percent.

Of 21 coal and coal- affected soil samples that were tested from 7 separate locations, all results for Boron results were good. They range between 0.46 and 2.30 mg/kg, well below the 5 mg/kg UDOGM acceptable limit. Of all of the selenium samples tested, 20 of 21 tested below lab detected limits. One sample, D-11 tested .007 mg/kg, below UDOGM acceptable standard of .15 mg/kg. Soil materials, alternative reclamation materials, and coal samples from 7 of the sample sites, are thus considered nonseleniferous and non-boroniferous.

The Acid- Base Potential for these 21 samples all rated good, with a lab calculations of between 5 and 38 available tons CaCo3 per1000 tons overburden in the samples. Total Organic Carbon for the 8 coal samples tested between 5 and 63 percent TOC. All of the "reclaimed coal" found buried within soil profiles, and mixed into the alternative reclamation material of soils of disturbed sites within the survey area, notwithstanding their distribution and thickness within soil profiles, are regarded as poorly rated in their topsoil suitability because of Total Organic Carbon percentages of over 10 percent. The issue of addressing the segregation and disposition of these coal fines is outside the scope of this soil survey report and will be a topic found in the topsoil salvage plan and the reclamation plan.

Based on these laboratory results and soil profile observations for 27.3 acres of the Kinney No. 2 Mine Order 2 soil survey area, the natural soil landscapes represented by Map units 2A, 2B, 1B, and 3A contain suitable growth medium of between 8 and 24 inches thickness that can be salvaged for reclamation of mine-related disturbances when found in contiguous areas of over an acre in extent. Map Units 1B and 2B, found on over 35 percent slopes, pose mechanical limitations in separating potential topsoil increments of less than 8 inch depth without inclusion of subsoil. Experience has shown that where less than about one foot of suitable materials are found on steep, rocky slopes, or close to shallow bedrock contacts, it would be impractical to strip, salvage and transport any of the suitable soils without including some subsoil material (B or C horizons) located at depths between one to two feet.

An exception to the available topsoil reclamation suggestion above is found within areas of disturbed land (map units DA and DB), where some of the alternative reclamation materials are mixed with varying amounts of "reclaimed coal" containing Total Organic Carbon contents of over 10 percent, and containing coal fines on the surface in excess of 15%. These soils are regarded as unsuitable for reclamation purposes, yet comprise significant proportions of the survey area. The variably-sized, buried bodies of "reclaimed coal" located within map units DA and DB may contain acid forming materials and should be contained separately from other suitable topsoil growth medium. However, based on the sample sites located within disturbed areas of this survey, the establishment of certain plants has successfully occurred in much of the previously disturbed area reclaimed by AML. The alternative topsoil materials used in 1986 may be argued as having had some success in providing adequate neutralizing affects when used in association with small amounts of coal fines (less than 15%) so that these materials

may repeatedly used, if necessary, as a source for additional alternative topsoil materials.

The exact extent of coal buried within previously disturbed Map units DA and DB cannot be precisely estimated by methodologies used to prepare this soil survey report. Additional core drilling in areas of previous disturbances and located within AML 1986 reclamation is recommended. This core drilling would allow for modeling of a better estimate of the quantities of "reclaimed coal" located in this area. Such an estimate of coal volumes could provide the information needed to decide whether economics of the stripping/ recovery of buried coal is feasible. In my judgment, potential additional reclamation materials could be made available from within map Units DA and DB if the isolation and recovery of "reclaimed coal" are deemed feasible. Separation of, and salvage for resale of the larger bodies of the "reclaimed coal" is perhaps an economically feasible management alternative. The removal from the AML areas of any potential acid toxicity resulting from "reclaimed coal" products provides assurance that buried "reclaimed coal" is isolated and separate from other nearby, suitable alternative reclamation topsoil materials.

According to the results of 154 soil sample analyses and a field survey of soil resources, an estimated 66.5 thousand cubic yards (yds^3) of suitable soil is salvageable within the 27.3 acres of Kinney No.2 Mine Order 2 soil survey area for use as plant growth medium for reclamation. Additional soil salvage volume may be possible if marginal soils (poorly rated soils by UDOGM Guidelines), along with use of some of the alternative reclamation materials mixed with coal fines, are considered necessary for overcoming deficiencies in topsoil balance. The plants presently growing on-site attest to the abilities of these previously disturbed lands alternative reclamation materials to grow vegetation.

Salvageable soil quantities may be more precisely estimated when detailed plans for the scheduling and mine development are completed. At that time, the detailed balance of salvaged soil materials and substrates can be calculated, and their storage or distribution can be determined and become part of the reclamation planning. Experience in soil salvage on large-scale mining projects has shown that field determination of soil salvage and suitability at the time of construction may be necessary. My recommendation is for a trained soil scientist to be present at time of soil salvage operations.

Potential Soil management Alternatives

Two potential reclamation uses for soils salvaged from Kinney No.2 Order 2 Soil Survey are:

1. Primary plant growth medium;
2. Seed, organic matter, and soil inoculum source

1. Primary Plant Growth Medium

Soils capable of acting as a primary plant growth medium for revegetation and reclamation are generally composed of soil materials rated as 1 or 2 according to the UDOGM guidelines. These soils are currently capable of supporting, in this case, native plant species that are adapted to conditions in the area. The physical and chemical properties of texture, pH, soluble salts content, sodium content, organic matter, etc. are in general not limiting for plant growth of native species. In some instances, soil material below the zone of active pedogenic processes should be suitable for reclamation.

2. Seed and Microbial Innoculum

The second subsidiary use of the surface soils is as a source for seed and plant propagules and microorganism inoculum. Seeds are generally contained in the top few inches of soils and are more abundant in the late summer and fall after flowering and seed set. Microbial inoculum is also contained in the top 2 to 8 inches of growth medium. Root propagules are typically found within the top 2 feet of the soil profile. Stockpiling of these plant propagules and microbial active materials significantly reduces their viability over time. If mine planning allows, soils should be applied within a short time following salvage and placed directly on regraded surfaces (‘live handled’).

Summary

There are some limitations to soil salvage in the proposed disturbed area within the Kinney No.2 Mine Order 2 soil survey area. The primary limitations are the available water holding capacity of soils containing greater than 50% rock content, slope gradients of over 50 percent affecting use of soil salvage machinery, soil materials with sandy textures, and an accurate determination of the quantity of coal found within the mixture of alternative reclamation materials located in Disturbed Lands Map Units DA and DB. Soil salinity, pH, calcium carbonate percentage, and plant nutrition do not pose any limitations to plant growth medium at the Kinney No.2 soil survey area. To ensure maximum utilization of the soils resource, soil salvage should be coordinated with the planning and construction phases of mining operations. A soil reclamation plan, at a later date, will have to address the issue of separation of the previous coal mining affected surfaces from natural topsoil, in the stripping and salvage operations.

Based on the soil descriptions in this report, the stripping, handling, storage, and application of the salvaged material can be estimated for reclamation planning. The estimated amount of salvageable soils was calculated based on depth and extent of soils found within the 36.7 acres within the Kinney No.2 Mine Order 2 soil survey area. All of the soil salvage estimates in this report are approximations.

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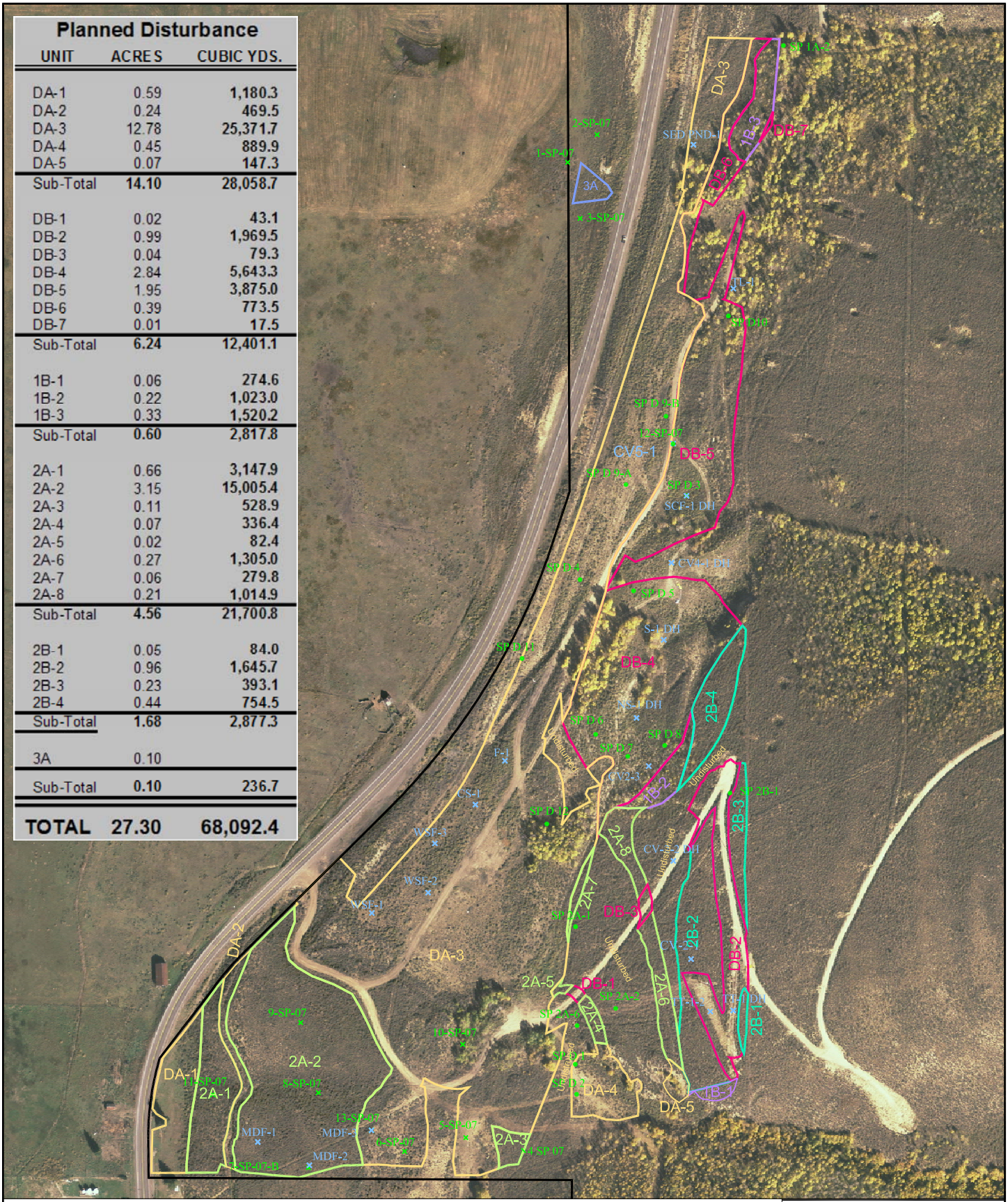
REPORT TABLES



Planned Disturbance

UNIT	ACRES	CUBIC YDS.
DA-1	0.59	1,180.3
DA-2	0.24	469.5
DA-3	12.78	25,371.7
DA-4	0.45	889.9
DA-5	0.07	147.3
Sub-Total	14.10	28,058.7
DB-1	0.02	43.1
DB-2	0.99	1,969.5
DB-3	0.04	79.3
DB-4	2.84	5,643.3
DB-5	1.95	3,875.0
DB-6	0.39	773.5
DB-7	0.01	17.5
Sub-Total	6.24	12,401.1
1B-1	0.06	274.6
1B-2	0.22	1,023.0
1B-3	0.33	1,520.2
Sub-Total	0.60	2,817.8
2A-1	0.66	3,147.9
2A-2	3.15	15,005.4
2A-3	0.11	528.9
2A-4	0.07	336.4
2A-5	0.02	82.4
2A-6	0.27	1,305.0
2A-7	0.06	279.8
2A-8	0.21	1,014.9
Sub-Total	4.56	21,700.8
2B-1	0.05	84.0
2B-2	0.96	1,645.7
2B-3	0.23	393.1
2B-4	0.44	754.5
Sub-Total	1.68	2,877.3
3A	0.10	
Sub-Total	0.10	236.7
TOTAL	**27.30**	**68,092.4**

SOIL TYPES and Planned Disturbance Areas

- DA Disturbed Lands, 0-20% Slopes
- DB Disturbed Lands, 20-50% Slopes
- 2A Typic Argixeroll-Typic Haploxeroll Complex,0-35% Slopes
- 1B Typic Argicryoll Consociation, 35-70% Slopes
- 2B Typic Argixeroll Consociation, 35-70% Slopes

LEGEND

- SP 2A1 — Soil Survey Sample Pit 2006 Field Work w/Lab Analysis
- 6 SP 07 — Soil Survey Sample Pit 2007 Field Work w/Lab Analysis
- WSF-2 — Soil Stability Sample Pit 2007 Field Work; Soil Horizion Data Only, NO /Lab Analysis
- Permit Boundary (Portal Block)

N

0 300 ft

SCALE: 1:3,600 or 1" = 300'

Contour Interval 20 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then multiply by the CF.

Carbon Resources LLC

KINNEY NO. 2 MINE

FIGURE 1

Planned Disturbed Area Soil Map

DRAWN BY: BC & GLH DATE: 9/20/-7

APPROVED BY: Gregory Hunt DATE: 12/31/2007

HANSEN ALLEN & LUCE, Inc. ENGINEERS
23 S. Carbon Ave., Suite 21
Price, UT 84501

FILE: Fig 1 Soil Chemistry 07

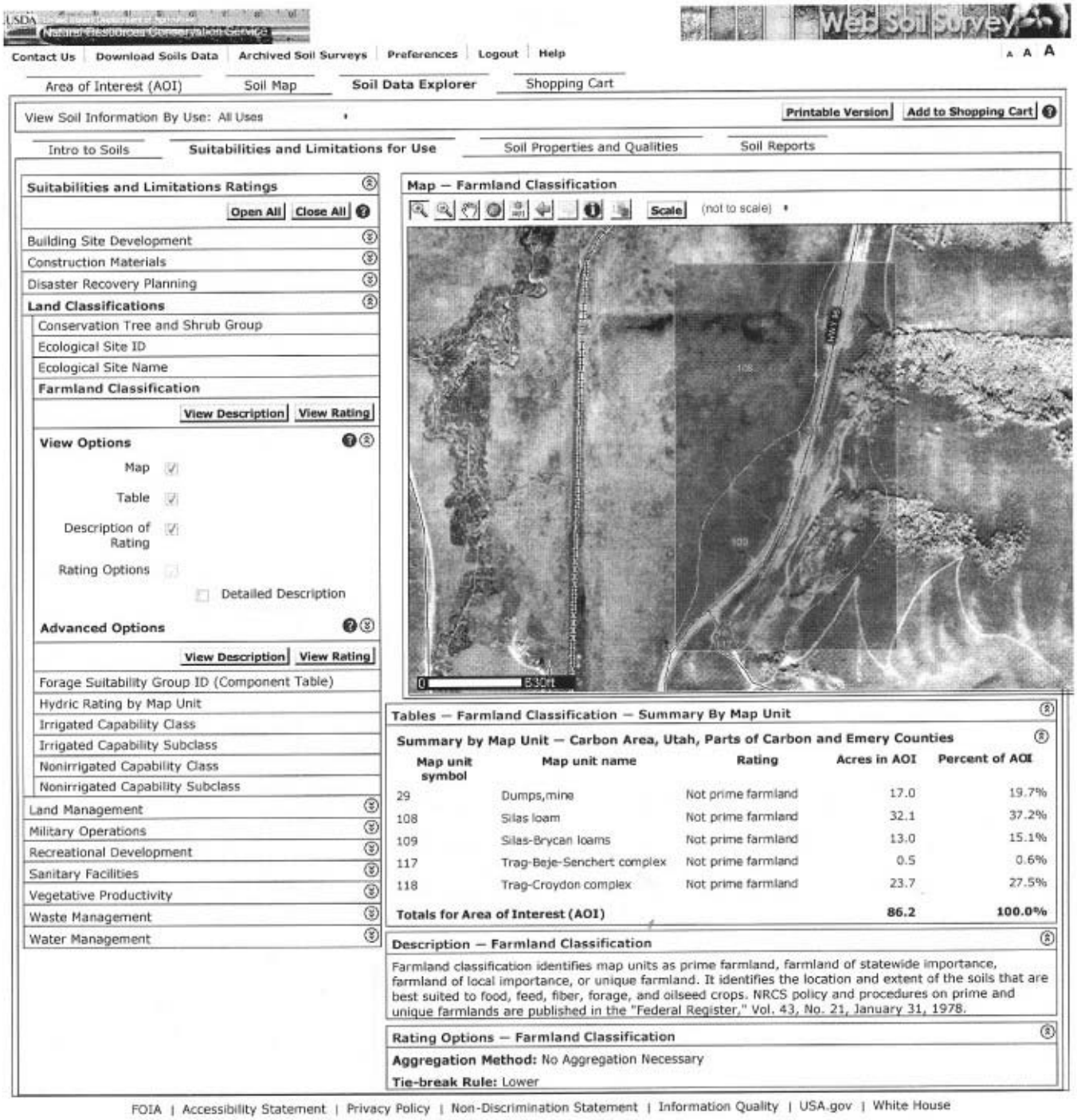

USDA Natural Resources Conservation Service
Web Soil Survey
Contact Us | Download Soils Data | Archived Soil Surveys | Preferences | Logout | Help
A A A
Area of Interest (AOI) | Soil Map | Soil Data Explorer | Shopping Cart
View Soil Information By Use: All Uses
Printable Version | Add to Shopping Cart
Intro to Soils | Suitabilities and Limitations for Use | Soil Properties and Qualities | Soil Reports
Suitabilities and Limitations Ratings
Open All | Close All
Building Site Development
Construction Materials
Disaster Recovery Planning
Land Classifications
Conservation Tree and Shrub Group
Ecological Site ID
Ecological Site Name
Farmland Classification
View Description | View Rating
View Options
Map
Table
Description of Rating
Rating Options
Detailed Description
Advanced Options
View Description | View Rating
Forage Suitability Group ID (Component Table)
Hydric Rating by Map Unit
Irrigated Capability Class
Irrigated Capability Subclass
Nonirrigated Capability Class
Nonirrigated Capability Subclass
Land Management
Military Operations
Recreational Development
Sanitary Facilities
Vegetative Productivity
Waste Management
Water Management
Map — Farmland Classification
Scale (not to scale)
Tables — Farmland Classification — Summary By Map Unit
Summary by Map Unit — Carbon Area, Utah, Parts of Carbon and Emery Counties
Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI
29 | Dumps,mine | Not prime farmland | 17.0 | 19.7%
108 | Silas loam | Not prime farmland | 32.1 | 37.2%
109 | Silas-Brycan loams | Not prime farmland | 13.0 | 15.1%
117 | Trag-Beje-Senchert complex | Not prime farmland | 0.5 | 0.6%
118 | Trag-Croydon complex | Not prime farmland | 23.7 | 27.5%
Totals for Area of Interest (AOI) | 86.2 | 100.0%
Description — Farmland Classification
Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.
Rating Options — Farmland Classification
Aggregation Method: No Aggregation Necessary
Tie-break Rule: Lower
FOIA | Accessibility Statement | Privacy Policy | Non-Discrimination Statement | Information Quality | USA.gov | White House

TABLE 1

Kinney #2 Mine - Soil Analyses and Analytical Methods

ANALYSES	METHOD
Boron, soluble (Hot Water)	M6010B ICP
Calcium, soluble (Sat. Paste)	M6010B ICP
Magnesium, soluble (Sat. Paste	M6010B ICP
Potassium, extractable (AB-DTP	M6010B ICP
Potassium, soluble (Sat. Paste	M6010B ICP
Selenium, soluble (Hot Water)	SM3500-Se.C
Sodium Absorption Ratio	Calculation
Sodium, soluble (Sat. Paste)	M6010B ICP
Acid Generation Potential (cal	M600/2-78-054 1.3
Acid Neutralization Potential	M600/2-78-054 1.3
Acid-Base Potential (calc on S	M600/2-78-054 1.3
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Co
Clay	ASTM D 422 Hydromete
Conductivity @25C	M120.1 - Meter, w/ S
Neutralization Potential as Ca	M600/2-78-054 3.2.3
pH, Saturated Paste	USDA No. 60 (21A)
Sand	ASTM D 422 Hydromete
Saturation Percent	USDA No. 60 (2)
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2
Silt	ASTM D 422 Hydromete
Solids, Percent	CLPSOW390, PART F, D
Sulfur Organic Residual	M600/2-78-054 3.2.4
Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4
Sulfur Sulfate	M600/2-78-054 3.2.4
Sulfur Total	M600/2-78-054 3.2.4
Texture Classification	ASTM D 422 Hydromete
Total Sulfur minus Sulfate	M600/2-78-054 3.2.4
Nitrate as N, extractable (KCL	Calculation: NO3NO2
Nitrate/Nitrite as N, extracta	M353.2 - Automated C
Nitrite as N, extractable (KCL	M353.2 - Automated C
Nitrogen, total Kjeldahl	M351.2 - TKN by Bloc
Phosphorus, extractable (AB-DT	M365.1 - Automated A

Table 2

Utah Oil Gas and Mining Soil Suitability/Unsuitability Evaluation Guidelines [1]

Criteria	Suitability Rating[2]			
	Good (G)	Fair (F)	Poor (P)	Unacceptable(U)
Saturation %	25 to 55	≥56 to 80	<25, >80	
pH	6.5 to 8.1	6.0 to 6.4, 8.2-8.5	5.5 to 6.0, 8.6 to 9.0	<5.5, >9.0
EC (mS/cm 25^0 C)	0 to 4	4 to 8	8 to 15	>15
SAR (Sodium Adsorption Ration)[a,b]	0 to 4	5 to 10	10 to 14	>14[a]
%$CaCO_3$	<15	15-30	>30	
Texture [c]	sl, l, sil, scl, sc, ls, lfs	cl, c, sicl, sc, ls, lfs	sic, s, sc, cos, fs, vfs	g, vcos
Total Organic Carbon	<10%			≥10%
Available Water Capacity [d]	>0.10, moderate	0.05 to 0.10, low	<0.05, very low	
K factor [e]	<0.37	0.37	>0.37	

[1] Utah Oil Gas and Mining, October, 2005. Guideline for Management of Topsoil and Overburden R645-301-200 Soils - Table 4

[a] For clay textured soils unacceptable SAR > 14. For sandy textured soils unacceptable is >20.

[b] For most Western soils, the SAR to ESP relationship is usually 1:1, up to ESP ≈ 20. If SAR> 20, then determine ESP (Evangelou, 2000).

[c] s=sand, l=loam, si=silt, c=clay, v=very, f=fine, co=coarse, g=gravel

[d] Available Water Capacity is adjusted for texture and coarse fragment percentage, and SAR

[e] K factor recommendations from the USDA Soil Conservation Service, 1978. National Soils Handbook Notice 24 (3/31/78). NSH Part II-403.6 (a). For prime farmland soils, the K factor times the percent slope should be a value of five or less for minimal erosion hazard.

Table 3
Kinney #2 Mine Order 2 Soil Survey - Soil Map Unit Descriptions and Physical Parameters

Map Unit ID #	Map Unit	Map Unit Component	% of Map Unit[1]	Landform	Depth to Bedrock inches	Parent Material	Drainage[2]	Bulk Density g/cm^3	AWHC[3] in/in	Perm Class[4]	Hydro Soil Group[4]	Surface Runoff Class[5]	Root Restriction Depth[8]	Soil Depth Class[8]
DA	Disturbed Lands, 0-20 percent slopes	Disturbed Soil	90%	toeslopes	40-60 plus	Coal Waste and reclaimed Topsoil	W	1.4	.02-.12	3	B	M	None	60 plus
		Lo-sk Typic Haploxeroll	10%					N/A	N/A	N/A	N/A	N/A	N/A	N/A
DB	Disturbed Lands, 20-50 percent slopes	Disturbed Soils	80%	lower sideslopes	60 plus	Coal Waste and reclaimed Topsoil	MW- W	1.4	.01-.13	3	B	M	None	60 plus
		Lo-sk Typic Haploxeroll	10%					N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Fi-lo Typic Argixeroll	10%					N/A	N/A	N/A	N/A	N/A	N/A	N/A
1B	Coarse-loamy Typic Argicryoll Consociation, 35-70 percent slopes	Co-lo Typic Haplocryoll	80%	sideslopes	60 plus	Mixed Colluvium from Black Hawk Fm.	EW-W	1.50	.06-.12	2	A	H	None	40-60
		Disturbed Soils	10%		40-60			1.4	.02-.12	3	B	H	None	60 plus
		Lo-sk Typic Argicryoll	10%		40-60			1.35	.03-.16	3	B	H	None	40-60
2A	Typic Argixeroll - Typic Haploxeroll Complex, 0-35 percent slopes	Lo-sk Typic Argixeroll	50%	toeslopes	40-60	Mixed Colluvium from Black Hawk Fm	MW-W	1.40	.03-.15	3	B	M	None	40-60
		Lo-sk Typic Haploxeroll	35%					1.40	.05-.11	3	B	M	None	40-60
		Inclusions	15%		40-60			1.4	.11-.15	3	B	M	None	40-60
2B	Typic Argixeroll Consociation, 35-70 percent slopes	Lo-sk Typic Argixeroll	80%	sideslopes	40-60	Mixed Colluvium from Black Hawk Fm	MW-W	1.35	.08-.14	3.00	B	H	None	40-60
		Disturbed Soils	10%		40-60			N/A	N/A	N/A	N/A	N/A	N/A	N/A
		shallow to bedrock inclusion	10%		10 to 20									

[1] Percentage of components in map unit.

[2] Drainage: E=excessively drained ; W=well drained; MW=moderately well drained; P=poorly drained

[3] AWHC estimated with coarse fragment Reduction (UDOGM Guidelines, page 11)

[4] See explanation Table 7 , footnote 2

[5] Surface Runoff Class: L=low; M=moderate; H=high; VH=very high

[7] Soil Erosion Hazard: K<0.37 = Low (L); K = 0.37 = Moderate (M); K > 0.37 = High (H)

[8] VS= very shallow (0-10 inches); S=shallow (10-20 inches); MD=moderately deep (20-40 inches); D=deep (40-60 inches); VD=very deep (>60 inches)

Table 4

Kinney #2 Mine Order 2 Soil Survey - Soil Family Classification by Pedon Location

Pedon ID Number	Map Unit	Soil Classification
D-1	Disturbed Area Soils, 0-20 percent slopes	N/A Disturbed Land Soils
D-2	Disturbed Area Soils, 0-20 percent slopes	N/A Disturbed Land Soils
D-9A	Disturbed Area Soils, 0-20% percent slopes	N/A Disturbed Land Soils
D-9B	Disturbed Area Soils, 0-20 % percent slopes	N/A Disturbed Land Soils
D-10	Disturbed Area Soils, 0-20 % percent slopes	N/A Disturbed Land Soils
D-11	Disturbed Area Soils, 0-20% percent slopes	N/A Disturbed Land Soils
05-SP-07	Disturbed Area Soils, 0-20 percent slopes	N/A Disturbed Land Soils
06-SP-07	Disturbed Area Soils, 0-20 percent slopes	N/A Disturbed Land Soils
13-SP-07	Disturbed Area Soils, 0-20 percent slopes	N/A Disturbed Land Soils
D-3	Disturbed Area Soils, 20-50 percent slopes	N/A Disturbed Land Soils
D-4	Disturbed Area Soils, 20-50 percent slopes	N/A Disturbed Land Soils
D-5	Disturbed Area Soils, 20-50 percent slopes	N/A Disturbed Land Soils
D-6	Disturbed Area Soils, 20-50 percent slopes	N/A Disturbed Land Soils
D-7	Disturbed Area Soils, 20-50 percent slopes	N/A Disturbed Land Soils
D-12	1A Complex, 0-35 percent slopes	Loamy-skeletal, mixed, superactive, Typic Argicryoll
1A-1	1A Complex, 0-35 percent slopes	Loamy-skeletal, mixed, superactive, Typic Argicryoll
1B-1	1A Complex, 0 -35 percent slopes	Coarse-loamy, mixed, superactive, Typic Haplocryoll
1A-2	1A Complex, 0-35 percent slopes	Fine-loamy, mixed, superactive, Pachic Haplocryoll
10-SP-07	1A Complex, 0-35 percent slopes	Loamy-skeletal, mixed, superactive, Typic Argicryoll
D-8	1B Consociation, 35-70 % slopes	Coarse-loamy, mixed, superactive, Typic Haplocryoll
2A-1	2A Complex, 0-35 percent slopes	Loamy-skeletal, mixed, superactive, Typic Argixeroll
2A-2	2A Complex, 0-35 percent slopes	Loamy-skeletal, mixed, superactive, Typic Argixeroll
2A-3	2A Complex, 0-35 percent slopes	Loamy-skeletal, mixed, superactive, Typic Argixeroll
2A-5	2A Complex, 0-35 percent slopes	Loamy-skeletal, mixed, superactive, Typic Argixeroll
2A-6	2A Complex, 0-35 percent slopes	Fine-loamy, Mixed, superactive, Pachic Palexeroll
2A-7	2A Complex, 0-35 percent slopes	Loamy-skeletal, mixed, superactive, Typic Haploxeroll
04-SP-07	2A Complex, 0-35 percent slopes	Loamy-skeletal,mixed, superactive, Typic Haplustoll
07-SP-07	2A Complex, 0-35 percent slopes	Loamy-sleletal, mixed superactive, Typic Haplustoll
08-SP-07	2A Complex, 0-35 percent slopes	Fine-loamy, mixed, superactive, Typic Argixeroll
11-SP-07	2A Complex, 0-35 percent slopes	Loamy-skeletal, mixed, superactive, Typic Argixeroll
09-SP-07	2A Complex, 0-35 percent slopes	Fine-loamy, mixed, superactive, Typic Argixeroll
12-SP-07	2A Complex, 0-35 percent slopes	Coarse-loamy, mixed, superactive, Typic Haplustoll
2B-1	2B Consociation, 35-70 percent slopes	Loamy-skeletal, mixed, superactive, Typic Argixeroll
01-SP-07	3A Consociation, 0-3 percent slopes	Coarse-loamy, mixed, superactive, Cumulic Endoaquoll
02-SP-07	3A Consociation, 0-3 percent slopes	Fine-loamy, mixed, superactive, Cumulic Haplocryoll
03-SP-07	3A Consociation, 0-3 percent slopes	Fine-loamy, mixed, superactive, Cumulic Haplocryol

Table 5

Kinney #2 Mine Order 2 Soil Survey - Surface Disturbance by Soil Map Unit

Map Unit ID	Map Unit Name	Disturbance Acres
DA	Disturbed Lands, 0-20 percent slopes	14.1
DB	Disturbed Lands, 20-50 percent slopes	6.1
1B	Typic Argicryoll Consociation, 35-70 percent slopes	0.8
2A	Typic Argixeroll - Typic Haploxeroll Complex, 0-35 percent slopes	4.5
2B	Typic Argixeroll Consociation, 35-70 percent slopes	1.6
3A	Cumulic Haplocryoll, fine-loamy, 0-3 percent slopes	0.1
	Total	**27.3**

Table 6
Kinney #2 Order 2 Soil Survey - Soil Suitability Data

Lab	Sample	pH (Sat Paste)	R[1]	E.C. @25°C	R[1]	SAR	R[1]	Sand	Silt	Clay	VFS	USDA Texture Class[2]	R[1]	Saturation Percent	R[1]	Available Water Capacity[5]	R[1]	Organic Matter	Organic Carbon (calculated)	R[1]	Erodibility Factor (K-Factor)[4]	R[1]	$CaCO_3$	R[1]	Boron	R[1]	Se (Hot H_2O sol)	R[1]	Cumulative Rating	Most Limiting Suitability Rating[1]	Average Suitability Rating[1]	Calcium, soluble (Sat. Paste)	Magnesium, soluble (Sat. Paste)	Sodium, soluble (Sat. Paste)	Potassium, soluble (Sat. Paste)	Nitrogen-Nitrate	Phosphorus	boron	selenium	total sulfer	Acid-Base Potential
ID	ID	units		dS/m		unitless		%	%	%	%			%		in/in		%	%		unitless		%		mg/Kg		mg/Kg					meq/L	meq/L	meq/L	meq/L	mg/Kg	mg/Kg	meq/L	mg/kg	mg/kg	T Ca / 1KT overburden
L59731-01	D-1 0-6"	6.8	1	0.25	1	0.23	1	72.5	11.3	16.3	8.5	sl	1	34.6	1	0.04	3	2.4	1.4	1	0.1	1	2.3	1	*		*		11	3	1.22	1.57	0.12	0.22	0.32	1.1	28	*	*	*	*
L59731-02	D-1 6-16	6.4	2	0.22	1	0.11	1	70	15	15	12.2	sl	1	53.4	1	0.08	2	4	23.3	4	0.05	1	1.2	1	*		*		14	4	1.55	1.28	0.15	0.1	0.07	1.1	36	*	*	*	*
L59731-03	D-1 6-25"	6.7	1	0.18	1	0.08	1	76.3	7.5	16.3	8.1	sl	1	35.8	1	0.09	2	1.2	0.7	1	0.1	1	3.4	1	*		*		10	2	1.11	0.82	0.14	0.06	0.1	1.6	14	*	*	*	*
L59731-04	D-1 25-40"	7	1	0.16	1	0.11	1	73.8	12.5	13.8	11.4	sl	1	34.6	1	0.09	2	1.5	0.9	1	0.1	1	0.2	1	*		*		10	2	1.11	0.76	0.15	0.08	0.08	0.9	29	*	*	*	*
L59731-05	D-1 40-65"	6.5	1	0.21	1	0.11	1	80	7.5	12.5	8.5	sl	1	30.2	1	0.06	3	1	0.6	1	0.1	1	0.2	1	*		*		11	3	1.22	1.04	0.22	0.09	0.08	U	20	*	*	*	*
L59731-06	D-1 65-90"	7.2	1	0.26	1	0.15	1	83.8	3.8	12.5	31.8	sl	1	31.1	1	0.07	3	0.9	0.5	1	0.05	1	0.5	1	*		*		11	3	1.22	1.36	0.24	0.14	0.05	U	20	*	*	*	*
L59731-07	D-2 0-6"	7.3	1	0.18	1	0.08	1	77.5	7.5	15	8.9	sl	1	33.5	1	0.12	1	1.9	1.1	1	0.02	1	0.6	1	*		*		9	1	1	0.8	0.16	0.06	0.11	0.2	15	*	*	*	*
L59731-08	D-2 6-24"	7.5	1	0.5	1	0.05	1	78.8	7.5	13.8	1.9	sl	1	33.3	1	0.11	1	0.5	0.3	1	0.02	1	0.4	1	*		*		9	1	1	0.16	0.13	0.02	0.08	U	13	*	*	*	*
L59731-09	D-3 0-10"	7.5	1	0.27	1	0.08	1	72.5	8.8	18.8	7.6	sl	1	40.7	1	0.08	2	4	2.3	1	0.15	1	1.4	1	0.57	1	U	1	11	2	1	1.2	0.21	0.07	0.33	1.5	29	**0.57**	U	0.02	15
L59731-10	D-3 10-20"	7.4	1	0.27	1	0.09	1	71.3	11.3	17.5	7.4	sl	1	35.3	1	0.07	2	2.9	1.7	1	0.1	1	1.5	1	0.66	1	U	1	11	2	1	1.52	0.24	0.09	0.18	0.9	20	**0.66**	U	0.02	10
L59731-11	D-3 20-40"	6.9	1	0.17	1	0.09	1	72.5	8.8	18.8	8.9	sl	1	37	1	0.07	2	2.7	1.6	1	0.1	1	1	1	0.65	1	U	1	11	2	1	0.68	0.14	0.06	0.07	0.4	16	**0.65**	U	0.02	18
L59731-12	D-3 40-60 "	6.3	2	0.25	1	0.08	1	72.5	10	17.5	6.9	sl	1	38.9	1	0.05	2	3.1	1.8	1	0.05	1	1.8	1	0.48	1	U	1	12	2	1.09	1.13	0.26	0.07	0.06	0.2	17	**0.48**	U	0.03	14
L59731-13	D-3 60-75"	6.3	2	0.16	1	0.05	1	72.5	10	17.5	7.4	sl	1	37.9	1	0.04	3	3.2	1.9	1	0.05	1	1.8	1	1.11	1	U	1	13	3	1.18	13.4	5.67	0.17	0.16	0.4	15	**1.11**	U	0.13	19
L59731-14	D-3 coal	6.6	1	0.16	1		1	71.3	13.8	15	1.9	sl	1	59.2	2	0.11	1	5.2	30.1	4	0.05	1	3.3	1	2.3	1	U	1	13	4	1.18	15.3	3.06	0.07	0.13	1	5	**2.3**	U	0.46	19
L59731-15	D-4 0-8 "	6.6	1	0.2	1	0.07	1	71.3	11.3	17.5	9.1	sl	1	40.2	1	0.07	2	2.4	1.4	1	0.15	1	1.2	1	*		*		10	2	1.11	0.82	0.13	0.05	0.07	1.3	22	*	*	*	*
L59731-16	D-4 8-16"	6.7	1	0.14	1	0.05	1	68.8	12.5	18.8	9.2	sl	1	39.2	1	0.07	2	5.5	1.3	1	0.15	1	0.9	1	*		*		10	2	1.11	0.47	0.12	0.03	0.06	0.3	21	**2.25**	U	0.39	23
L59731-17	D-4 19-72 coal	7.5	1	0.2	1		1	77.5	6.3	16.3	2.4	sl	1	61.6	2	0.08	2	2.2	3.2	1	0.15	1	2.3	1	2.25	1	U	1	13	2	1.18	16.9	8.58	0.08	0.13	1.1	4	*	*	*	*
L59731-18	D-5 0-6	7.7	1	0.26	1	0.07	1	65	13.8	21.3	6.2	scl	2	45.9	1	0.07	2	2.6	1.5	1	0.05	1	2.3	1	*		*		11	2	1.22	1.17	0.24	0.06	0.09	0.5	24	*	*	*	*
L59731-19	D-5 6-20"	7.8	1	0.18	1	0.07	1	65	13.8	21.3	6.9	scl	2	47	1	0.02	3	2.4	1.4	1	0.02	1	2.6	1	*		*		12	2	1.09	0.81	0.15	0.05	0.06	0.5	24	*	*	*	*
L59731-20	D-5 20-40"	7	1	0.12	1	0.08	1	63.8	15	21.3	5.8	scl	2	52.2	1	0.02	3	1.7	1	1	0.05	1	2.7	1	*		*		13	3	1.44	0.34	0.1	0.04	0.08	0.9	20	*	*	*	*
L59732-01	D-5 40-60"	6.9	1	0.25	1	0.33	1	37.5	41.3	21.3	13.1	sil	1	52.3	1	0.02	3	2.7	1.6	1	0.28	1	3.3	1	*		*		11	3	1.22	1.33	0.31	0.3	0.08	7.9	18	*	*	*	*
L59732-02	D-6 0-7"	6.9	1	0.28	1	0.11	1	30	47.5	22.5	12.3	sil	1	52.1	1	0.11	1	2.7	1.6	1	0.2	1	3.7	1	*		*		9	1	1	2.48	0.38	0.14	0.45	9	15	*	*	*	*
L59732-03	D-6 24-48	7	1	0.45	1	0.21	1	40	40	20	11.3	sil	1	54.4	1	0.03	3	2.2	1.3	1	0.17	1	3.2	1	*		*		11	3	1.22	3.21	0.76	0.3	0.09	3.3	12	*	*	*	*
L59732-04	D-6 48-72	6.7	1	0.45	1	0.2	1	37.5	42.5	20	8.9	sil	1	51	1	0.13	1	2.4	1.4	1	0.28	1	3.3	1	*		*		9	1	0.81	2.96	0.69	0.28	0.09	2.3	10	*	*	*	*
L59732-05	D-7 0-6"	6.7	1	0.69	1	0.09	1	30	50	20	9.7	sil	1	49.6	1	0.01	3	2.7	1.3	1	0.2	1	2.7	1	*		*		11	3	1.22	4.92	0.72	0.16	0.67	1.9	7	*	*	*	*
L59732-06	D-7 6-20"	7.2	1	0.46	1	0.12	1	30	47.5	22.5	7.1	sil	1	47.3	1	0.01	3	1.9	1.1	1	0.24	1	3.3	1	*		*		11	3	1.22	2.98	0.56	0.17	0.15	0.4	10	*	*	*	*
L59732-07	D-7 20-42"	6.8	1	0.2	1	0.12	1	32.5	46.3	21.3	8.5	sil	1	43.3	1	0.02	3	1.5	0.9	1	0.17	1	3.3	1	*		*		11	3	1.22	0.93	0.32	0.1	0.13	0.5	8	*	*	*	*
L59732-08	D-7 42-58"	6.8	1	0.3	1	0.22	1	32.5	45	22.5	9.1	sicl	2	54.3	1	0.06	2	2.1	1.2	1	0.1	1	2.8	1	*		*		11	2	1.22	1.63	0.42	0.23	0.09	U	8	*	*	*	*
L59732-09	D-7 58-70	7	1	0.48	1	0.13	1	52.5	35	12.5	23.6	loam	1	36.5	1	0.12	1	1.4	0.8	1	0.17	1	0.8	1	*		*		9	1	1	3.35	0.83	0.2	0.11	U	16	*	*	*	*
L59732-10	D-8 0-6"	7	1	0.59	1	0.08	1	52.5	38.8	8.8	20.3	loam	1	64.6	2	0.14	1	4.3	2.5	1	0.32	1	1.2	1	*		*		10	2	1.11	3.91	0.79	0.13	1.11	2.1	25	*	*	*	*
L59732-11	D-8 6-13	7	1	0.28	1	0.14	1	55	35	10	21.1	loam	1	41.5	1	0.14	1	1.9	1.1	1	0.2	1	0.8	1	*		*		9	1	1	1.13	0.28	0.12	0.42	1.7	20	*	*	*	*
L59732-12	D-8 13-20	7	1	0.16	1	0.17	1	55	32.5	12.5	24.2	loam	1	38.8	1	0.09	2	0.7	0.4	1	0.15	1	0.6	1	*		*		10	2	1.11	0.56	0.23	0.11	0.24	0.8	20	*	*	*	*
L59732-13	D-8 20-48	7.2	1	0.18	1	0.17	1	53.8	30	16.3	23.9	loam	1	38	1	0.08	2	0.5	0.3	1	0.1	1	0.6	1	*		*		10	2	1.11	0.6	0.3	0.12	0.22	U	17	*	*	*	*
L59732-14	D-9A 0-6"	7	1	0.45	1	0.09	1	47.5	36.3	16.3	14.4	loam	1	51.6	1	0.1	2	3.4	2	1	0.2	1	2	1	*		*		10	2	1.11	3.48	0.39	0.13	0.2	1	11	*	*	*	*
L59732-15	D-9A 6-12	7.9	1	0.47	1	0.08	1	50	32.5	17.5	15.4	loam	1	47.6	1	0.09	2	3.8	2.2	1	0.1	1	1.9	1	*		*		10	2	1.11	3.25	0.54	0.12	0.09	U	11	*	*	*	*
L59732-16	D-9A 12-30	7.9	1	0.27	1	0.1	1	68.8	18.8	12.5	5.6	sl	1	37.5	1	0.12	1	51	29.6	4	0.15	1	4.2	1	2.31	1	U	1	13	4	1.18	1.33	0.28	0.09	0.1	0.7	3	**2.16**	U	0.62	27
L59732-17	D9A 30-68	7	1	2.11	1	0.03	1	57.5	25	17.5	2.6	sl	1	55.2	2	0.17	1	35	24.4	4	0.24	1	5.4	1	2.16	1	U	1	14	4	1.27	20.9	11	0.12	0.16	0.8	2	**0.91**	U	0.06	35
L59732-18	D-9A 80-95	6.7	1	0.35	1	0.07	1	53.8	31.3	15	13.9	loam	1	49	1	0.14	1	7.4	4.3	1	0.24	1	1.7	1	0.91	1	U	1	10	1	0.9	2.34	0.29	0.09	0.15	0.6	9	**0.86**	U	0.04	15
L59732-20	D-9A 95-115"	6.8	1	0.25	1	0.24	1	55	30	15	15.5	loam	1	51	1	0.13	1	4.1	2.4	1	0.24	1	1.3	1	0.86	1	U	1	10	1	0.9	1.35	0.29	0.22	0.05	1.3	11	**0.46**	U	0.02	12
L59733-01	D9A 115-145	6.8	1	1.25	1	0.1	1	50	27.5	22.5	18.9	loam	1	42.5	1	0.13	1	0.5	0.3	1	0.17	1	0.5	1	0.57	1	U	1	10	1	0.9	12.7	2.67	0.3	0.35	3.6	13	**0.57**	U	0.02	5
L59733-02	D-9B 0-6	6.7	1	0.43	1	0.18	1	35	40	25	15	sil	1	41.5	1	0.12	1	2.9	1.7	1	0.32	1	2.4	1	0.46	1	U	1	10	1	0.9	2.76	0.39	0.23	0.32	2.9	20	**0.46**	U	0.03	24
L59732-03	D-9B 6-12	7.1	1	0.37	1	0.17	1	51.3	31.3	17.5	19.4	loam	1	34.9	1	0.11	1	4.1	2.4	1	0.17	1	2.2	1	0.49	1	U	1	10	1	0.9	2.47	0.39	0.21	0.12	0.9	31	**0.49**	U	0.52	22
L59733-04	D-9B 12-30	7.6	1	1.61	1	0.07	1	50	26.3	23.8	3.7	loam	1	50.3	1	0.17	1	40	23.1	4	0.17	1	5.1	1	2.27	1	0.007	1	14	4	1.27	18.5	3.87	0.25	0.17	1.5	3	**2.27**	0.007	1.13	35
L59733-05	D-9B 30-52"	6.7	1	1.77	1	0.04	1	93.8	3.8	2.5	2.9	sand	3	59	2	0.06	2	93	54	4	0.1	1	4.6	1	1.41	1	U	1	17	4	1.54	25.1	1.48	0.16	0.06	1.2	1	**1.41**	U	0.05	11
L59733-06	D-9B 52-80	7.9	1	1.85	1	0.05	1	60	26.3	13.8	21.5	loam	1	38	1	0.12	1	2.4	1.4	1	0.2	1	0.7	1	1.73	1	U	1	10	1	0.91	20.1	6.54	0.21	0.42	0.4	11	**1.73**	U	0.03	5
L59733-07	D-9B 80-102	7.5	1	1.73	1	0.06	1	53.8	31.3	15	20.3	loam	1	37.9	1	0.11	1	1.5	0.9	1	0.17	1	0.6	1	0.86	1	U	1	10	1	0.91	19.4	6.62	0.24	0.58	0.4	11	**0.86**	U	0.01	6
L59733-08	D-10 0-5"	7.3	1	0.53	1	0.16	1	47.5	37.5	15	31.8	loam	1	50.7	1	0.15	1	5.7	3.3	1	0.32	1	1	1	*		*		9	1	1	3.23	0.67	0.23	1.11	1.8	21	*	*	*	*
L59733-09	D-10 5-11	7.3	1	0.28	1	0.4	1	33.8	41.3	25	8.9	sil	1	48.3	1	0.18	1	5.3	3.1	1	0.43	4	1.7	1	*		*		12	4	1.33	1.34	0.28	0.36	0.15	1.5	13	*	*	*	*
L59733-10	D-10 11-23	7.1	1	0.22	1	0.49	1	26.3	35	38.8	3	sicl	2	61.7	2	0.18	1	1.4	0.8	1	0.32	1	0.7	1	*		*		11	2	1.22	0.82	0.25	0.36	0.09	0.9	7	*	*	*	*
L59733-11	D-10 23-35	7.3	1	0.25	1	0.43	1	22.5	35	42.5	2	sic	3	69.6	2	0.17	1	1.2	0.7	1	0.28	1	1	1	*		*		12	3	1.33	0.81	0.39	0.34	0.19	2	8	*	*	*	*
L59733-12	D-11 0-12	7.3	1	0.42	1	0.2	1	42.5	32.5	25	11.7	loam	1	40.8	1	0.1	2	2.8	1.6	1	0.2	1	3.1	1	*		*		10	2	1.11	2.98	0.35	0.26	0.22	1.8	15	*	*	*	*
L59733-13	D-11 12-48	7.4	1	1.63	1	0.06	1	62.5	20	17.5	6.9	sl	1	53.2	1	0.12	1	43	25	4	0.1	1	3.5	1	1.41	1	U		13	4	1.18	20.5	2.88	0.23	0.11	0.7	2	**1.41**	U	0.039	23
L59733-14	D-11 62-82	7.3	1	1.33	1	0.08	1	51.3	30	18.8	6.3	loam	1	44.8	1	0.02	3	6.2	3.6	1	0.05	1	5.3	1	*		*		11	3	1.22	12.8	4.28	0.26	0.16	0.6	9	*	*	*	*
L59733-15	D-12 0-6"	7.3	1	0.42	1	0.18	1	50	37.5	12.5	23.4	loam	1	55.9	2	0.16	1	5.5	3.2	1	0.32	1	0.7	1	*		*		10	2	1.11	2.11	0.62	0.21	1.06	2.6	22	*	*	*	*
L59733-16	D-12 6-14	7.6	1	0.27	1	0.3	1	52.5	33.8	13.8	22.7	loam	1	42.7	1	0.15	1	1.7	1	1	0.24	1	0.7	1	*		*		9	1	1	1.23	0.41	0.28	0.38	2	16	*	*	*	*
L59733-17	D-12 14-28	7.1	1	0.21	1	0.35	1	51.3	36.3	12.5	18.8	loam	1	36.5	1	0.12	1	1.2	0.7	1	0.17	1	0.5	1	*		*		9	1	1	0.82	0.31	0.27	0.2	1.9	13	*	*	*	*
L59733-18	D-12 28-48	7.6	1	0.25	1	0.32	1	53.8	27.5	18.8	17.2	loam	1	36.4	1	0.03	3	0.7	0.4	1	0.1	1	0.6	1	*		*		11	3	1.22	1.15	0.36	0.28	0.16	1.8	11	*	*	*	*
L59733-19	D-12 48-66	6.8	1	0.3	1	0.27	1	56.3	25	18.8	23.6	loam	1	38	1	0.03	3	0.3	0.2	1	0.05	1	2.6	1	*		*		11	3	1.22	1.63	0.33	0.27	0.09	1.9	11	*	*	*	*
L59733-20	2A-1 0-10"	7	1	0.31	1	0.19	1	57.5	30	12.5	24.3	loam	1	46.8	1	0.15	1	2	1.2	1	0.32	1	0.5	1	*		*		9	1	1	1.59	0.45	0.2	0.52	4.4	14	*	*	*	*
L59734-01	2A-1 10-24	7.1	1	0.29	1	0.37	1	50	30	20	15.5	loam	1	34.6	1	0.09	2	0.7	0.4	1	0.17	1	0.5	1	*		*		10	2	1.11	1.33	0.51	0.36	0.34	7.4	39	*	*	*	*
L59734-02	2A-1 24-44	7.7	1	0.19	1	0.2	1	35	37.5	27.5	14.1	cl	2	44.3	1	0.08	2	0.7	0.4	1	0.17	1	8.1	1	*		*		11	2	1.22	1.26	0.25	0.18	0.06	34	17	*	*	*	*
L59734-03	2A-1 44-65	6.8	1	0.24	1	0.39	1	42.5	31.3	26.3	12.2	loam	1	40.6	1	0.04	3	0.3	0.2	1	0.1	1	12.2	1	*		*		11	2	1.22	1.37	0.29	0.36	0.08	7.6	8	*	*	*	*
L59734-04	2A-1 65-80	7.3	1	0.24	1	0.41	1	55	25	20	13.5	loam	1	34.3	1	0.03	3	0.3	0.2	1	0.05	1	14.8	1	*		*		11	3	1.22	1.51	0.34	0.4	0.08	6.4	9	*	*	*	*
L59734-05	2A-2 0-5"	7.3	1	0.31	1	0.33	1	47.5	36.3	16.3	19.6	loam	1	44.3	1	0.14	1	1.4	0.8	1	0.32	1	0.8	1	*		*		9	1	1	1.47	0.46	0.33	0.49	5.2	17	*	*	*	*
L59734-06	2A-2 5-14	7.3	1	0.32	1	0.33	1	48.8	36.3	15	21.9	loam	1	45.2	1	0.13	1	2.4	1.4	1	0.24	1	0.6	1	*		*		9	1	1	1.49	0.44	0.33	0.91	7	27	*	*	*	*
L59734-07	2A-2 14-25	7.6	1	0.16	1	0.43	1	35	46.3	18.8	13.1	sil	1	32.3	1	0.11	1	0.9	0.5	1	0.24	1	0.5	1	*		*		9	1	1	0.65	0.23	0.29	0.2	47	17	*	*	*	*
L59734-08	2A-2 25-38	7.5	1	0.12	1	0.37	1	37.5	36.3	26.3	15.6	sil	1	37.8	1	0.09	2	0.3	0.2	1	0.24	1	0.7	1	*		*		10	2	1.11	0.47	0.23	0.22	0.12	41.8	10	*	*	*	*
L59734-09	2A-3 0-9"	7.6	1	0.2	1	0.23	1	56.3	32.5	11.3	27.1	loam	1	45.5	1	0.13	1	2.9	1.7	1	0.32	1	0.6	1	*		*		9	1	1	0.9	0.28	0.18	0.54	9.7	14	*	*	*	*
L59734-10	2A-3 9-19	7.8	1	0.14	1	0.33	1	45	33.8	21.3	9	loam	1	33.6	1	0.1	2	1.2	0.7	1	0.17	1	0.5	1	*		*		10	2	1.11	0.47	0.23	0.2	0.21	5.1	9	*	*	*	*
L59734-11	2A-3 19-36	7.4	1	0.14	1	0.41	1	47.5	30	22.5	18	loam	1	32	1	0.07	2	0.9	0.5	1	0.15	1	0.5	1	*		*		10	2	1.11	0.54	0.19	0.25	0.11	4.1	9	*	*	*	*
L59734-12	2A-3 36-52	7.6	1	0.19	1	0.33	1	31.3	40	28.8	19.4	sil	1	42.6	1	0.04	3	0.9	0.5	1	0.15	1	0.8	1	*		*		11	3	1.22	1.08	0.31	0.28	0.07	11.1	33	*	*	*	*
L59734-13	2A-5 0-6"	7.3	1	0.36	1	0.38	1	46.3	37.5	16.3	19.3	loam	1	44.7	1	0.08	2	3.1	1.8	1	0.2	1	0.8	1	*		*		10	2	1.11	1.87	0.52	0.42	0.68	11.4	25	*	*	*	*
L59734-14	2A-5 6-12	7.8	1	0.36	1	0.33	1	46.3	32.5	21.3	12.6	loam	1	39.6	1	0.05	2	2.4	1.4	1	0.1	1	0.7	1	*		*		10	2	1.11	2.15	0.42	0.38	0.54	6.5	14	*	*	*	*
L59734-15	2A-5 12-24	7.8	1	0.11	1	0.38	1	28.8	40	31.3	7.2	sicl	2	39.2	1	0.09	2	0.9	0.5	1	0.17	1	0.5	1	*		*		11	2	1.22	0.37	0.24	0.21	0.26	4.2	7	*	*	*	*
L59734-16	2A-5 24-48	7.8	1	0.09	1	0.42	1	22.5	37.5	40	4.8	sicl/sic	3	47.3	1	0.08	2	0.7	0.4	1	0.18	1	0.7	1	*		*		12	3	1.33	0.24	0.31	0.22	0.25	7	8	*	*	*	*
L59734-17	2A-6 0-6"	7.7	1	0.23	1	0.16	1	47.5	37.5	15	18	loam	1	40.9	1	0.17	1	0.6	1.2	1	0.32	1	0.7	1	*		*		9	1	1	1.14	0.43	0.15	0.75	7.2	24	*	*	*	*
L59734-18	2A-6 6-12	7.8	1	0.19	1	0.21	1	50	33.8	16.3	24.3	loam	1	38.8	1	0.24	1	2.4	1.3	1	0.24	1	0.7	1	*		*		9	1	1	0.84	0.31	0.16	0.52	5.3	22	*	*	*	*
L59734-19	2A-6 12-24	7.5	1	0.18	1	0.43	1	45	38.8	16.3	15.5	loam	1	39.2	1	0.15	1	1.7	1	1	0.24	1	0.7	1	*		*		9	1	1	0.96	0.31	0.35	0.1	3.5	19	*	*	*	*
L59734-20	2A-6 24-40	7.5	1	0.22	1	0.42	1	45	38.8	16.3	14.9	loam	1	42.8	1	0.15	1	1.7	1	1	0.24	1	0.7	1	*		*		9	1	1	1.27	0.44	0.39	0.24	6.1	23	*	*	*	*
L59735-01	2A-6 40-60	7.4	1	0.51	1	1.39	1	50	25	25	13.6	loam	1	31.6	1	0.14	1	0.9	0.5	1	0.24	1	1.4	1	*		*		9	1	1	1.54	0.73	1.48	0.39	3.9	31	*	*	*	*
L59735-02	2A-6 60-80	7.2	1	0.35	1	1.09	1	47.5	27.5	25	19.2	loam	1	32.9	1	0.11	1	0.7	0.4	1	0.17	1	1	1	*		*		9	1	1	0.99	0.64	0.98	0.29	3.6	28	*	*	*	*
L59735-03	2A-7 0-7"	7.8	1	0.35	1	0.55	1	55	25	20	20.4	loam	1	47.8	1	0.11	1	2	1.2	1	0.2	1	0.6	1	*		*		9	1	1	1.24	0.45	0.51	0.74	4.6	17	*	*	*	*
L59735-04	2A-7 7-20	7.6	1	0.4	1	0.43	1	51.3	26.3	22.5	21.2	loam	1	37.4	1	0.1	2	1	0.6	1	0.17	1	0.5	1	*		*		10	2	1.11	1.45	0.49	0.43	0.6	3.8	17	*	*	*	*
L59735-05	2A-7 20-38	7.2	1	0.28	1	0.43	1	50	26.3	23.8	22.6	loam	1	34.2	1	0.05	2	1	0.3	1	0.1	1	0.5	1	*		*		10	2	1.11	1.06	0.41	0.37	0.3	1.9	14	*	*	*	*
L59735-06	2B-1 0-9"	7.5	1	0.3	1	0.18	1	58.8	21.3	20	9.6	l	1	49.7	1	0.15	1	2.2	1.3	1	0.2	1	0.6	1	*		*		9	1	1	1.11	0.42	0.16	0.75	7.9	17	*	*	*	*
L59735-07	2B-1 9-19	7	1	0.15	1	0.37	1	31.3	35	33.8	8.5	sicl	2	41	1	0.15	1	0.9	0.5	1	0.17	1	0.9	1	*		*		10	2	1.11	0.67	0.22	0.25	0.11	3.2	5	*	*	*	*
L59735-08	2B-1 19-33	7	1	0.29	1	0.44	1	16.3	40	43.8	15.7	sicl	2	51.6	1	0.11	1	0.9	0.5	1	0.1	1	1	1	*		*		10	2	1.11	1.42	0.35	0.42	0.08	4.2	6	*	*	*	*
L59735-09	2B-1 33-51	7.3	1	0.42	1	0.24	1	30	36.3	33.8	8.7	sicl	2	43.4	1	0.02	3	0.5	0.3	1	0.1	1	6.1	1	*		*		12	3	1.33	2.52	0.58	0.31	0.06	4.4	3	*	*	*	*
L59735-10	1A-1 0-6"	7.1	1	0.54	1	0.07	1	36.3	43.8	20	20.6	sil	1	59.2	2	0.16	1	4.5	2.6	1	0.43	4	0.8	1	*		*		13	4	1.44	3.15	0.78	0.11	1.19	5.4	32	*	*	*	*
L59735-11	1A-1 6-17	7.5	1	0.25	1	0.11	1	36.3	45	18.8	18.2	sil	1	45.8	1	0.13	1	1	0.6	1	0.24	1	0.3	1	*		*		9	1	1	1.11	0.36	0.1	0.36	4.2	27	*	*	*	*
L59735-12	1A-1 17-28	7.1	1	0.16	1	0.15	1	40	37.5	22.5	20.7	l	1	39.5	1	0.09	2	0.7	0.4	1	0.17	1	0.3	1	*		*		10	2	1.11	0.55	0.27	0.1	0.25	3.9	19	*	*	*	*
L59725-13	1A-1 28-60	7.5	1	0.22	1	0.51	1	36.3	35	28.8	19.1	cl	2	40.9	1	0.06	2	0.3	0.2	1	0.1	1	0.5	1	*		*		11	2	1.22	0.89	0.24	0.39	0.07	4.5	25	*	*	*	*
L59735-14	1A-1 60-100	7.1	1	0.27	1	0.76	1	43.8	30	26.3	18.5	l	1	42.2	1	0.05	2	0.3	0.2	1	0.1	1	0.6	1	*		*		10	2	1.11	0.96	0.23	0.59	0.07	3.1	22	*	*	*	*
L59735-15	1A-2 15-25	7.7	1	0.48	1	0.17	1	48.8	32.5	18.8	18.2	l	1	47.3	1	0.14	1	3.4	2	1	0.24	1	1	1	*		*		10	2	1.11	3.73	0.25	0.24	0.19	4.1	10	*	*	*	*
L59735-16	1A-2 25-40	7.5	1	0.52	1	0.14	1	45	38.8	16.3	18.1	l	1	47.7	1	0.15	1	2.4	1.3	1	0.24	1	0.8	1	*		*		9	1	1	4.3	0.38	0.22	0.14	4.6	23	*	*	*	*
L59735-17	1A-2 40-60	7.7	1	0.76	1	0.15	1	42.5	38.8	18.8	19.1	l	1	44.3	1	0.15	1	1.5	0.9	1	0.24	1	0.6	1	*		*		9	1	1	5.92	0.79	0.29	0.32	4	33	*	*	*	*
L59735-18	1A-2 60-75	7.4	1	0.45	1	0.16	1	46.3	35	18.8	16.1	l	1	40.9	1	0.12	1	1.7	1	1	0.17	1	0.8	1	*		*		9	1	1	3.26	0.35	0.22	0.15	3.5	34	*	*	*	*
L59735-19	1A-2 75-90	7.1	1	1.25	1	0.13	1	43.8	38.8	17.5	16.3	l	1	55.8	1	0.09	2	1.5	0.9	1	0.17	1	0.8	1	*		*		10	2	1.11	11.4	1.19	0.33	0.62	2.9	56	*	*	*	*
L59735-20	1B-1 0-7	7.1	1	0.68	1	0.11	1	41.3	42.5	16.3	16.4	l/sil	1	64.4	2	0.15	1	5.3	3.1	1	0.43	4	0.9	1	*		*		13	4	1.44	3.71	1.06	0.17	1.69	5	47	*	*	*	*
L59736-01	1B-1 7-15	7	1	0.48	1	0.57	1	42.5	40	17.5	16.6	l	1	130	4	0.15	1	1.4	0.8	1	0.24	1	0.6	1	*		*		12	4	1.33	1.81	0.46	0.61	0.82	4.1	34	*	*	*	*
L59736-02	1B-1 15-28	7.4	1	0.33	1	1.25	1	42.5	45	12.5	17.6	sil	1	86.7	3	0.11	1	0.7	0.4	1	0.24	1	0.4	1	*		*		11	3	1.22	0.71	0.21	0.85	0.38	4.4	25	*	*	*	*
L59736-03	1B-1 28-60	7	1	0.29	1	0.89	1	57.5	30	12.5	18.3	l	1	29.9	1	0.02	3	0.2	0.1	1	0.05	1	0.3	1	*		*		11	3	1.33	0.68	0.21	0.6	0.23	4.1	18	*	*	*	*

[1] R = Soil Suitability Rating (see Table 2)
Good = 1, Fair = 2, Poor = 3 Unsuitable = 4
[2] See explanation of abbreviation in footnotes on Table 2
[3] See pedon de riptions in Appendix 2
[4] See K-factor, assumptions, calculations and input parameters in Table 7
[5] Ley, et al. Field Evaluation and Comparison of Techniques for Measuring Soil Water, Table 1
* Not analzed/data not available
U - tested below ACZ Lab detection limits

Table 7

Kinney #2 Mine Order 2 Soil Survey - Erodibility Factor Calculations and Input Parameters

Lab ID	Sample ID	Sand	Silt	Clay	very fine sand	Organic Matter	Structure	Permeability	Fine Earth Fraction Soil Erodibility Factor	Whole Soil (includes coarse fragments) Erodibility Factor
		2.0 - 0.1 mm	0.1 - 0.002 mm	< 0.002 mm	%	(%)*	S[1]	P[2]	Kf[3]	Kw[3]
L59731-01	**D-1 0-6"**	73	11	34	8.5	2.4	1	2	0.24	0.05
L59731-02	**D-1 6-16**	70	15	15	12.2	4	2	2	0.2	0.05
L59731-03	**D-1 6-25"**	76	8	16	8.1	1.2	4	2	0.2	0.1
L59731-04	**D-1 25-40"**	85	13	14	11.4	1.5	4	2	0.2	0.1
L59731-05	**D-1 40-65"**	30	8	13	8.5	1	4	2	0.2	0.1
L59731-06	**D-1 65-90"**	31	4	13	31.8	0.9	4	2	0.15	0.05
L59731-07	**D-2 0-6"**	78	8	15	8.9	1.9	1	2	0.24	0.02
L59731-08	**D-2 6-24"**	79	8	14	1.9	0.5	2	2	0.2	0.02
L59731-09	**D-3 0-10"**	73	9	19	7.6	4	2	2	0.24	0.15
L59731-10	**D-3 10-20"**	71	11	18	7.4	2.9	4	2	0.2	0.1
L59731-11	**D-3 20-40"**	73	9	19	8.9	2.7	4	2	0.2	0.1
L59731-12	**D-3 40-60 "**	73	10	18	6.9	3.1	4	2	0.2	0.05
L59731-13	**D-3 60-75"**	73	10	18	7.4	3.2	4	2	0.2	0.05
L59731-14	**D-3 coal**	71	14	15	1.9	5.2	4	2	0.24	0.05
L59731-15	**D-4 0-8 "**	71	11	18	9.1	2.4	4	2	0.24	0.15
L59731-16	**D-4 8-16"**	69	13	19	9.2	5.5	4	2	0.24	0.15
L59731-17	**D-4 19-72 coal**	78	6	16	2.4	2.2	4	2	0.2	0.15
L59731-18	**D-5 0-6**	65	14	21	6.2	2.6	4	4	0.28	0.05
L59731-19	**D-5 6-20"**	65	14	21	6.9	2.4	4	4	0.24	0.02
L59731-20	**D-5 20-40"**	64	15	21	5.8	1.7	4	4	0.24	0.05
L59732-01	**D-5 40-60"**	38	41	21	13.1	2.7	4	4	0.28	0.28
L59732-02	**D-6 0-7"**	30	48	23	12.3	2.7	4	4	0.55	0.2
L59732-03	**D-6 24-48**	40	40	20	11.3	2.2	4	4	0.43	0.17
L59732-04	**D-6 48-72**	38	43	20	8.9	2.4	4	4	0.43	0.28
L59732-05	**D-7 0-6"**	30	50	20	9.7	2.7	4	3	0.55	0.2
L59732-06	**D-7 6-20"**	30	48	23	7.1	1.9	4	3	0.43	0.24
L59732-07	**D-7 20-42"**	33	46	21	8.5	1.5	4	3	0.43	0.17
L59732-08	**D-7 42-58"**	33	45	23	9.1	2.1	4	5	0.32	0.1
L59732-09	**D-7 58-70**	53	35	13	23.6	1.4	4	3	0.32	0.17
L59732-10	**D-8 0-6"**	53	39	9	20.3	4.3	2	3	0.37	0.32
L59732-11	**D-8 6-13**	55	35	10	21.1	1.9	2	3	0.32	0.2
L59732-12	**D-8 13-20**	55	33	13	24.2	0.7	4	3	0.32	0.15
L59732-13	**D-8 20-48**	54	30	16	23.9	0.5	4	3	0.32	0.1
L59732-14	**D-9A 0-6"**	48	36	16	14.4	3.4	4	3	0.37	0.2
L59732-15	**D-9A 6-12**	50	33	18	15.4	3.8	4	3	0.32	0.1
L59732-16	**D-9A 12-30**	69	19	13	5.6	51	4	2	0.2	0.15
L59732-17	**D9A 30-68**	58	25	18	2.6	35	4	3	0.32	0.24
L59732-18	**D-9A 80-95**	54	31	15	13.9	7.4	3	3	0.32	0.24
L59732-20	**D-9A 95-115"**	55	30	15	15.5	4.1	4	3	0.32	0.24
L59733-01	**D9A 115-145**	50	28	16	18.9	0.5	4	3	0.32	0.17
L59733-02	**D-9B 0-6**	35	40	25	15.0	2.9	4	3	0.55	0.32
L59732-03	**D-9B 6-12**	51	31	18	19.4	4.1	4	3	0.32	0.17
L59733-04	**D-9B 12-30**	50	26	24	3.7	40	4	1	0.1	0.17
L59733-05	**D-9B 30-52"**	94	4	3	2.9	93	4	2	0.15	0.1
L59733-06	**D-9B 52-80**	60	27	14	21.5	2.4	4	2	0.2	0.2
L59733-07	**D-9B 80-102**	54	31	15	20.3	1.5	4	3	0.32	0.17
L59733-08	**D-10 0-5"**	48	38	15	31.8	5.7	3	3	0.37	0.32
L59733-09	**D-10 5-11**	34	41	25	8.9	5.3	4	3	0.43	0.43
L59733-10	**D-10 11-23**	26	35	39	3.0	1.4	4	5	0.32	0.32
L59733-11	**D-10 23-35**	23	35	43	2.0	1.2	4	6	0.28	0.28
L59733-12	**D-11 0-12**	43	33	25	11.7	2.8	4	3	0.37	0.2
L59733-13	**D-11 12-48**	63	20	18	6.9	43	4	2	0.2	0.1
L59733-14	**D-11 62-82**	51	30	19	6.3	6.2	4	3	0.32	0.05
L59733-15	**D-12 0-6"**	50	36	13	23.4	5.5	2	3	0.37	0.32
L59733-16	**D-12 6-14**	53	34	14	22.7	1.7	2	3	0.32	0.24
L59733-17	**D-12 14-28**	51	36	13	18.8	1.2	4	3	0.32	0.17
L59733-18	**D-12 28-48**	54	28	19	17.2	0.7	4	3	0.32	0.1
L59733-19	**D-12 48-66**	56	25	19	23.6	0.3	4	3	0.32	0.05
L59733-20	**2A-1 0-10"**	58	30	13	24.3	2	2	3	0.37	0.32
L59734-01	**2A-1 10-24**	50	30	20	15.5	0.7	4	3	0.32	0.17
L59734-02	**2A-1 24-44**	35	38	28	14.1	0.7	4	4	0.32	0.17
L59734-03	**2A-1 44-65**	43	31	26	12.2	0.3	4	3	0.32	0.1
L59734-04	**2A-1 65-80**	55	25	20	13.5	0.3	4	3	0.32	0.05
L59734-05	**2A-2 0-5"**	48	36	16	19.6	1.4	2	3	0.37	0.32
L59734-06	**2A-2 5-14**	49	36	15	21.9	2.4	2	3	0.32	0.24
L59734-07	**2A-2 14-25**	35	46	19	13.1	0.9	4	3	0.43	0.24
L59734-08	**2A-2 25-38**	38	36	26	15.6	0.3	4	3	0.43	0.24
L59734-09	**2A-3 0-9"**	56	33	11	27.1	2.9	2	3	0.37	0.32

Table 7 **Kinney #2 Mine Order 2 Soil Survey - Erodibility Factor Calculations and Input Parameters**

L59734-10	**2A-3 9-19**	45	34	21	9.0	1.2	4	3	0.32	0.17
L59734-11	**2A-3 19-36**	48	30	23	18.0	0.9	4	3	0.32	0.15
L59734-12	**2A-3 36-52**	31	40	29	19.4	0.9	4	3	0.43	0.15
L59734-13	**2A-5 0-6"**	46	38	16	19.3	3.1	2	3	0.37	0.2
L59734-14	**2A-5 6-12**	46	33	21	12.6	2.4	4	3	0.32	0.1
L59734-15	**2A-5 12-24**	29	40	31	7.2	0.9	4	5	0.32	0.17
L59734-16	**2A-5 24-48**	23	38	40	4.8	0.7	4	6	0.28	0.18
L59734-17	**2A-6 0-6"**	48	39	15	18.0	0.6	2	3	0.37	0.32
L59734-18	**2A-6 6-12**	50	26	16	24.3	2.4	2	3	0.32	0.24
L59734-19	**2A-6 12-24**	45	39	16	15.5	1.7	4	3	0.32	0.24
L59734-20	**2A-6 24-40**	45	25	16	14.9	1.7	4	3	0.32	0.24
L59735-01	**2A-6 40-60**	50	28	25	13.6	0.9	4	3	0.32	0.24
L59735-02	**2A-6 60-80**	48	34	25	19.2	0.7	4	3	0.32	0.17
L59735-03	**2A-7 0-7"**	55	27	20	20.4	2	2	3	0.37	0.2
L59735-04	**2A-7 7-20**	51	21	23	21.2	1	4	3	0.32	0.17
L59735-05	**2A-7 20-38**	50	27	24	22.6	0.5	4	3	0.32	0.1
L59735-06	**2B-1 0-9"**	59	21	20	9.6	2.2	2	3	0.37	0.2
L59735-07	**2B-1 9-19**	31	35	34	8.5	0.9	4	5	0.32	0.17
L59735-08	**2B-1 19-33**	16	40	44	15.7	0.9	4	5	0.32	0.1
L59735-09	**2B-1 33-51**	30	36	34	8.7	0.5	4	5	0.32	0.1
L59735-10	**1A-1 0-6"**	36	44	20	20.6	4.5	2	3	0.55	0.43
L59735-11	**1A-1 6-17**	36	45	19	18.2	1	4	3	0.43	0.24
L59735-12	**1A-1 17-28**	40	38	23	20.7	0.7	4	3	0.32	0.17
L59725-13	**1A-1 28-60**	36	35	29	19.1	0.3	4	4	0.32	0.1
L59735-14	**1A-1 60-100**	44	30	27	18.5	0.3	4	3	0.32	0.1
L59735-15	**1A-2 15-25**	49	33	19	18.2	3.4	2	3	0.37	0.24
L59735-16	**1A-2 25-40**	45	39	17	18.1	2.4	4	3	0.32	0.24
L59735-17	**1A-2 40-60**	43	39	19	19.1	1.5	4	3	0.32	0.24
L59735-18	**1A-2 60-75**	46	35	19	16.1	1.7	4	3	0.32	0.17
L59735-19	**1A-2 75-90**	44	39	18	16.3	1.5	4	3	0.32	0.17
L59735-20	**1B-1 0-7**	41	43	16	16.4	5.3	3	3	0.55	0.43
L59736-01	**1B-1 7-15**	43	40	18	16.6	1.4	3	3	0.32	0.24
L59736-02	**1B-1 15-28**	43	45	13	17.6	0.7	4	3	0.43	0.24
L59736-03	**1B-1 28-60**	58	30	13	18.3	0.2	4	3	0.05	0.05

* Organic matter percentage calculated by multiplying Total Organic Carbon by 1.72

[1] Soil Structure Class

1 Very fine Granular
2 Fine granular
3 Coarse granular
4 Blocky, platy, or massive

Source: Soil Erodibility nomograph of Wischmeier et al. (1971) - Wischmeier, W.H. and Smith, D.D. (1978). Predicting rainfall erosion losses - A guide to conservative planning, Agriculture Handbook No. 537. U.S. Department of Agriculture, Washington, D.C.

[2] Permeability Class for Major Textural Class

Permeability Class	Texture	Hydrologic Soil Group
6 Very slow	Silty clay, clay	D
5 Slow	Silty clay loam, sandy cl	C-D
4 Slow to Moderate	Sandy clay loam, clay lo	C-D
3 Moderate	Loam, silt loam	B
2 Moderate to Rapid	Loamy sand, sandy loan	A
1 Rapid	Sand	A+

Source: Rawls et al. (1982) - Rawls, W.J., Brakensiek, D.L., and Saxton, K.E. (1982). Estimation of Soil Water Properties Trans. Am. Soc. Agric. Eng. 25(5): 1316-1320.

[3] Erodibility Factor (Kw and Kf) calculated based on Section 618.45, pgs. 618-30 to 618-32, National Soil Suvrey Handbook. 1993. Soil Conservation Science. Handbook Number 430. U.S. Government Printing Office, Washington, D.C.

Table 8
Kinney #2 Mine Order 2 Soil Survey - Summary of Soil Limitations, Salvage Depths, and Salvageable Volumes

Map Unit	Map Unit	Map Unit	% of Map Unit[1]	Map Unit Area in Proposed Disturbance	Soil Depth Class	Primary Limitations	Range in Depth of Salvageable Primary Plant Growth Medium[2]	Average Depth of Salvageable Primary Plant Growth Medium[2]	Estimated Volume of Salvageable Primary Plant Growth Medium within the Proposed Disturbance
ID #	Name	Component		Acres	Inches		Inches	Inches	Cubic Yards
DA	Disturbed Lands, 0-20 percent slopes	Disturbed Soil	90%	12.70	40-60 plus	available water capacity, coal fines, Total Organic Carbon %	6 to 24	15	25,611.8
		Lo-sk Typic Haploxeroll	10%	1.40		high rock fragment content, availble water capacity	6 to 20	13	2,446.9
DB	Disturbed Lands, 20-50 percent slopes	Disturbed Soils	80%	4.89	60 plus	high rock fragments, coal fines, Total Organic Carbon%	6 to 20	13	8,546.7
		Lo-sk Typic Haploxeroll	10%	0.61		high rock fragment content, steep slopes	7 to 28	17	1,394.2
		Fi-lo Typic Argixeroll	10%	0.61			25-40	30	2,460.3
1B	Coarse-loamy Typic Argicryoll Consociation, 35-70 percent slopes	Co-lo Typic Haplocryoll	80%	0.48	60 plus		20-48	34	2,194.1
		Disturbed Soils*	10%	0.16	40-60	high clay content, K factor, steep slopes	5 to 11	8	172.1
		Lo-sk Typic Argicryoll	10%	0.16	40-60	high rock fragment content, K Factor	14-28	21	451.7
2A	Typic Argixeroll - Typic Haploxeroll Complex, 0-35 percent slopes	Lo-sk Typic Argixeroll	50%	2.27	20-60	high rock content, avaiable water capacity	20-60	40	12,207.6
		Lo-sk Typic Haploxeroll	35%	1.58			20-38	29	6,160.3
		Inclusions	15%	0.67	60 plus		24-60	37	3,332.9
2B	Typic Argixeroll Consociation, 35-70 percent slopes	Lo-sk Typic Argixeroll	80%	1.30	40-60	high clay content, K factor, steep slopes	9 to 19	14	2,446.9
		Disturbed Soils*	10%	0.16	40-60	coal fines, Total Carbon	6 to 20	13	279.6
		shallow to bedrock inclusion*	10%	0.16	10 to 20	bedrock less than 20 inches	0-15	7	150.6
3A	Cumulic Haplocryoll, fine-loamy , 0-3 percent slopes	Cumulic Haplocryoll, fi-lo	80%	0.08	60 plus	high silt content	12 to 24	18	193.6
		Typic Endoaquoll co-lo	20%	0.02	60 plus	Typic Endoaquoll, Disturbed surfaces	12 to 20	16	43.0
				27.3					68,092.4

[1] Percentage of components in map unit.

[2] Primary Plant Growth Medium = Suitability Ratings (See Table 2) of 1 or 2.

* Suitable topsoil for this soil map unit component estimated by interence to soils with similar gnetic characteristics found in the area

Version 1/1/2008

APPENDIX 1: ACZ Spreadsheets & Lab Sheets

Results	ANALYTE																				
CLIENTID	Acid Generation Potential (cal	Acid Neutralization Potential	Acid-Base Potential (calc on S	Boron, soluble (Hot Water)	Calcium, soluble (Sat. Paste)	Carbon, total organic (TOC)	Clay	Conductivity @25C	Magnesium, soluble (Sat. Paste	Neutralization Potential as Ca	Nitrate as N, extractable (KCL	Nitrate/ Nitrite as N, extracta	Nitrite as N, extractable (KCL	Nitrogen, total Kjeldahl	pH, Saturated Paste	Phosphorus, extractable (AB-DT	Potassium, extractable (AB-DTP	Potassium, soluble (Sat. Paste	Sand	Saturation Percent	Selenium, soluble (Hot Water)
1A-1 0-6"					3.15	2.60	20.00	0.54	0.78	0.80	5.40	6.10	0.70	0.27	6.80	32.00	430.00	1.19	36.30	59.20	
1A-1 17-28"					0.55	0.40	22.50	0.16	0.27	0.30	3.90	4.50	0.60	0.04	6.40	19.00	190.00	0.25	40.00	39.50	
1A-1 28-60"					0.89	0.20	28.80	0.22	0.24	0.50	4.50	5.20	0.70	0.03	6.70	25.00	130.00	0.07	36.30	40.90	
1A-1 60-100"					0.96	0.20	26.30	0.27	0.23	0.60	3.10	3.90	0.80	0.02	7.00	22.00	90.00	0.07	43.80	42.20	
1A-1 6-17"					1.11	0.60	18.80	0.25	0.36	0.30	4.20	4.90	0.70	0.05	6.50	27.00	210.00	0.36	36.30	45.80	
1A-2 15-25"					3.73	2.00	18.80	0.48	0.25	1.00	4.10	5.00	0.90	0.19	7.20	10.00	150.00	0.19	48.80	47.30	
1A-2 25-40"					4.30	1.30	16.30	0.52	0.38	0.80	4.60	5.30	0.70	0.14	7.30	23.00	130.00	0.14	45.00	47.70	
1A-2 40-60"					5.92	0.90	18.80	0.76	0.79	0.60	4.00	4.90	0.90	0.09	7.50	33.00	200.00	0.32	42.50	44.30	
1A-2 60-75"					3.26	1.00	18.80	0.45	0.35	0.80	3.50	4.40	0.90	0.09	7.50	34.00	160.00	0.15	46.30	40.90	
1A-2 75-90"					11.40	0.90	17.50	1.25	1.19	0.80	2.90	3.50	0.60	0.08	7.40	56.00	250.00	0.62	43.80	55.80	
1B1 0-7"					3.71	3.10	16.30	0.68	1.06	0.90	5.00	5.70	0.70	0.22	6.90	47.00	520.00	1.69	41.30	64.40	
1B1 15-28"					0.71	0.40	12.50	0.33	0.21	0.40	4.40	4.90	0.50	0.07	6.30	25.00	180.00	0.38	42.50	86.70	
1B1 28-60"					0.68	0.10	12.50	0.29	0.21	0.30	4.10	4.80	0.70	0.02	6.30	18.00	90.00	0.23	57.50	29.90	
1B1 7-15"					1.81	0.80	17.50	0.48	0.46	0.60	4.10	4.80	0.70	0.07	6.60	34.00	310.00	0.82	42.50	130.00	
2A-1 0-10"					1.59	1.20	12.50	0.31	0.45	0.50	4.40	4.70	0.30	0.16	6.60	14.00	280.00	0.52	57.50	46.80	
2A-1 10-24"					1.33	0.40	20.00	0.29	0.51	0.50	7.40	8.00	0.60	0.07	6.70	39.00	220.00	0.34	50.00	34.60	
2A-1 24-44"					1.26	0.40	27.50	0.19	0.25	8.10	34.00	35.00	0.70	0.05	7.50	17.00	120.00	0.06	35.00	44.30	
2A-1 44-65"					1.37	0.20	26.30	0.24	0.29	12.20	7.60	8.40	0.80	0.02	7.70	8.00	90.00	0.08	42.50	40.60	
2A-1 65-80"					1.51	0.20	20.00	0.24	0.34	14.80	6.40	7.10	0.70	0.03	7.80	9.00	60.00	0.08	55.00	34.30	
2A-2 0-5"					1.47	0.80	16.30	0.31	0.46	0.80	5.20	6.00	0.80	0.07	7.00	17.00	290.00	0.49	47.50	44.30	
2A-2 14-25"					0.65	0.50	18.80	0.16	0.23	0.50	47.00	47.70	0.70	0.04	6.90	17.00	210.00	0.20	35.00	32.30	
2A-2 25-38"					0.47	0.20	26.30	0.12	0.23	0.70	41.80	42.50	0.70	0.05	6.90	10.00	160.00	0.12	37.50	37.80	
2A-2 5-14"					1.49	1.40	15.00	0.32	0.44	0.60	7.00	7.80	0.80	0.22	7.00	27.00	450.00	0.91	48.80	45.20	
2A-3 0-9"					0.90	1.70	11.30	0.20	0.28	0.60	9.70	9.70		0.07	6.70	14.00	320.00	0.54	56.30	45.50	
2A-3 19-36"					0.54	0.50	22.50	0.14	0.19	0.50	4.10	4.80	0.70	0.01	6.70	9.00	110.00	0.11	47.50	32.00	
2A-3 36-52"					1.08	0.50	28.80	0.19	0.31	0.80	11.10	11.80	0.70	0.04	7.20	33.00	130.00	0.07	31.30	42.60	
2A-3 9-19"					0.47	0.70	21.30	0.14	0.23	0.50	5.10	5.80	0.70	0.14	6.80	9.00	240.00	0.21	45.00	33.60	
2A-5 0-6"					1.87	1.80	16.30	0.36	0.52	0.80	11.40	11.40		0.18	6.80	25.00	340.00	0.68	46.30	44.70	
2A-5 12-24"					0.37	0.50	31.30	0.11	0.24	0.50	4.20	4.90	0.70	0.06	7.00	7.00	240.00	0.26	28.80	39.20	
2A-5 24-48"					0.24	0.40	40.00	0.09	0.31	0.70	7.00	7.70	0.70	0.05	7.00	8.00	240.00	0.25	22.50	47.30	
2A-5 6-12"					2.15	1.40	21.30	0.36	0.42	0.70	6.50	7.10	0.60	0.11	7.00	14.00	350.00	0.54	46.30	39.60	
2A-6 0-6"					1.14	1.20	15.00	0.23	0.43	0.70	7.20	7.90	0.70	0.16	7.00	24.00	410.00	0.75	47.50	40.90	
2A-6 12-24"					0.96	1.00	16.30	0.18	0.31	0.70	3.50	4.10	0.60	0.10	7.20	19.00	160.00	0.10	45.00	39.20	
2A-6 24-40"					1.27	1.00	16.30	0.22	0.44	0.70	6.10	6.80	0.70	0.11	7.00	23.00	230.00	0.24	45.00	42.80	
2A-6 40-60"					1.54	0.50	25.00	0.51	0.73	1.40	3.90	4.90	1.00	0.04	7.90	31.00	190.00	0.39	50.00	31.60	
2A-6 60-80"					0.99	0.40	25.00	0.35	0.64	1.00	3.60	4.40	0.80	0.03	7.90	28.00	180.00	0.29	47.50	32.90	
2A-6 6-12"					0.84	1.30	16.30	0.19	0.31	0.70	5.30	6.00	0.70	0.13	7.00	22.00	410.00	0.52	50.00	38.80	
2A-7 0-7"					1.24	1.20	20.00	0.35	0.45	0.60	4.60	5.10	0.50	0.15	6.70	17.00	320.00	0.74	55.00	47.80	
2A-7 20-38"					1.06	0.30	23.80	0.28	0.41	0.50	1.90	2.70	0.80	0.04	6.80	14.00	170.00	0.30	50.00	34.20	
2A-7 7-20"					1.45	0.60	22.50	0.40	0.49	0.50	3.80	4.50	0.70	0.06	6.80	17.00	260.00	0.60	51.30	37.40	
2B-1 0-9"					1.11	1.30	20.00	0.30	0.42	0.60	7.90	8.50	0.60	0.17	6.70	17.00	310.00	0.75	58.80	49.70	
2B-1 19-33"					1.42	0.50	43.80	0.29	0.35	1.00	4.20	5.10	0.90	0.07	7.10	6.00	120.00	0.08	16.30	51.60	
2B-1 33-51"					2.52	0.30	33.80	0.42	0.58	6.10	4.40	5.30	0.90	0.04	7.60	3.00	70.00	0.06	30.00	43.40	
2B-1 9-19"					0.67	0.50	33.80	0.15	0.22	0.90	3.20	4.10	0.90	0.06	6.70	5.00	150.00	0.11	31.30	41.00	
D-1 0-6"					1.57	1.40	16.30	0.25	0.12	2.30	1.10	1.10		0.15	7.90	28.00	140.00	0.32	72.50	34.60	
D-1 16-25"					0.82	0.70	16.30	0.18	0.14	3.40	1.60	1.60		0.06	7.50	14.00	70.00	0.10	76.30	35.80	
D-1 25-40"					0.76	0.90	13.80	0.16	0.15	0.20	0.90	0.90		0.06	7.30	29.00	60.00	0.08	73.80	34.60	
D-1 40-65"					1.04	0.60	12.50	0.21	0.22	0.20		0.90	0.80	0.04	7.30	20.00	50.00	0.08	80.00	30.20	
D-1 6-16"					1.28	23.30	15.00	0.22	0.15	1.20	1.10	1.10		0.30	7.10	36.00	80.00	0.07	70.00	53.40	
D-1 65-90"					1.36	0.50	12.50	0.26	0.24	0.50		0.90	0.80	0.03	7.30	20.00	70.00	0.05	83.80	31.10	
D-10 0-5"					3.23	3.30	15.00	0.53	0.67	1.00	1.80	1.80		0.31	7.30	21.00	410.00	1.11	47.50	50.70	
D-10 11-23"					0.82	0.80	38.80	0.22	0.25	0.70	0.90	1.50	0.60	0.08	7.40	7.00	130.00	0.09	26.30	61.70	
D-10 23-35"					0.81	0.70	42.50	0.25	0.39	1.00	2.00	2.70	0.70	0.06	7.30	8.00	130.00	0.19	22.50	69.60	
D-10 5-11"					1.34	3.10	25.00	0.28	0.28	1.70	1.50	2.10	0.60	0.12	7.30	13.00	180.00	0.15	33.80	48.30	

Results	ANALYTE																				
CLIENTID	Acid Generation Potential (cal	Acid Neutralization Potential	Acid-Base Potential (calc on S	Boron, soluble (Hot Water)	Calcium, soluble (Sat. Paste)	Carbon, total organic (TOC)	Clay	Conductivity @25C	Magnesium, soluble (Sat. Paste	Neutralization Potential as Ca	Nitrate as N, extractable (KCL	Nitrate/ Nitrite as N, extracta	Nitrite as N, extractable (KCL	Nitrogen, total Kjeldahl	pH, Saturated Paste	Phosphorus, extractable (AB-DT	Potassium, extractable (AB-DTP	Potassium, soluble (Sat. Paste	Sand	Saturation Percent	Selenium, soluble (Hot Water)
D-11 0-12"					2.98	1.60	25.00	0.42	0.35	3.10	1.80	2.40	0.60	0.08	7.60	15.00	230.00	0.22	42.50	40.80	
D-11 11-48"	12.00	35.00	23.00	1.41	20.50	25.00	17.50	1.63	2.88	3.50	0.70	1.50	0.80	0.24	7.10	2.00	110.00	0.11	62.50	53.20	
D-11 62-82"					12.80	3.60	18.80	1.33	4.28	5.30	0.60	1.30	0.70	0.15	7.60	9.00	140.00	0.16	51.30	44.80	
D-12 0-6"					2.11	3.20	12.50	0.42	0.62	0.70	2.60	2.60		0.25	6.80	22.00	440.00	1.06	50.00	55.90	
D-12 14-28"					0.82	0.70	12.50	0.21	0.31	0.50	1.90	2.60	0.70	0.42	7.00	13.00	170.00	0.20	51.30	36.50	
D-12 28-48"					1.15	0.40	18.80	0.25	0.36	0.60	1.80	2.50	0.70	0.05	7.10	11.00	170.00	0.16	53.80	36.40	
D-12 48-66"					1.63	0.20	18.80	0.30	0.33	2.60	1.90	2.50	0.60	0.03	7.70	11.00	140.00	0.09	56.30	38.00	
D-12 6-14"					1.23	1.00	13.80	0.27	0.41	0.70	2.00	2.70	0.70	0.11	6.80	16.00	240.00	0.38	52.50	42.70	
D-2 0-6"					0.80	1.10	15.00	0.18	0.16	0.60	0.20	0.90	0.70	0.06	7.30	15.00	90.00	0.11	77.50	33.50	
D-2 6-24"					0.16	0.30	13.80	0.50	0.13	0.40		0.90	0.80	0.03	7.30	13.00	80.00	0.08	78.80	33.30	
D-3	14.00	33.00	19.00	2.30	15.30	30.10	15.00	0.16	3.06	3.30	1.00	1.00		0.12	7.30	5.00	80.00	0.13	71.30	59.20	
D-3 0-10"	0.00	14.00	14.00	0.57	1.20	2.30	18.80	0.27	0.21	1.40	1.50	1.50		0.32	7.60	29.00	320.00	0.33	72.50	40.70	
D-3 10-20"	0.00	15.00	15.00	0.66	1.52	1.70	17.50	0.27	0.24	1.50	0.90	0.90		0.11	7.50	20.00	190.00	0.18	71.30	35.30	
D-3 20-40"	0.00	10.00	10.00	0.65	0.68	1.60	18.80	0.17	0.14	1.00	0.40	1.20	0.80	0.09	7.60	16.00	110.00	0.07	72.50	37.00	
D-3 40-60"	0.00	18.00	18.00	0.48	1.13	1.80	17.50	0.25	0.26	1.80	0.20	1.00	0.80	0.10	7.80	17.00	110.00	0.06	72.50	38.90	
D-3 60-75"	4.00	18.00	14.00	1.11	13.40	1.90	17.50	0.16	5.67	1.80	0.40	1.20	0.80	0.16	7.40	15.00	130.00	0.16	72.50	37.90	
D-4 0-8"					0.82	1.40	17.50	0.20	0.13	1.20	1.30	1.30		0.06	7.60	22.00	150.00	0.07	71.30	40.20	
D-4 19-72"	0.00	23.00	23.00	2.25	16.90	3.20	16.30	0.20	8.58	2.30	1.10	1.10		0.68	7.30	4.00	90.00	0.13	77.50	61.60	
D-4 8-16"					0.47	1.30	18.80	0.14	0.12	0.90	0.30	1.10	0.80	0.09	7.80	21.00	150.00	0.06	68.80	39.20	
D-5 0-6"					1.17	1.50	21.30	0.26	0.24	2.30	0.50	1.20	0.70	0.12	7.80	24.00	140.00	0.09	65.00	45.90	
D-5 20-40"					0.34	1.00	21.30	0.12	0.10	2.70	0.90	1.60	0.70	0.04	7.80	20.00	80.00	0.08	63.80	52.20	
D-5 40-60"					1.33	1.60	21.30	0.25	0.31	3.30	7.90	8.60	0.70	0.09	7.70	18.00	80.00	0.08	37.50	52.30	
D-5 6-20"					0.81	1.40	21.30	0.18	0.15	2.60	0.50	1.10	0.60	0.07	7.80	24.00	90.00	0.06	65.00	47.00	
D-6 0-7"					2.48	1.60	22.50	0.28	0.38	3.70	9.00	9.80	0.80	0.09	7.50	15.00	240.00	0.45	30.00	52.10	
D-6 24-48"					3.21	1.30	20.00	0.45	0.76	3.20	3.30	4.10	0.80	0.07	7.50	12.00	70.00	0.09	40.00	54.40	
D-6 48-72"					2.96	1.40	20.00	0.45	0.69	3.30	2.30	3.10	0.80	0.08	7.40	10.00	100.00	0.09	37.50	51.00	
D-7 0-6"					4.92	1.30	20.00	0.69	0.72	2.70	1.90	1.90		0.09	7.20	7.00	250.00	0.67	30.00	49.60	
D-7 20-42"					0.93	0.90	21.30	0.20	0.32	3.30	0.50	1.20	0.70	0.05	7.80	8.00	90.00	0.13	32.50	43.30	
D-7 42-58"					1.63	1.20	22.50	0.30	0.42	2.80		0.90	0.80	0.07	7.60	8.00	110.00	0.09	32.50	54.30	
D-7 58-70"					3.35	0.80	12.50	0.48	0.83	0.80		0.70	0.80	0.07	7.20	16.00	140.00	0.11	52.50	36.50	
D-7 6-20"					2.98	1.10	22.50	0.46	0.56	3.30	0.40	1.20	0.80	0.06	7.50	10.00	130.00	0.15	30.00	47.30	
D-8 0-6"					3.91	2.50	8.80	0.59	0.79	1.20	2.10	2.10		0.22	7.00	25.00	360.00	1.11	52.50	64.60	
D-8 13-20"					0.56	0.40	12.50	0.16	0.23	0.60	0.80	0.80		0.05	7.00	20.00	190.00	0.24	55.00	38.80	
D-8 20-48"					0.60	0.30	16.30	0.18	0.30	0.60		0.80	0.80	0.03	7.30	17.00	200.00	0.22	53.80	38.00	
D-8 6-13"					1.13	1.10	10.00	0.28	0.28	0.80	1.70	1.70		0.15	7.10	20.00	280.00	0.42	55.00	41.50	
D-9A 0-6"					3.48	2.00	16.30	0.45	0.39	2.00	1.00	1.80	0.80	0.12	7.50	11.00	170.00	0.20	47.50	51.60	
D-9A 115-145"	0.00	5.00	5.00	0.57	12.70	0.30	22.50	1.25	2.67	0.50	3.60	4.20	0.60	0.05	7.10	13.00	200.00	0.35	50.00	42.50	
D-9A 12-30"	15.00	42.00	27.00	2.31	1.33	29.60	12.50	0.27	0.28	4.20	0.70	0.70		1.10	7.50	3.00	80.00	0.10	68.80	37.50	
D-9A 30-68"	19.00	54.00	35.00	2.16	20.90	24.40	17.50	2.11	11.00	5.40	0.80	0.80		0.49	7.10	2.00	100.00	0.16	57.50	55.20	
D-9A 6-12"					3.25	2.20	17.50	0.47	0.54	1.90		0.90	0.80	0.12	7.70	11.00	120.00	0.09	50.00	47.60	
D-9A 80-95"	2.00	17.00	15.00	0.91	2.34	4.30	15.00	0.35	0.29	1.70	0.60	1.40	0.80	0.18	7.50	9.00	120.00	0.15	53.80	49.00	
D-9A 95-115"	1.00	13.00	12.00	0.86	1.35	2.40	15.00	0.25	0.29	1.30	1.30	1.90	0.60	0.39	7.70	11.00	150.00	0.05	55.00	51.00	
D-9B 0-6"	0.00	24.00	24.00	0.46	2.76	1.70	25.00	0.43	0.39	2.40	2.90	3.50	0.60	0.13	7.40	20.00	250.00	0.32	35.00	41.50	
D-9B 12-30"	16.00	51.00	35.00	2.27	18.50	23.10	23.80	1.61	3.87	5.10	1.50	1.50		0.73	7.10	3.00	120.00	0.17	50.00	50.30	0.01
D-9B 30-52"	35.00	46.00	11.00	1.41	25.10	54.00	2.50	1.77	1.48	4.60	1.20	1.20		1.43	7.10	1.00	30.00	0.06	93.80	59.00	
D-9B 52-80"	2.00	7.00	5.00	1.73	20.10	1.40	13.80	1.85	6.54	0.70	0.40	1.10	0.70	0.09	7.00	11.00	150.00	0.42	60.00	38.00	
D-9B 6-12"	0.00	22.00	22.00	0.49	2.47	2.40	17.50	0.37	0.39	2.20	0.90	1.60	0.70	0.24	7.40	31.00	170.00	0.12	51.30	34.90	
D-9B 80-102"	0.00	6.00	6.00	0.86	19.40	0.90	15.00	1.73	6.62	0.60	0.40	1.10	0.70	0.06	7.00	11.00	180.00	0.58	53.80	37.90	
Grand Total	6.32	23.84	17.53	1.23	3.45	3.17	19.53	0.42	0.89	1.80	4.38	4.66	0.72	0.14	7.22	17.36	183.53	0.29	50.84	45.20	0.01

Results											
CLIENTID	Sieve-53 um (270 mesh)	Sieve-2000 um (2.0 mm)	Silt	Sodium Absorption Ratio	Sodium, soluble (Sat. Paste)	Solids, Percent	Sulfur Organic Residual	Sulfur Pyritic Sulfide	Sulfur Sulfate	Sulfur Total	Total Sulfur minus Sulfate
1A-1 0-6"	79.40	92.50	43.80	0.07	0.11	76.90					
1A-1 17-28"	79.40	86.20	37.50	0.15	0.10	96.10					
1A-1 28-60"	80.90	82.00	35.00	0.51	0.39	92.40					
1A-1 60-100"	81.60	76.90	30.00	0.76	0.59	88.60					
1A-1 6-17"	77.00	92.60	45.00	0.11	0.10	97.00					
1A-2 15-25"	81.70	82.80	32.50	0.17	0.24	88.00					
1A-2 25-40"	81.80	79.60	38.80	0.14	0.22	95.60					
1A-2 40-60"	81.00	84.70	38.80	0.15	0.29	96.10					
1A-2 60-75"	83.90	74.00	35.00	0.16	0.22	96.00					
1A-2 75-90"	83.60	76.00	38.80	0.13	0.33	94.70					
1B1 0-7"	83.70	79.80	42.50	0.11	0.17	75.80					
1B1 15-28"	82.30	79.30	45.00	1.25	0.85	96.80					
1B1 28-60"	81.70	82.40	30.00	0.89	0.60	97.30					
1B1 7-15"	83.30	79.90	40.00	0.57	0.61	91.70					
2A-1 0-10"	75.80	91.80	30.00	0.19	0.20	86.00					
2A-1 10-24"	84.60	72.00	30.00	0.37	0.36	94.60					
2A-1 24-44"	86.10	83.90	37.50	0.20	0.18	94.20					
2A-1 44-65"	87.70	90.60	31.30	0.39	0.36	95.00					
2A-1 65-80"	86.50	90.10	25.00	0.41	0.40	95.10					
2A-2 0-5"	80.50	88.90	36.30	0.33	0.33	87.30					
2A-2 14-25"	87.00	64.50	46.30	0.43	0.29	96.30					
2A-2 25-38"	84.40	70.70	36.30	0.37	0.22	94.10					
2A-2 5-14"	78.00	88.50	36.30	0.33	0.33	86.30					
2A-3 0-9"	72.80	86.80	32.50	0.23	0.18	87.70					
2A-3 19-36"	80.60	75.30	30.00	0.41	0.25	94.70					
2A-3 36-52"	91.00	61.30	40.00	0.33	0.28	93.50					
2A-3 9-19"	82.10	80.70	33.80	0.33	0.20	94.50					
2A-5 0-6"	80.60	80.40	37.50	0.38	0.42	87.10					
2A-5 12-24"	92.80	45.00	40.00	0.38	0.21	91.70					
2A-5 24-48"	95.20	39.30	37.50	0.42	0.22	90.70					
2A-5 6-12"	87.50	60.50	32.50	0.33	0.38	89.00					
2A-6 0-6"	80.30	91.30	37.50	0.16	0.15	84.30					
2A-6 12-24"	82.00	86.80	38.80	0.43	0.35	96.00					
2A-6 24-40"	84.40	79.30	38.80	0.42	0.39	93.60					
2A-6 40-60"	85.20	85.20	25.00	1.39	1.48	94.90					
2A-6 60-80"	86.50	76.50	27.50	1.09	0.98	93.40					
2A-6 6-12"	80.80	83.60	33.80	0.21	0.16	90.40					
2A-7 0-7"	75.80	87.60	25.00	0.55	0.51	86.40					
2A-7 20-38"	79.50	79.40	26.30	0.43	0.37	93.10					
2A-7 7-20"	77.40	86.90	26.30	0.43	0.43	91.80					
2B-1 0-9"	78.80	84.90	21.30	0.18	0.16	82.10					
2B-1 19-33"	90.50	79.60	40.00	0.44	0.42	93.10					
2B-1 33-51"	84.30	88.30	36.30	0.24	0.31	95.90					
2B-1 9-19"	91.30	39.90	35.00	0.37	0.25	94.10					
D-1 0-6"	91.50	75.60	11.30	0.23	0.22	88.10					
D-1 16-25"	91.90	70.00	7.50	0.08	0.06	91.20					
D-1 25-40"	88.60	88.70	12.50	0.11	0.08	95.50					
D-1 40-65"	91.50	78.50	7.50	0.11	0.09	94.30					
D-1 6-16"	87.80	95.40	15.00	0.11	0.10	91.50					
D-1 65-90"	93.80	67.10	3.80	0.15	0.14	94.20					
D-10 0-5"	68.20	81.60	37.50	0.16	0.23	82.60					
D-10 11-23"	97.00	23.00	35.00	0.49	0.36	91.70					
D-10 23-35"	98.00	18.90	35.00	0.43	0.34	91.20					
D-10 5-11"	91.10	47.40	41.30	0.40	0.36	87.40					

Results											
CLIENTID	Sieve-53 um (270 mesh)	Sieve-2000 um (2.0 mm)	Silt	Sodium Absorption Ratio	Sodium, soluble (Sat. Paste)	Solids, Percent	Sulfur Organic Residual	Sulfur Pyritic Sulfide	Sulfur Sulfate	Sulfur Total	Total Sulfur minus Sulfate
D-11 0-12"	88.30	57.90	32.50	0.20	0.26	85.50					
D-11 11-48"	93.10	65.80	20.00	0.06	0.23	86.40	0.22	0.07	0.10	0.39	0.29
D-11 62-82"	93.70	32.80	30.00	0.08	0.26	90.30					
D-12 0-6"	76.60	91.00	37.50	0.18	0.21	79.00					
D-12 14-28"	81.20	69.50	36.30	0.35	0.27	94.70					
D-12 28-48"	82.90	67.40	27.50	0.32	0.28	94.60					
D-12 48-66"	76.50	84.40	25.00	0.27	0.27	93.90					
D-12 6-14"	77.30	84.00	33.80	0.30	0.28	84.80					
D-2 0-6"	91.40	68.80	7.50	0.08	0.06	92.20					
D-2 6-24"	91.10	72.60	7.50	0.05	0.02	91.10					
D-3	98.10	49.50	13.80		0.07	90.20	0.23		0.23	0.46	0.23
D-3 0-10"	92.40	81.10	8.80	0.08	0.07	88.80	0.01	0.01		0.02	0.02
D-3 10-20"	92.60	75.20	11.30	0.09	0.09	93.70	0.02			0.02	0.02
D-3 20-40"	91.10	81.70	8.80	0.09	0.06	95.40	0.02		0.01	0.02	0.01
D-3 40-60"	93.10	67.30	10.00	0.08	0.07	93.90	0.02		0.01	0.03	0.02
D-3 60-75"	92.60	79.80	10.00	0.05	0.17	93.80	0.02		0.11	0.13	0.02
D-4 0-8"	90.90	88.70	11.30	0.07	0.05	87.60					
D-4 19-72"	97.60	62.80	6.30		0.08	93.50	0.01	0.01		0.02	0.02
D-4 8-16"	90.80	84.60	12.50	0.05	0.03	94.90					
D-5 0-6"	93.80	76.10	13.80	0.07	0.06	90.00					
D-5 20-40"	94.20	84.70	15.00	0.08	0.04	94.30					
D-5 40-60"	86.90	84.40	41.30	0.33	0.30	91.60					
D-5 6-20"	93.10	89.10	13.80	0.07	0.05	92.20					
D-6 0-7"	87.70	87.60	47.50	0.11	0.14	87.90					
D-6 24-48"	88.70	72.40	40.00	0.21	0.30	94.70					
D-6 48-72"	91.10	61.40	42.50	0.20	0.28	93.00					
D-7 0-6"	90.30	68.20	50.00	0.09	0.16	85.80					
D-7 20-42"	91.50	67.70	46.30	0.12	0.10	92.50					
D-7 42-58"	90.90	70.30	45.00	0.22	0.23	93.00					
D-7 58-70"	76.40	94.60	35.00	0.13	0.20	95.70					
D-7 6-20"	92.90	53.90	47.50	0.12	0.17	87.40					
D-8 0-6"	79.70	92.10	38.80	0.08	0.13	80.40					
D-8 13-20"	75.80	96.90	32.50	0.17	0.11	96.50					
D-8 20-48"	76.10	92.60	30.00	0.17	0.12	95.70					
D-8 6-13"	78.90	90.50	35.00	0.14	0.12	84.90					
D-9A 0-6"	85.60	75.60	36.30	0.09	0.13	87.30					
D-9A 115-145"	81.20	81.50	27.50	0.10	0.30	89.50	0.01		0.01	0.02	0.01
D-9A 12-30"	94.40	59.80	18.80	0.10	0.09	90.90	0.18	0.07	0.23	0.48	0.25
D-9A 30-68"	97.40	51.70	25.00	0.03	0.12	89.40	0.23		0.43	0.62	0.19
D-9A 6-12"	84.60	79.30	32.50	0.08	0.12	88.70					
D-9A 80-95"	85.50	80.30	31.30	0.07	0.09	90.60	0.03		0.03	0.06	0.03
D-9A 95-115"	84.50	74.40	30.00	0.24	0.22	89.70	0.02		0.02	0.04	0.02
D-9B 0-6"	85.00	82.30	40.00	0.18	0.23	86.60	0.02			0.02	0.02
D-9B 12-30"	96.30	47.20	26.30	0.07	0.25	91.90	0.20	0.12	0.20	0.52	0.32
D-9B 30-52"	97.10	72.10	3.80	0.04	0.16	91.50	0.51	0.08	0.54	1.13	0.59
D-9B 52-80"	78.60	82.70	26.30	0.05	0.21	95.50	0.02		0.04	0.05	0.01
D-9B 6-12"	80.70	88.20	31.30	0.17	0.21	85.70	0.03			0.03	0.03
D-9B 80-102"	79.80	82.70	31.30	0.06	0.24	95.90	0.01		0.02	0.03	0.01
Grand Total	85.89	75.68	29.69	0.26	0.25	91.09	0.10	0.06	0.14	0.22	0.11

PLASE REFERR TO ACZ PDF LAB SHEETS in SEPARATE Accompanying PDF's:

Exhibit 6 ACZ Lab Sheets Suite 1.pdf
Exhibit 6 ACZ Lab Sheets Suite 2.pdf
Exhibit 6 ACZ Lab Sheets Suite 3.pdf
Exhibit 6 ACZ Lab Sheets Suite 4.pdf
Exhibit 6 ACZ Lab Sheets Suite 5.pdf
Exhibit 6 ACZ Lab Sheets Suite 6.pdf

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APPENDIX 2: IML Analysis Sheets

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report
Carbon Resources

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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

Lab ID	Sample ID	Depths	pH	Saturation	Electrical Conductivity	Calcium	Magnesium	Sodium	Potassium	SAR	Alkalinity
		Inches	s.u.	%	dS/m	meq/L	meq/L	meq/L	meq/L		meq/L
S0709096-001	01-SP-07	0-6	7.3	39.8	0.44	2.48	0.89	0.34	0.43	0.26	1.99
S0709096-002	01-SP-07	6-14	7.4	40.8	0.46	2.92	0.87	0.32	0.28	0.23	1.99
S0709096-003	01-SP-07	14-24	7.7	50.5	1.15	7.19	1.75	1.42	0.12	0.67	2.39
S0709096-004	02-SP-07	0-6	6.6	36.0	0.49	1.48	0.64	0.82	1.40	0.79	1.19
S0709096-005	02-SP-07	6-17	6.8	35.4	0.54	0.84	0.79	1.10	1.32	1.22	1.79
S0709096-006	02-SP-07	17-32	7.2	33.4	1.91	6.10	2.99	4.37	3.95	2.05	1.19
S0709096-007	02-SP-07	32-44	7.4	36.0	3.60	15.1	8.52	7.30	5.75	2.12	1.99
S0709096-008	03-SP-07	0-6	6.5	47.6	0.62	2.05	1.09	1.51	1.31	1.21	1.99
S0709096-009	03-SP-07	6-18	6.9	38.4	0.66	2.57	1.06	1.47	1.10	1.09	2.98
S0709096-010	03-SP-07	18-30	7.2	34.7	2.00	8.14	2.53	3.12	2.31	1.35	2.59
S0709096-011	03-SP-07	30-40	7.6	32.8	3.73	18.4	6.53	6.67	3.23	1.89	1.69
S0709096-012	04-SP-07	0-6	6.6	47.7	0.26	1.32	0.76	0.74	0.63	0.72	1.39
S0709096-013	04-SP-07	6-11	6.6	32.8	0.29	1.52	0.61	0.16	0.44	0.15	1.59
S0709096-014	04-SP-07	11-20	6.7	30.0	0.28	1.41	0.55	0.26	0.41	0.26	1.39
S0709096-015	04-SP-07	20-40	6.9	33.0	0.28	1.44	0.54	0.33	0.15	0.33	1.49
S0709096-016	05-SP-07	0-8	6.5	31.5	0.27	1.54	0.49	0.27	0.21	0.27	1.29
S0709096-017	05-SP-07	8-28	6.7	29.0	0.19	0.66	0.48	0.51	0.19	0.68	0.70
S0709096-018	05-SP-07	28-60	7.1	29.3	0.24	1.03	0.49	0.55	0.10	0.62	1.09
S0709096-019	06-SP-07	0-6	7.3	30.6	0.45	3.01	0.87	0.28	0.31	0.20	3.58
S0709096-020	06-SP-07	6-55	7.4	34.2	1.32	7.04	4.61	1.99	0.29	0.82	1.99

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report
Carbon Resources

,

Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

Lab ID	Sample ID	Depths	pH	Saturation	Electrical Conductivity	Calcium	Magnesium	Sodium	Potassium	SAR	Alkalinity
		Inches	s.u.	%	dS/m	meq/L	meq/L	meq/L	meq/L		meq/L
S0709096-021	06-SP-07	55-80	6.2	32.1	1.53	10.4	5.66	0.34	0.29	0.12	0.50
S0709096-022	07-SP-07	0-6	6.6	38.4	0.37	1.74	0.67	0.27	0.70	0.24	2.29
S0709096-023	07-SP-07	6-11	6.5	34.2	0.23	0.98	0.48	0.34	0.36	0.40	1.29
S0709096-024	07-SP-07	11-28	6.6	29.6	0.23	1.23	0.50	0.24	0.30	0.26	1.19
S0709096-025	07-SP-07	28-40	7.1	27.9	0.35	2.16	0.72	0.31	0.08	0.26	2.19
S0709096-026	08-SP-07	0-9	6.5	47.6	0.26	1.21	0.45	0.18	0.55	0.20	1.39
S0709096-027	08-SP-07	9-17	6.6	37.3	0.30	1.59	0.58	0.25	0.37	0.24	1.49
S0709096-028	08-SP-07	17-36	6.6	26.2	0.18	0.84	0.35	0.16	0.27	0.21	1.09
S0709096-029	08-SP-07	36-60	6.7	24.3	0.23	0.91	0.53	0.28	0.25	0.33	0.90
S0709096-030	09-SP-07	0-6	6.5	38.6	0.30	1.42	0.54	0.16	0.57	0.16	2.09
S0709096-031	09-SP-07	6-12	6.5	28.8	0.21	1.02	0.40	0.17	0.31	0.20	1.19
S0709096-032	09-SP-07	12-30	6.5	33.0	0.19	0.91	0.49	0.28	0.15	0.34	1.00
S0709096-033	09-SP-07	30-60	6.9	34.7	0.17	0.87	0.38	0.27	0.06	0.34	1.19
S0709096-034	10-SP-07	0-7	6.9	33.4	0.37	2.44	0.76	0.16	0.29	0.13	2.79
S0709096-035	10-SP-07	7-18	6.6	28.6	0.17	0.96	0.38	0.15	0.15	0.18	1.00
S0709096-036	10-SP-07	18-40	6.7	30.0	0.15	0.82	0.23	0.18	0.07	0.25	0.80
S0709096-037	10-SP-07	40-70	7.3	29.0	0.40	2.89	0.56	0.22	0.09	0.17	2.59
S0709096-038	11-SP-07	0-5	6.8	40.8	0.33	1.74	0.64	0.22	0.68	0.20	2.59
S0709096-039	11-SP-07	5-13	6.4	31.8	0.34	1.45	0.70	0.34	0.52	0.33	1.79
S0709096-040	11-SP-07	13-33	6.6	29.4	0.26	1.46	0.55	0.23	0.28	0.23	1.39

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report
Carbon Resources

,

Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

Lab ID	Sample ID	Depths	pH	Saturation	Electrical Conductivity	Calcium	Magnesium	Sodium	Potassium	SAR	Alkalinity
		Inches	s.u.	%	dS/m	meq/L	meq/L	meq/L	meq/L		meq/L
S0709096-041	11-SP-07	33-55	6.8	35.4	0.20	1.11	0.50	0.27	0.13	0.30	1.79
S0709096-042	11-SP-07	55-80	7.1	37.1	0.33	1.34	0.70	0.64	0.17	0.63	2.19
S0709096-043	12-SP-07	0-6	7.1	36.3	0.42	2.19	0.77	0.13	0.89	0.11	3.18
S0709096-044	12-SP-07	6-12	7.2	34.7	0.24	0.98	0.42	0.14	0.86	0.17	1.79
S0709096-045	12-SP-07	12-24	7.2	31.5	0.26	1.22	0.45	0.13	0.70	0.15	1.99
S0709096-046	12-SP-07	24-36	7.4	33.0	0.32	2.05	0.72	0.17	0.36	0.15	1.99
S0709096-047	12-SP-07	36-52	7.4	31.0	0.40	2.45	0.75	0.23	0.32	0.18	2.79
S0709096-048	12-SP-07	52-75	7.8	29.8	0.38	2.20	0.79	0.27	0.30	0.22	2.29
S0709096-049	13-SP-07	0-8	7.0	35.0	0.45	2.49	0.99	0.22	0.54	0.16	3.28
S0709096-050	13-SP-07	8-25	6.2	67.9	0.23	1.39	0.46	0.07	0.06	0.07	0.50
S0709096-051	13-SP-07	25-41	6.8	31.7	0.35	2.46	0.56	0.08	0.20	0.07	1.69
S0709096-052	13-SP-07	41-70	6.6	25.8	0.40	1.98	0.77	0.19	0.39	0.17	1.69

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report
Carbon Resources

,

Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

Lab ID	Sample ID	Depths Inches	Sand %	Silt %	Clay %	Texture	Very Fine Sand %	Boron ppm	TKN %	Phosphorus ppm	Selenium ppm
S0709096-001	01-SP-07	0-6	66.0	24.0	10.0	Sandy Loam	14.9		0.30	11.9	
S0709096-002	01-SP-07	6-14	70.0	19.0	11.0	Sandy Loam	17.6		0.46	12.7	
S0709096-003	01-SP-07	14-24	37.0	41.0	22.0	Loam	18.6		0.10	12.6	
S0709096-004	02-SP-07	0-6	47.0	37.0	16.0	Loam	22.6		0.07	30.7	
S0709096-005	02-SP-07	6-17	46.0	36.0	18.0	Loam	25.0		0.02	34.3	
S0709096-006	02-SP-07	17-32	47.0	36.0	17.0	Loam	26.4		0.06	26.8	
S0709096-007	02-SP-07	32-44	40.0	38.0	22.0	Loam	23.5		0.08	17.5	
S0709096-008	03-SP-07	0-6	46.0	35.0	19.0	Loam	25.4		0.06	35.6	
S0709096-009	03-SP-07	6-18	48.0	34.0	18.0	Loam	25.9		0.04	45.2	
S0709096-010	03-SP-07	18-30	42.0	37.0	21.0	Loam	26.8		0.06	45.2	
S0709096-011	03-SP-07	30-40	42.0	37.0	21.0	Loam	24.1		0.01	17.6	
S0709096-012	04-SP-07	0-6	54.0	29.0	17.0	Sandy Loam	23.1		0.14	15.1	
S0709096-013	04-SP-07	6-11	49.0	34.0	17.0	Loam	24.0		0.09	14.2	
S0709096-014	04-SP-07	11-20	50.0	32.0	18.0	Loam	22.4		0.03	12.0	
S0709096-015	04-SP-07	20-40	54.0	25.0	21.0	Sandy Clay Loam	21.9		0.04	14.3	
S0709096-016	05-SP-07	0-8	45.0	33.0	22.0	Loam	23.4		0.05	14.3	
S0709096-017	05-SP-07	8-28	55.0	24.0	21.0	Sandy Clay Loam	26.3		0.03	15.3	
S0709096-018	05-SP-07	28-60	52.0	28.0	20.0	Loam	18.5		0.03	9.09	
S0709096-019	06-SP-07	0-6	48.0	32.0	20.0	Loam	19.4		0.05	12.5	
S0709096-020	06-SP-07	6-55	42.0	33.0	25.0	Loam	12.6	0.79	0.18	1.60	<0.02

These results apply only to the samples tested.

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Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report
Carbon Resources
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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

Lab ID	Sample ID	Depths Inches	Sand %	Silt %	Clay %	Texture	Very Fine Sand %	Boron ppm	TKN %	Phosphorus ppm	Selenium ppm
S0709096-021	06-SP-07	55-80	50.0	30.0	20.0	Loam	21.5		0.01	15.7	
S0709096-022	07-SP-07	0-6	58.0	27.0	15.0	Sandy Loam	20.6		0.04	14.6	
S0709096-023	07-SP-07	6-11	60.0	24.0	16.0	Sandy Loam	25.0		0.04	14.6	
S0709096-024	07-SP-07	11-28	60.0	24.0	16.0	Sandy Loam	18.8		0.03	10.7	
S0709096-025	07-SP-07	28-40	52.0	30.0	18.0	Sandy Loam	17.3		0.03	5.62	
S0709096-026	08-SP-07	0-9	46.0	37.0	17.0	Loam	14.7		0.04	15.7	
S0709096-027	08-SP-07	9-17	44.0	37.0	19.0	Loam	21.9		0.06	14.2	
S0709096-028	08-SP-07	17-36	46.0	37.0	17.0	Loam	18.4		0.02	11.8	
S0709096-029	08-SP-07	36-60	52.0	33.0	15.0	Sandy Loam	21.5		<0.01	11.0	
S0709096-030	09-SP-07	0-6	60.0	26.0	14.0	Sandy Loam	25.1		0.05	18.6	
S0709096-031	09-SP-07	6-12	49.0	32.0	19.0	Loam	22.5		<0.01	9.72	
S0709096-032	09-SP-07	12-30	50.0	29.0	21.0	Loam	26.0		<0.01	10.7	
S0709096-033	09-SP-07	30-60	42.0	44.0	14.0	Loam	23.0		<0.01	15.9	
S0709096-034	10-SP-07	0-7	68.0	21.0	11.0	Sandy Loam	20.6		0.11	12.9	
S0709096-035	10-SP-07	7-18	48.0	33.0	19.0	Loam	22.5		<0.01	14.9	
S0709096-036	10-SP-07	18-40	50.0	29.0	21.0	Loam	23.4		<0.01	11.0	
S0709096-037	10-SP-07	40-70	49.0	33.0	18.0	Loam	21.8		<0.01	11.8	
S0709096-038	11-SP-07	0-5	61.0	23.0	16.0	Sandy Loam	28.3		<0.01	18.6	
S0709096-039	11-SP-07	5-13	52.0	28.0	20.0	Loam	23.5		<0.01	16.6	
S0709096-040	11-SP-07	13-33	57.0	26.0	17.0	Sandy Loam	22.2		0.01	15.6	

These results apply only to the samples tested.

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Lab ID	Sample ID	Depths	Sand	Silt	Clay	Texture	Very Fine Sand	Boron	TKN	Phosphorus	Selenium
		Inches	%	%	%		%	ppm	%	ppm	ppm
S0709096-041	11-SP-07	33-55	46.0	30.0	24.0	Loam	24.2		<0.01	14.7	
S0709096-042	11-SP-07	55-80	40.0	34.0	26.0	Loam	26.1		0.01	11.1	
S0709096-043	12-SP-07	0-6	54.0	30.0	16.0	Sandy Loam	21.5		<0.01	18.9	
S0709096-044	12-SP-07	6-12	53.0	31.0	16.0	Sandy Loam	22.5		0.01	16.7	
S0709096-045	12-SP-07	12-24	57.0	28.0	15.0	Sandy Loam	27.7		0.05	15.9	
S0709096-046	12-SP-07	24-36	55.0	30.0	15.0	Sandy Loam	23.4		0.03	16.6	
S0709096-047	12-SP-07	36-52	56.0	30.0	14.0	Sandy Loam	29.4		0.03	17.8	
S0709096-048	12-SP-07	52-75	56.0	29.0	15.0	Sandy Loam	26.7		<0.01	18.8	
S0709096-049	13-SP-07	0-8	62.0	22.0	16.0	Sandy Loam	21.2		0.10	17.3	
S0709096-050	13-SP-07	8-25	88.0	6.0	6.0	Sand	20.9	0.77	0.38	1.44	<0.02
S0709096-051	13-SP-07	25-41	58.0	29.0	13.0	Sandy Loam	24.6		<0.01	16.7	
S0709096-052	13-SP-07	41-70	66.0	21.0	13.0	Sandy Loam	22.0		<0.01	12.7	

These results apply only to the samples tested.

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Lab ID	Sample ID	Depths Inches	CO3 %	Total Carbon %	TOC %	Total Sulfur %	T.S. AB t/1000t	Neut. Pot. t/1000t	T.S. ABP t/1000t
S0709096-001	01-SP-07	0-6	1.5	43.0	42.8				
S0709096-002	01-SP-07	6-14	1.6	43.8	43.6				
S0709096-003	01-SP-07	14-24	4.1	5.5	5.0				
S0709096-004	02-SP-07	0-6	1.4	2.4	2.3				
S0709096-005	02-SP-07	6-17	1.0	1.5	1.4				
S0709096-006	02-SP-07	17-32	1.0	1.2	1.0				
S0709096-007	02-SP-07	32-44	1.0	1.1	0.9				
S0709096-008	03-SP-07	0-6	1.6	6.6	6.4				
S0709096-009	03-SP-07	6-18	1.2	8.1	7.9				
S0709096-010	03-SP-07	18-30	1.2	2.1	1.9				
S0709096-011	03-SP-07	30-40	1.2	1.2	1.1				
S0709096-012	04-SP-07	0-6	1.2	3.5	3.3				
S0709096-013	04-SP-07	6-11	0.8	1.5	1.4				
S0709096-014	04-SP-07	11-20	0.7	0.6	0.5				
S0709096-015	04-SP-07	20-40	1.1	0.4	0.2				
S0709096-016	05-SP-07	0-8	0.8	0.7	0.6				
S0709096-017	05-SP-07	8-28	1.2	0.2	<0.1				
S0709096-018	05-SP-07	28-60	0.7	0.2	0.1				
S0709096-019	06-SP-07	0-6	2.4	3.7	3.5				
S0709096-020	06-SP-07	6-55	5.4	22.7	22.2	0.31	9.67	47.4	37.7

These results apply only to the samples tested.

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Lab ID	Sample ID	Depths	CO3	Total Carbon	TOC	Total Sulfur	T.S. AB	Neut. Pot.	T.S. ABP
		Inches	%	%	%	%	t/1000t	t/1000t	t/1000t
S0709096-021	06-SP-07	55-80	0.7	1.3	1.2				
S0709096-022	07-SP-07	0-6	1.1	2.5	2.4				
S0709096-023	07-SP-07	6-11	1.2	1.1	1.0				
S0709096-024	07-SP-07	11-28	0.8	0.7	0.6				
S0709096-025	07-SP-07	28-40	0.6	0.2	0.2				
S0709096-026	08-SP-07	0-9	1.3	14.6	14.4				
S0709096-027	08-SP-07	9-17	1.0	2.3	2.2				
S0709096-028	08-SP-07	17-36	0.5	0.4	0.3				
S0709096-029	08-SP-07	36-60	0.9	0.2	0.1				
S0709096-030	09-SP-07	0-6	0.9	1.4	1.3				
S0709096-031	09-SP-07	6-12	0.4	0.4	0.4				
S0709096-032	09-SP-07	12-30	1.0	0.3	0.2				
S0709096-033	09-SP-07	30-60	0.7	0.2	0.1				
S0709096-034	10-SP-07	0-7	1.2	17.6	17.5				
S0709096-035	10-SP-07	7-18	1.0	1.0	0.9				
S0709096-036	10-SP-07	18-40	0.6	0.4	0.3				
S0709096-037	10-SP-07	40-70	3.0	0.4	<0.1				
S0709096-038	11-SP-07	0-5	0.8	2.0	1.9				
S0709096-039	11-SP-07	5-13	1.1	0.6	0.5				
S0709096-040	11-SP-07	13-33	1.0	0.4	0.3				

These results apply only to the samples tested.

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Karen Secor, Soil Lab Supervisor

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Lab ID	Sample ID	Depths Inches	CO3 %	Total Carbon %	TOC %	Total Sulfur %	T.S. AB t/1000t	Neut. Pot. t/1000t	T.S. ABP t/1000t
S0709096-041	11-SP-07	33-55	0.8	0.2	0.1				
S0709096-042	11-SP-07	55-80	1.1	0.1	<0.1				
S0709096-043	12-SP-07	0-6	0.9	1.0	0.9				
S0709096-044	12-SP-07	6-12	1.3	4.1	3.9				
S0709096-045	12-SP-07	12-24	0.6	1.1	1.0				
S0709096-046	12-SP-07	24-36	1.2	1.0	0.8				
S0709096-047	12-SP-07	36-52	0.7	0.9	0.8				
S0709096-048	12-SP-07	52-75	0.9	0.6	0.5				
S0709096-049	13-SP-07	0-8	1.2	11.8	11.6				
S0709096-050	13-SP-07	8-25	1.5	62.9	62.7	0.36	11.4	14.1	2.72
S0709096-051	13-SP-07	25-41	1.0	2.7	2.5				
S0709096-052	13-SP-07	41-70	0.7	0.7	0.6				

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Karen Secor, Soil Lab Supervisor

Sample ID	Begin Depth	End Depth	pH s.u.	Saturation %	Electrical Conductivity dS/m	Calcium meq/L	Magnesium meq/L	Sodium meq/L	Potassium meq/L	SAR
01-SP-07	0	6	7.3	39.8	0.44	2.48	0.89	0.34	0.43	0.26
01-SP-07	6	14	7.4	40.8	0.46	2.92	0.87	0.32	0.28	0.23
01-SP-07	14	24	7.7	50.5	1.15	7.19	1.75	1.42	0.12	0.67
02-SP-07	0	6	6.6	36.0	0.49	1.48	0.64	0.82	1.40	0.79
02-SP-07	6	17	6.8	35.4	0.54	0.84	0.79	1.10	1.32	1.22
02-SP-07	17	32	7.2	33.4	1.91	6.10	2.99	4.37	3.95	2.05
02-SP-07	32	44	7.4	36.0	3.60	15.1	8.52	7.30	5.75	2.12
03-SP-07	0	6	6.5	47.6	0.62	2.05	1.09	1.51	1.31	1.21
03-SP-07	6	18	6.9	38.4	0.66	2.57	1.06	1.47	1.10	1.09
03-SP-07	18	30	7.2	34.7	2.00	8.14	2.53	3.12	2.31	1.35
03-SP-07	30	40	7.6	32.8	3.73	18.4	6.53	6.67	3.23	1.89
04-SP-07	0	6	6.6	47.7	0.26	1.32	0.76	0.74	0.63	0.72
04-SP-07	6	11	6.6	32.8	0.29	1.52	0.61	0.16	0.44	0.15
04-SP-07	11	20	6.7	30.0	0.28	1.41	0.55	0.26	0.41	0.26
04-SP-07	20	40	6.9	33.0	0.28	1.44	0.54	0.33	0.15	0.33
05-SP-07	0	8	6.5	31.5	0.27	1.54	0.49	0.27	0.21	0.27
05-SP-07	8	28	6.7	29.0	0.19	0.66	0.48	0.51	0.19	0.68
05-SP-07	28	60	7.1	29.3	0.24	1.03	0.49	0.55	0.10	0.62
06-SP-07	0	6	7.3	30.6	0.45	3.01	0.87	0.28	0.31	0.20
06-SP-07	6	55	7.4	34.2	1.32	7.04	4.61	1.99	0.29	0.82
06-SP-07	55	80	6.2	32.1	1.53	10.4	5.66	0.34	0.29	0.12
07-SP-07	0	6	6.6	38.4	0.37	1.74	0.67	0.27	0.70	0.24
07-SP-07	6	11	6.5	34.2	0.23	0.98	0.48	0.34	0.36	0.40
07-SP-07	11	28	6.6	29.6	0.23	1.23	0.50	0.24	0.30	0.26
07-SP-07	28	40	7.1	27.9	0.35	2.16	0.72	0.31	0.08	0.26
08-SP-07	0	9	6.5	47.6	0.26	1.21	0.45	0.18	0.55	0.20
08-SP-07	9	17	6.6	37.3	0.30	1.59	0.58	0.25	0.37	0.24
08-SP-07	17	36	6.6	26.2	0.18	0.84	0.35	0.16	0.27	0.21
08-SP-07	36	60	6.7	24.3	0.23	0.91	0.53	0.28	0.25	0.33
09-SP-07	0	6	6.5	38.6	0.30	1.42	0.54	0.16	0.57	0.16
09-SP-07	6	12	6.5	28.8	0.21	1.02	0.40	0.17	0.31	0.20
09-SP-07	12	30	6.5	33.0	0.19	0.91	0.49	0.28	0.15	0.34
09-SP-07	30	60	6.9	34.7	0.17	0.87	0.38	0.27	0.06	0.34
10-SP-07	0	7	6.9	33.4	0.37	2.44	0.76	0.16	0.29	0.13
10-SP-07	7	18	6.6	28.6	0.17	0.96	0.38	0.15	0.15	0.18
10-SP-07	18	40	6.7	30.0	0.15	0.82	0.23	0.18	0.07	0.25
10-SP-07	40	70	7.3	29.0	0.40	2.89	0.56	0.22	0.09	0.17
11-SP-07	0	5	6.8	40.8	0.33	1.74	0.64	0.22	0.68	0.20
11-SP-07	5	13	6.4	31.8	0.34	1.45	0.70	0.34	0.52	0.33
11-SP-07	13	33	6.6	29.4	0.26	1.46	0.55	0.23	0.28	0.23
11-SP-07	33	55	6.8	35.4	0.20	1.11	0.50	0.27	0.13	0.30
11-SP-07	55	80	7.1	37.1	0.33	1.34	0.70	0.64	0.17	0.63
12-SP-07	0	6	7.1	36.3	0.42	2.19	0.77	0.13	0.89	0.11

Sample ID	Begin Depth	End Depth	pH s.u.	Saturation %	Electrical Conductivity dS/m	Calcium meq/L	Magnesium meq/L	Sodium meq/L	Potassium meq/L	SAR
12-SP-07	6	12	7.2	34.7	0.24	0.98	0.42	0.14	0.86	0.17
12-SP-07	12	24	7.2	31.5	0.26	1.22	0.45	0.13	0.70	0.15
12-SP-07	24	36	7.4	33.0	0.32	2.05	0.72	0.17	0.36	0.15
12-SP-07	36	52	7.4	31.0	0.40	2.45	0.75	0.23	0.32	0.18
12-SP-07	52	75	7.8	29.8	0.38	2.20	0.79	0.27	0.30	0.22
13-SP-07	0	8	7.0	35.0	0.45	2.49	0.99	0.22	0.54	0.16
13-SP-07	8	25	6.2	67.9	0.23	1.39	0.46	0.07	0.06	0.07
13-SP-07	25	41	6.8	31.7	0.35	2.46	0.56	0.08	0.20	0.07
13-SP-07	41	70	6.6	25.8	0.40	1.98	0.77	0.19	0.39	0.17

Sample ID	Alkalinity meq/L	Sand %	Silt %	Clay %	Texture	Very Fine Sand %	Boron ppm	TKN %
01-SP-07	1.99	66.0	24.0	10.0	Sandy Loam	14.9		0.30
01-SP-07	1.99	70.0	19.0	11.0	Sandy Loam	17.6		0.46
01-SP-07	2.39	37.0	41.0	22.0	Loam	18.6		0.10
02-SP-07	1.19	47.0	37.0	16.0	Loam	22.6		0.07
02-SP-07	1.79	46.0	36.0	18.0	Loam	25.0		0.02
02-SP-07	1.19	47.0	36.0	17.0	Loam	26.4		0.06
02-SP-07	1.99	40.0	38.0	22.0	Loam	23.5		0.08
03-SP-07	1.99	46.0	35.0	19.0	Loam	25.4		0.06
03-SP-07	2.98	48.0	34.0	18.0	Loam	25.9		0.04
03-SP-07	2.59	42.0	37.0	21.0	Loam	26.8		0.06
03-SP-07	1.69	42.0	37.0	21.0	Loam	24.1		0.01
04-SP-07	1.39	54.0	29.0	17.0	Sandy Loam	23.1		0.14
04-SP-07	1.59	49.0	34.0	17.0	Loam	24.0		0.09
04-SP-07	1.39	50.0	32.0	18.0	Loam	22.4		0.03
04-SP-07	1.49	54.0	25.0	21.0	Sandy Clay Loam	21.9		0.04
05-SP-07	1.29	45.0	33.0	22.0	Loam	23.4		0.05
05-SP-07	0.70	55.0	24.0	21.0	Sandy Clay Loam	26.3		0.03
05-SP-07	1.09	52.0	28.0	20.0	Loam	18.5		0.03
06-SP-07	3.58	48.0	32.0	20.0	Loam	19.4		0.05
06-SP-07	1.99	42.0	33.0	25.0	Loam	12.6	0.79	0.18
06-SP-07	0.50	50.0	30.0	20.0	Loam	21.5		0.01
07-SP-07	2.29	58.0	27.0	15.0	Sandy Loam	20.6		0.04
07-SP-07	1.29	60.0	24.0	16.0	Sandy Loam	25.0		0.04
07-SP-07	1.19	60.0	24.0	16.0	Sandy Loam	18.8		0.03
07-SP-07	2.19	52.0	30.0	18.0	Sandy Loam	17.3		0.03
08-SP-07	1.39	46.0	37.0	17.0	Loam	14.7		0.04
08-SP-07	1.49	44.0	37.0	19.0	Loam	21.9		0.06
08-SP-07	1.09	46.0	37.0	17.0	Loam	18.4		0.02
08-SP-07	0.90	52.0	33.0	15.0	Sandy Loam	21.5		<0.01
09-SP-07	2.09	60.0	26.0	14.0	Sandy Loam	25.1		0.05
09-SP-07	1.19	49.0	32.0	19.0	Loam	22.5		<0.01
09-SP-07	1.00	50.0	29.0	21.0	Loam	26.0		<0.01
09-SP-07	1.19	42.0	44.0	14.0	Loam	23.0		<0.01
10-SP-07	2.79	68.0	21.0	11.0	Sandy Loam	20.6		0.11
10-SP-07	1.00	48.0	33.0	19.0	Loam	22.5		<0.01
10-SP-07	0.80	50.0	29.0	21.0	Loam	23.4		<0.01
10-SP-07	2.59	49.0	33.0	18.0	Loam	21.8		<0.01
11-SP-07	2.59	61.0	23.0	16.0	Sandy Loam	28.3		<0.01
11-SP-07	1.79	52.0	28.0	20.0	Loam	23.5		<0.01
11-SP-07	1.39	57.0	26.0	17.0	Sandy Loam	22.2		0.01
11-SP-07	1.79	46.0	30.0	24.0	Loam	24.2		<0.01
11-SP-07	2.19	40.0	34.0	26.0	Loam	26.1		0.01
12-SP-07	3.18	54.0	30.0	16.0	Sandy Loam	21.5		<0.01

Sample ID	Alkalinity meq/L	Sand %	Silt %	Clay %	Texture	Very Fine Sand %	Boron ppm	TKN %
12-SP-07	1.79	53.0	31.0	16.0	Sandy Loam	22.5		0.01
12-SP-07	1.99	57.0	28.0	15.0	Sandy Loam	27.7		0.05
12-SP-07	1.99	55.0	30.0	15.0	Sandy Loam	23.4		0.03
12-SP-07	2.79	56.0	30.0	14.0	Sandy Loam	29.4		0.03
12-SP-07	2.29	56.0	29.0	15.0	Sandy Loam	26.7		<0.01
13-SP-07	3.28	62.0	22.0	16.0	Sandy Loam	21.2		0.10
13-SP-07	0.50	88.0	6.0	6.0	Sand	20.9	0.77	0.38
13-SP-07	1.69	58.0	29.0	13.0	Sandy Loam	24.6		<0.01
13-SP-07	1.69	66.0	21.0	13.0	Sandy Loam	22.0		<0.01

Sample ID	Phosphorus ppm	Selenium ppm	CO3 %	Total Carbon %	TOC %	Total Sulfur %	T.S. AB t/1000t	Neut. Pot. t/1000t	T.S. ABP t/1000t
01-SP-07	11.9		1.5	43.0	42.8				
01-SP-07	12.7		1.6	43.8	43.6				
01-SP-07	12.6		4.1	5.5	5.0				
02-SP-07	30.7		1.4	2.4	2.3				
02-SP-07	34.3		1.0	1.5	1.4				
02-SP-07	26.8		1.0	1.2	1.0				
02-SP-07	17.5		1.0	1.1	0.9				
03-SP-07	35.6		1.6	6.6	6.4				
03-SP-07	45.2		1.2	8.1	7.9				
03-SP-07	45.2		1.2	2.1	1.9				
03-SP-07	17.6		1.2	1.2	1.1				
04-SP-07	15.1		1.2	3.5	3.3				
04-SP-07	14.2		0.8	1.5	1.4				
04-SP-07	12.0		0.7	0.6	0.5				
04-SP-07	14.3		1.1	0.4	0.2				
05-SP-07	14.3		0.8	0.7	0.6				
05-SP-07	15.3		1.2	0.2	<0.1				
05-SP-07	9.09		0.7	0.2	0.1				
06-SP-07	12.5		2.4	3.7	3.5				
06-SP-07	1.60	<0.02	5.4	22.7	22.2	0.31	9.67	47.4	37.7
06-SP-07	15.7		0.7	1.3	1.2				
07-SP-07	14.6		1.1	2.5	2.4				
07-SP-07	14.6		1.2	1.1	1.0				
07-SP-07	10.7		0.8	0.7	0.6				
07-SP-07	5.62		0.6	0.2	0.2				
08-SP-07	15.7		1.3	14.6	14.4				
08-SP-07	14.2		1.0	2.3	2.2				
08-SP-07	11.8		0.5	0.4	0.3				
08-SP-07	11.0		0.9	0.2	0.1				
09-SP-07	18.6		0.9	1.4	1.3				
09-SP-07	9.72		0.4	0.4	0.4				
09-SP-07	10.7		1.0	0.3	0.2				
09-SP-07	15.9		0.7	0.2	0.1				
10-SP-07	12.9		1.2	17.6	17.5				
10-SP-07	14.9		1.0	1.0	0.9				
10-SP-07	11.0		0.6	0.4	0.3				
10-SP-07	11.8		3.0	0.4	<0.1				
11-SP-07	18.6		0.8	2.0	1.9				
11-SP-07	16.6		1.1	0.6	0.5				
11-SP-07	15.6		1.1	0.4	0.3				
11-SP-07	14.7		0.8	0.2	0.1				
11-SP-07	11.1		1.1	0.1	<0.1				
12-SP-07	18.9		0.9	1.0	0.9				

Sample ID	Phosphorus ppm	Selenium ppm	CO3 %	Total Carbon %	TOC %	Total Sulfur %	T.S. AB t/1000t	Neut. Pot. t/1000t	T.S. ABP t/1000t
12-SP-07	16.7		1.3	4.1	3.9				
~~12-SP-07~~	15.9		0.6	1.1	1.0				
12-SP-07	16.6		1.2	1.0	0.8				
12-SP-07	17.8		0.7	0.9	0.8				
12-SP-07	18.8		0.9	0.6	0.5				
13-SP-07	17.3		1.2	11.8	11.6				
13-SP-07	1.44	<0.02	1.5	62.9	62.7	0.36	11.4	14.1	2.72
13-SP-07	16.7		1.0	2.7	2.5				
13-SP-07	12.7		0.7	0.7	0.6				

APPENDIX 3: Field Pedon Descriptions

D-1.

BC	9-14-06	60°	Soil:	Depth:	Longitude: ° ' "W	10-14-06	Sec.	T.	R.		
e:	mE:	mN:	Topo Quad.:	Site ID:	YR:	State:	County:	Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: / Stop #: Interval:
	0486825	4397806				UTAH	CARBON		KINNEY		

:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
WTAIN	VALLEY				290°	6	SIMPLE	PLANAR - SL. CONCAVE

rofile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
NER.		CONCAVE					

	Flooding:	Ponding:	Soil Moisture Status:	Permeability: MODERATE / Ksat:	Land Cover / Use:
3LE	YES	—	MOIST TO 12"		RABBITBRUSH · ARTRVA

erial:	Bedrock: Kind:	Fract.:	Hard.:	Depth:	Lithostrat. Units: Group:	Formation: Member:
UVIUM, MIXED	MIXED COLLUVIAL + ALLUVIUM					

Kind:	Degree:	Runoff:	Surface Frag %:	GR:	CB:	ST:	BD:	CN:	FL:	Diagnostic Horz. / Prop.:	Kind:	Depth:
OD.		MODERATE	Kind:	20	25	5				—		

l Section:	Ave. Clay %:	Ave. Rock Frag %:	
ge:	22-26	<15%	D-1 COLUMBINE PORTAL WEST.

VEGETATION :

COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

D-1 COLUMBINE PORTAL

SAMPLED 0-6" } RE-CLAIMED/GRADED
6-15 }
A (BURIED) 16-25
25-40
40-65
65-95+

1½ FEET OF RE-CLAIMED SOIL OVER A-C-C

STREAM-LAID DEPOSITS

VERY LITTLE COAL FINES PRESENT BELOW 2FT

PHOTO #15 (P)

D-1

Method	(in)	(cm)			Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp Loc
PIT	0	6	BUR				GRV SL	35 GR 10CB	SG → 1F GR	SO	FR	SO	PO	NONE
"	6	16	BUR				GRV SL	25 GR 10CB	1M SBK → SG	SO	FR	SO/PO		
BACKHOE	16	25	A/B				LOAM	15 GR 3CB	1M-F SBK	SH	FR	SS/PO		NATIVE BURIED SOIL BIGINS
PIT	25	40	C1				GR LOAM	15 GR 5CB	1M-F SBK	HA	FI	SS/PS		
	40	65	C2				GR. LS	20 GR 5CB	LOOSE	SO	VFR	SO PO		
	65	95+	C3				LS	15 GR 10CB	SG	LO	LO	SO PO		

Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
			2VF, 1F,	1M					SHALEY SEDIMENTS ↑ SUBSOIL
			1VF, F						MIXED ↓ + 15% COAL FINES
			1VF, F						<5% COAL FINES
			1VF, F						IN POCKETS 10% COAL FINES
			1VF						& 15% SOFT WEATHERED BEDROCK ERTD

-1

BC | 10-14-06 | CLOUDY | Soil: | Depth: | Longitude: ° ' " W | Datum: 10-14-06 | Location: Sec. T. R. | D-2

Zone:	mE:	mN:	Topo Quad.:	Site ID:	YR:	State:	County:	Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: / Stop #: Interval:
D-12	6806	4397782				UT	CARBON		KINNEY		

scape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
WDL	TOESLOPE				310°	4	SINGLE	COMPLEX

ope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
KNOLL							

age:	Flooding:	Ponding:	Soil Moisture Status:	Permeability: / Ksat:	Land Cover / Use:
WELL	NONE		MOIST TO 12"	MODERATE	LOW SAGEBRUSH

t Material:	Bedrock: Kind:	Fract.:	Hard.:	Depth:	Lithostrat. Units:	Group:	Formation:	Member:
COLLUVIUM	COLLUVIAL LANDSLIDE DEPOSIT							

on: Kind:	Degree:	Runoff:	Surface Frag %:	GR:	CB:	ST:	BD:	CN:	FL:	Diagnostic Horz. / Prop.:	Kind:	Depth:
			Kind:	25	15	5		5		OCHRIC		

ontrol Section: Ave. Clay %: / h Range:	Ave. Rock Frag %:
<20	50-60%

D-2 (EAST)
RE-GRADED PORTAL AREA OF COLUMBINE MINE. SE EDGE PORTAL BAY

VEGETATION :

BOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

D-2 COLUMBINE PORTAL

SAMPLED: 2 0-6
6-24

TOO ROCKY BELOW THIS
TO BE USEFUL TOPSOIL

PHOTO (P) 16

USTORTHENT, LO-SH.

D-2
P-2

Map Unit Symbol: Date:

Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp Loc
↑	0-6	BwR				SBV LiVM	25g 30s 10st	SG	LO	FR	SO	PO	
	6-24	BwR				stv LcVM	20g 35cb 15st	SG	LO	FR	SO	PO	
Backhoe ↓	24-45+	C				stv SL	15g 25g 35st	SG	LO	FR	SO	PO	TOO STONY TO SAMPLE

Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
			VF-F						MIXTURE OF SUBSOIL
			VF-F						COLLUVIUM MIXED BY
			VVF						NO SAMPLED: ROCKS
e-d									

Describer(s):	Date:	Weather: Temp.: Air:	Latitude: ° ' " N	Datum:	Location: D-3
BC	10-16-06	PARTIAL CLOUDS Soil: Depth:	Longitude: ° ' " W		Sec. T. R.

UTM: Zone:	mE:	mN:	Topo Quad.:	Site ID: YR:	State:	County:	Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID:
0	0486886	4398188			UT	CARBON	D-3	KANEY		Stop #: Interval:

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN.	SIDESLOPE			2359 M	320°	16		COMPLEX

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
LOWER							

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability:	Land Cover / Use:
WELL			MOIST 10-16"	MOD Ksat:	RABBITBRUSH - GRASSES

Parent Material:	Bedrock: Kind:	Fract.:	Hard.:	Depth:	Lithostrat. Units: Group:	Formation:	Member:
MIXED COLLUVIUM W/ MINE WASTE MATERIALS							

Erosion: Kind:	Degree:	Runoff:	Surface Frag %: Kind:	GR:	CB:	ST:	BD:	CN:	FL: (CAL)	Diagnostic Horz. / Prop.:	Kind:	Depth:
SHEET				5	3	2	2	4	TR			

P.S. Control Section:	Ave. Clay %:	Ave. Rock Frag %:	D-3 CRUSHA - SORTING AREA
Depth Range:	<35	26%	WITH SOME COAL IN PEDON, DISCONTINUOUS

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-10"

10-20" MIXED COAL < 1%

20-40" MINE WASTE MATERIAL FROM MINE MOUTH

40-70"

60-75" LENSES

30% OF 10 FEET LONG EXCAVATION WAS COAL FINES + CHUNKS THOUGH I SAMPLED AROUND THESE LENSES

LOOKS LIKE RECLAIMED SUBSOIL -> TOPSOIL

TOPSOIL TO 20" THEN SUBSOIL MIX / COLLUVIUM / COAL ON SOIL TRENCH FILE, MORE COAL IN UPPER 20" THAN LOWER 40"

D-3
P-2

Component Name: Map Unit Symbol: Date:

	Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp
1		0-10	A DLSt					10gr 5CB 5st	1M-FSBK→MGR	SH	FR	SS	PO	
2	↑	10-20	Bt DLSt				GR LMSA	15gr 5st 10CB	2M-FSBK	SH	SH	SS	PS	
3		20-40	Bt2 DLSt				CB CL	10GR 3st 15CB	2M-CSBK	VH	VFI	S	P	
4	Pit	40-60	C1				CBV CL	20CB 15GR 10st	3M-CSBK	VH	VFI	S	P	
5	Bucket of	60-75+	C2				CBV CL	15gr 20CB 10st	MASSIVE	EH	EF	S	P	
6														
7														
8														
9														
10														

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				2VF 1F						25% COAL
2				2VF 1F						15% COAL CLINKER
3				1VF						12% COAL PIECES
4				1VF						10% ON FACE CHANNELS
5										>10% ON FACE
6										
7										
8										
9	E-D									

Describer(s):	Date:	Weather: Temp.: Air:	Latitude: ° ' " N Datum:	Location: D-4
BC	10-15-06	SUN Soil: Depth:	Longitude: ° ' " W	Sec. T. R.

UTM: Zone: mE: mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID:
WP 20 0486840 4398189		UTAH CARBON D-4			Stop #: Interval:

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
TOESLOPE				2358M	270°	22		

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability:	Land Cover / Use:
WELL-SPD			MOIST TO 16"	MOD SLOW Ksat:	ARTRW RABBITBRUSH/

Parent Material:	Bedrock: Kind:	Fract.:	Hard.:	Depth:	Lithostrat. Units: Group:	Formation:	Member:
WASTE MATERIAL	NONE						

Erosion: Kind:	Degree:	Runoff:	Surface Frag %:	GR:	CB:	ST:	BD:	CN:	FL: COA	Diagnostic Horz. / Prop.:	Kind:	Depth:
SLIGHT-MOD	RILLS ON SLOPES > 40%		Kind:	15	15	5	5	3	6	NONE		

P.S. Control Section: Ave. Clay %: Ave. Rock Frag %:	
Depth Range: >35%	D-4 50 FEET FROM SR-92 AT LEAST 12 FEET BURED COAL AT THIS SITE

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

0-8" SAMPLED SUBSOILS (RECLAIMED ON TOP COAL DUMP SITE)
8-16" 2 "

D-4
P-2

Map Unit Symbol: Date:

	Obser. Method	Depth (in)	Depth (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp
1		0	0-8	DIS SUBSOIL				CB CL	15 GR 5CB	MASSIVE St		SH FI	S	P	15% COAL
2			8-16												
		12.47		COAL	WASTE				10GR 10CB						75% "
3		47-85		COAL	WASTE				15GR 15CB						90% "
4		85-144		COAL	WASTE (MOIST)				10GR 2CB						95% "
5															
6															
7															
8															
9															
10															

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1										
2										
3										
4										
5										
6										
7										
8										
9	H-9									
10										

Describer(s):	Date:	Weather: Temp.: Air:	Latitude: ° ' " N	Datum:	Location:
BC	10-15-06	51 Soil: Depth:	Longitude: ° ' " W		Sec. T. R. D-5

UTM: Zone: mE: mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: Stop #: Interval:
0486845 4398123		UTAH CARBON D-5	KINNEY		

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN.	SIDESLOPE			2370M	293	21	COMPLEX	CONCAVE / [illegible]

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
LOWER							

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability: MOD Ksat:	Land Cover / Use:
MOD WELL					RANGELAND TENT

Parent Material:	Bedrock: Kind: Fract.: Hard.: Depth:	Lithostrat. Units: Group: Formation: Member:
COLLUVIUM	NONE TO 6 FEET	

Erosion: Kind: Degree:	Runoff:	Surface Frag %: GR: CB: ST: BD: CN: FL: Kind:	Diagnostic Horz. / Prop.: Kind: Depth:
NONE		10 5 5 3 2	

P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range:	
>35 >35%	D-5 DUMP DISTURBANCE NO MATRIX SOIL TO 5 FEET MIDDLE OF COAL WASTE ROCK DISTURBANCE SLOPES

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

DISTURBED: 0-6"

TURNOVER: 6-20"

LOOSE MATERIAL

20-40 DENSE, GRAVEL

40-60L [illegible]

M [illegible] ASPEN GROVE

PHOTOS LANDSCAPE 23

PIT 24

D-5
P-2

Map Unit Symbol: Date:

	Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp
1	BACKHOE PIT	0-6	DISTURBED		1		GRV CL	30gr 5CB 5st	2M-C SBK	VH	FI	S	P	NONE
2		6-20	D2				GRV CL	35gr 15GR 10st	2M-C SBK	VH	VFI	S	P	
3		20-40	D3				CBX CL	25gr 25CB 10st	3-C SBK	VH	VFI	VS	VP	
4		40-68+	D4				CBX CL	15gr 30CB 15st	MASSIVE	VH	EFI	VS	VP	
5														
6														
7														
8														
9														
10														

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				2VF 1F						MIXED MINE DUMP FILL MATERIAL!
2				2VF 1F						SILTSTONE, WEATHERED SANDSTONE FRAGMENTS
3				1VF						10-15% COBBLES
4				—						15% COBBLES
5										
6										
7										
8										
9	S-D									
10										

ber(s):	Date:	Weather: Temp.: Air:	Latitude: ° ' " N	Datum:	Location: D-6
BC	10-14-06	CLOUDY 52° Soil: Depth:	Longitude: ° ' " W		Sec. T. R.

Zone: mE: mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: Stop #: Interval:
0486825 4398031		UT CARBON	KANEY		

cape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN:	SIDESLOPE				260°	30	COMPLEX	RIDGED AREA

pe Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
LOWER							

ge:	Flooding:	Ponding:	Soil Moisture Status:	Permeability: MODERATE	Land Cover / Use:
WELL			MOIST	Ksat:	RANGELAND

Material:	Bedrock: Kind: Fract.: Hard.: Depth:	Lithostrat. Units: Group: Formation: Member:
COLLUVIUM W/ COAL EFFECT		

n: Kind: / Degree:	Runoff:	Surface Frag %: GR: CB: ST: BD: CN: FL:	Diagnostic Horz. / Prop.: Kind: Depth:
SLIGHT / SHEET		Kind: 10 12 3 4 2	ORTHRIC

ontrol Section: Ave. Clay %: Ave. Rock Frag %:	
h Range:	D-6 CRUSHING / SCREENING

VEGETATION :

BOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED BELOW COAL AND 6" ABOVE
COAL-AFFECTED LAYER CONTAINS SILTSTONE FRAGMENTS
AND VARIES FROM 10-20 INCHES ACROSS TRANSECTS
SAMPLES 0-7" SAMPLE

PLOW #17 7.24 X NOT
PETAX
24-43" SAMPLE

48-72" SAMPLE

- EXTREMELY STONY SUBSOIL AFFECTED BY RECLAMATION TO 10 FT
FROM PREVIOUS MINING

D-6
P-2

Map Unit Symbol: Date:

	Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp Loc
1		0-6	A				CB CL	10g 10cB 5St	2M-F SBk	SH	FR	SS	PS	
2		6-24	C dominated		COAL		stv	15g 20c 15St	MASSIVE	—	—	—	—	
3	NO PIT	24-48	C2				stx CL	20g 20c 15St	2M-F NBk	VH	VFI	S	P	
4		48-72	C3				stx CL	25gr 20cB 10St	2F ABk	EH	EFI	S	P	
5	BACKHOE													
6														
7														
8														
9														
0														

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				1VF, 1F						SHALE FRAGMENT, SOME ORGANICS,
2				1VF						75% COAL FINES NOT SAMPLED
3				1VF						<15% COAL TOO STONY
4				1F 1M						<15% COAL
5										
6										
7										
8										
9	9-0									

Zone:	mE:	mN:	Topo Quad.:	Site ID:	YR:	State:	County:	Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID:	Stop #:	Interval:
04	486843	4398018				UTAH	CARBON				D-7		

Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
SIDESLOPE			2375M	280°	28	COMPLEX	CONCAVE

Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
LOWER							

Flooding:	Ponding:	Soil Moisture Status:	Permeability:	Land Cover / Use:
NONE		MOIST TO 14"	MODERATE	RABBITBRUSH / GRASS

Material:	Bedrock: Kind:	Fract.:	Hard.:	Depth:	Lithostrat. Units: Group:	Formation:	Member:
COLLUVIUM							

Kind:	Degree:	Runoff:	Surface Frag %: Kind:	GR:	CB:	ST:	BD:	CN:	FL:	Diagnostic Horz. / Prop.:	Kind:	Depth:
SLIGHT				10	5	5		3		✓		

Control Section: Ave. Clay %:	Ave. Rock Frag %:	
Range: > 30%	45%	D-7 CONCHA - SORTING DATA

VEGETATION :

DL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLE DEPTHS 0-6"

6-24"

ALL DISTURBED

24-42"

42-58"

BURIED SOIL ↓ 58-75"

B HORIZON

TEXTURALLY CLAYEY UPPER 2 FEET

MOLE STRUCTURE 41-60"

PHOTO # 19 (P)

D-7
P-2

Component Name: | Map Unit Symbol: | Date:

Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp Loc
	0-6.	D1				CB CLAY	10gr 10CB SSt	2M-F SBK	SH	FR	S	P	NONE
	6-20	D2				CBV CL	15gr 3CB 3St	2c-M SBK	SH	FI	VS	VP	
BOTTOM	20-42	D3				CBV CL	25gr 20CB 5St	2F-M SBK	WA	FI	S	PS	
	42-58	D4				CBV CL	2M-F SBK	1VF 5St 25CB	VH	EFI	S	P	
BEDROCK	58-75+	B6				CB LOM	MASSIVE	15CB 3gr MASSIVE	VH	VFI	SS	PS	

Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
			1VF 1F					MIX-	CARBONATE MINERALS IN W/ SOME CONCRETIONS
			1VF 1F						DISCRETE ↑
			1VF						↓ <10% COAL
			1VF-F						10% COAL + 15% WEATHERED SEDIMENTARY RX
			1VF						BUILDER B
L-O									

D-8

USDA-NRCS PEDON DESCRIPTION

Pedon ID # : | Draft | Mar-02

Series or Component Name:	Map Unit Symbol:	Photo #:	Classification:	Soil Moist. Regime (Tax.):
				USTIC

Describer(s):	Date:	Weather: Temp.: Air:	Latitude: ° ' " N Datum:	Location:
BC	10-15-06	45° CLEAR	Longitude: ° ' " W	Sec. T. R.
		Soil: Depth:		

UTM: Zone: mE: mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: Stop #: Interval:
0486872 4348013		UTAH CARBON D-8			

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN.	SIDESLOPE			2382M	260°	43	COMPLEX	CONCAVE

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
LOWER							

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability:	Land Cover / Use:
WELL			MOIST TO 13"	MODERATE Ksat:	ASPEN - SYM DRF GRS

Parent Material:	Bedrock: Kind: Fract.: Hard.: Depth:	Lithostrat. Units: Group: Formation: Member:
COLLUVIUM	[illegible] FM	

Erosion: Kind:	Degree:	Runoff:	Surface Frag %: GR:	CB:	ST:	BD:	CN:	FL:	Diagnostic Horz. / Prop.: Kind:	Depth:
SLUMP	SLIGHT		Kind: 5	3	3	2	2		MOLLIC ALBIC	0-13 13-48"

P.S. Control Section:	Ave. Clay %:	Ave. Rock Frag %:	D-8
Depth Range:	30-35%	<35%	

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-6

6-13

13-26"

26-48

48+ TOO STONY NOT SAMPLED

O; 1/2-0 DISCONTINUOUS LEAF LITTER

PONDS (P) 20-21

Component Name: | Map Unit Symbol: | Date: D-8 p-2

	Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp
1		0 - 6	A				LOAM	5gr 3CB 3st	1F GR	SO	VFR	NS	NP	NONE
2		6 - 13	BA				CB LOAM	5gr 2CB 5st	1F-M GR	SO	VFR	NS	NP	
3	BA (SAMPLE PIT)	13 - 26	Bt				CB CL	10gr 10CB 5st	1F-M SBK	HA	FI	SS	SP	
4		26 - 48	Bt2				STV CL	15CB 15st 5gr	2M SBK	HA	VFI	SS	SP	
5		48 - 78 +	C				STX LOAM	25 st 15CB 15 gr	MASSIVE	VH	VFI	SS	PS	
6														
7														
8														
9														
10														

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				2VF 1F 2M						
2				2VF, 1F 1M						
3				1VF-F 1M						
4				1F						
5				1VF						NOT SAMPLED FOR LAB WEST
6										
7										
8										
9										
10	8-D									

D-9A

USDA-NRCS **PEDON DESCRIPTION** Pedon ID # : *Draft* Mar-0

Series or Component Name:	Map Unit Symbol:	Photo #:	Classification:	Soil Moist. Regime (Tax.):

Describer(s):	Date:	Weather: Temp.: Air:	Soil: Depth:	Latitude: ° ' " N Datum:	Location:
BC	10-15-06	CLEAR 56°		Longitude: ° ' " W	Sec. T. R.

UTM: Zone: mE: mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: Stop #: Interval:
0486867 4398243		UT LOGAN D-9A			

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN	LOWER			2367M	270°	19	SINGLE	PLANAR → SL. CONCAVE

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability: Ksat:	Land Cover / Use:
MODERATE				MOD	

Parent Material:	Bedrock: Kind: Fract.: Hard.: Depth:	Lithostrat. Units: Group: Formation: Member:
WASTE DUMP	NONE	

Erosion: Kind: Degree:	Runoff:	Surface Frag %: GR: CB: ST: BD: CN: FL: Kind:	Diagnostic Horz. / Prop.: Kind: Depth:
			DISTURBED NEAR DUD RR T

P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range:	
15-30% SFC	D-9A DISTURBED DUMP SITE COVERED BY 15" SLD WASTE ROCK & SOIL MIX

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

COAL DUMP 0-16 OVERBURDEN
6-15
15-80 COAL NOT SAMPLED
BURIED NATIVE SOIL BEGN W/ FEW CMS FWG
SAMPLED 0-6 6-16
— COAL —
80-95"
95-115
115-140+
PHOTOS 23-24 + END OF ROLL 1

D-9A
P-2

Component Name:

	Obser. Method	Depth (in)	Depth (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp
1	BACKHOE PIT	0	6	DISTURBED				GRV CL	15GR 5CB	1M F SBK					
2		6	15	DIST 2				CL	25GR 10CB	2M SBK					
3		15	80	COAL				COAL	FINE+	LAMINATED MASSIVE					
4	AUGER	80	95	Ab				LOAM	15GR 10COAL	1M-F GR					
5	AUGER	95	115	Btb				LT	5GR 5COAL	2M-F SBK					
6	AUGER	115	140	BtCb				LOAM	15GR 5CB	2M SBK					
7															
8															
9															
10															

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				2VF 1F						MIXED SUBSOIL & MATERIAL
2				1VF, 1F						
3				/						COAL BURIED
4				/						NATIVE B
5				/						NAT
6										
7										
8										
9										
10	Vb-D									

D-9B

USDA-NRCS **PEDON DESCRIPTION** Pedon ID # : Draft Mar-02

Series or Component Name:	Map Unit Symbol:	Photo #:	Classification:	Soil Moist. Regime (Tax.):

Describer(s):	Date:	Weather: Temp.: Air: Soil: Depth:	Latitude: ° ' " N Datum: Longitude: ° ' " W	Location: Sec. T. R.
BC	10-15-06			

UTM: Zone: mE: mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: Stop #: Interval:
		D-9B			

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN.	SIDESLOPE				300	22"		COMPLEX

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
LOWER							

Drainage: MOD. WELL	Flooding:	Ponding:	Soil Moisture Status:	Permeability: Ksat:	Land Cover / Use:
					RABITBRUSH

Parent Material:	Bedrock: Kind:	Fract.:	Hard.:	Depth:	Lithostrat. Units: Group:	Formation:	Member:
COLLUVIUM / WASTE ROCK	COAL DUMP						

Erosion: Kind: Degree:	Runoff:	Surface Frag %: GR: CB: ST: BD: CN: FL: Kind:	Diagnostic Horz. / Prop.: Kind: Depth:

P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range:	D9-B

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

DISTURBED DUMP AREA

SAMPLED 3 0-6 } SUBSOIL REPLACED DISTURBED
6-11 }
52-80" } BURIED NATIVE SOIL
80-102" }

D-9B
P-2

Component Name:					Map Unit Symbol:				Date:

	Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Mst	Stk	Pls	Mottles % Sz Cont. Col Mst Shp
1		0-11	MIXED SUBSOIL OVER WASTE MATERIAL				GRV CL	10GR 10CB 3St						
2	PIT	11-29	COAL 50-75% FINES W SUBSOIL					1SGr 10CB						
3	PIT	29-52	COAL NA W/	95% SUBSOIL				TR GR.						
4	AUGER	52-80	Bb				LOAM	/						
5	AUGER	80-95	Bb				GR L	15 9 10CB						
6	AUGER													
7														
8														
9														
10														

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				2VF 1F						
2				2VF 1F						
3				3VF						NOT SAMPLED
4				/						
5				/						AUGER REJECTED
6				OF						
7										
8										
9										
10	8b-9									

D-10

USDA-NRCS PEDON DESCRIPTION

Pedon ID # : | Draft | Mar-02

Series or Component Name:	Map Unit Symbol: D-10	Photo #:	Classification:	Soil Moist. Regime (Tax.):

Describer(s):	Date:	Weather: Temp.: Air: SUNNY	Latitude: ° ' " N Datum:	Location:
BC	10-15-06	60° Soil: Depth:	Longitude: ° ' " W	Sec. T. R.

UTM: Zone: mE: mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID:
04869[illegible] 4398[illegible]		UT CARBON D-10	KINNEY		Stop #: Interval:

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN	SIDESLOPE			2380M	300°	[illegible]		

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability: Ksat:	Land Cover / Use:
					ASPEN - SAGEBRUSH

Parent Material:	Bedrock: Kind:	Fract.:	Hard.:	Depth:	Lithostrat. Units: Group: Formation: Member:
COLLUVIUM FROM MIXED SEDIMENTARY					

Erosion: Kind: Degree:	Runoff:	Surface Frag %: GR: CB: ST: BD: CN: FL: Kind:	Diagnostic Horz. / Prop.: Kind: Depth:
NONE			

P.S. Control Section: Ave. Clay %: Ave. Rock Frag %:
Depth Range: >35%

D-10 SLOPE CUT BACK BY OLD MINEWORKS

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 05"

5-11"

ALL MIXED COMPOSITES OF COLLUVIAL SUBSOILS 11-23 } MIXED COLLUVIAL MAT

23-35 }

35-60 NOT SAMPLED TOO STONY

D-10
P-2

Component Name:				Map Unit Symbol:									Date:
Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Mst	Stk	Pls	Mottles % Sz Cont. Col Mst Shp
1	0 - 5	A				LVFSL	5gr 3CB	2M-F GR	SO	FR	SO	PO	
2	5 - 11	Bt1				CL		2M-F SBK	SH	FI	SS	PS	
3	11-23	Bt2				CL		2M-F SBK	HRD	FI	S	P	
4	23-45	Bt3				CLAY LOAM		2M-F SBK	HD	VFI	VS	VP	
5	45-65+	C						MASSIVE	VH	VFI	VS	VP	
6													
7													
8													
9													
10													

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				1VF 2F 1M,1C						SOIL SFC FROM AGRICULTURED MVC
2				1VF 1F 1M-C						W/10% CLAY FLAKES
3				1VF-F 1M						OLD COLLUVIAL
4				1F						
5										
6										
7										
8										
9										
10	01-C									

riber(s): BC	Date: 10-16-06	Weather: Temp.: 47°	Air: SUNNY Soil: Depth:	Latitude: ° ' " N Datum: Longitude: ° ' " W				Location: Sec. T. R. D-11	
Zone: 21 mE: 0486825 mN: 4398831	Topo Quad.:	Site ID: YR: State: UTAH	County: CARBON	Pedon #: D-11	Soil Survey Area: KANEY	MLRA / LRU:	Transect: ID: Stop #: Interval:		
scape: TOE SLOPE	Landform: MTN	Microfeature:	Anthro:	Elevation: 2349M	Aspect: 290°	Slope (%): 11%	Slope Complexity: COMPLEX	Slope Shape: (Up & Dn / Across) CONCAVE	
ope Profile Position: LOWER	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:		
age: SRO	Flooding:	Ponding: YES	Soil Moisture Status: WET	Permeability: MSLOW Ksat:	Land Cover / Use: RABBITBRUSH				
nt Material: COLLUVIUM / WASTE SUBSOIL / COAL	Bedrock: Kind: Fract.: Hard.: Depth:	Lithostrat. Units: Group: Formation: Member:							
on: Kind: Degree:	Runoff:	Surface Frag %: GR: CB: ST: BD: CN: FL: COAL Kind:	Diagnostic Horz. / Prop.: Kind: Depth:						
Control Section: Ave. Clay %: >35% Ave. Rock Frag %: >45% Below 60" th Range:	D-B 11 MAY BE OUTSIDE LEASED LINE TO WEST SLIGHTLY WET AT BASE OF SLOPE 70" TO WATER TABLE								

VEGETATION :

IBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-12"

COAL 12-62 NOT SAMPLED

62-80" SAMPLED THROUGH KIND OF STONY >35%

80+ NOT SAMPLED AUGERED 20 INTO POOL

70" WATER STANDING IN PIT

20 FT FROM OLD RR TRAILS THIS MAY LIE JUST BEYOND LEASE AREA TO WEST

D-11
P-2

Component Name:				Map Unit Symbol:										Date:
Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp Loc	
1 ↑	0 - 12	SUBSOIL RECLAIMED				GRV CL	15GR 3SB 10CB						3%	
2 PIT EXCAVATE	12-62	C/UBL	W/	SOME SUBSOIL MIXED			15GR						90%	
3 ↓	62-80	C NATIVE SOIL				GRV CLAY	30GR15CB10ST	MA					25% CLAY	
4 SOME MOISTURE	80-90+					CHAY CLAY	40GR25CB	MASSIVE						
5														
6														
7														
8														
9														
10														

Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1			2VF 1F						
2			1VF 1F						
3									
4									BELOW WATER
5									
6									
7									
8									
9	11-D								

D-12

SDA-NRCS

PEDON DESCRIPTION

Pedon ID # :

Draft

Mar-02

s or Component Name:	Map Unit Symbol:	Photo #:	Classification: PACHIC ARGIXEROLL, FINE-LOAMY		Soil Moist. Regime (Tax.): USTIC
riber(s): BC	Date: 10-15-06	Weather: RAIN Temp.: Air: 50° Soil: Depth:	Latitude: ° ' " N Datum: Longitude: ° ' " W		Location: Sec. T. R.
Zone: 12	mE: 0486774	mN: 4397969	Topo Quad.:	Site ID: YR: State: County: Pedon #: UTAH CARBON D-12	Soil Survey Area: KINNEY
MLRA / LRU:	Transect: ID: Stop #: Interval:				

lscape: MOUNTAIN	Landform: SIDESLOPE	Microfeature:	Anthro:	Elevation: 2370M	Aspect: 330°	Slope (%): 22	Slope Complexity: SINGLE	Slope Shape: (Up & Dn / Across) CONCAVE
lope Profile Position: TOESLOPE	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:	

nage: WELL	Flooding:	Ponding:	Soil Moisture Status: MOIST TO 16"	Permeability: MODERATE Ksat:	Land Cover / Use: ASPEN W/ SNOWBERRY SAGEBRUSH
nt Material: MIXED SEDIMENTARY COLLUVIUM	Bedrock: SEDIMENTARY ROCKS	Kind:	Fract.:	Hard.:	Depth:
Lithostrat. Units:	Group:	Formation:	Member:		

ion: Kind:	Degree:	Runoff:	Surface Frag %:	GR:	CB:	ST:	BD:	CN:	FL:	Diagnostic Horz. / Prop.: PACHIC ARGILLIC	Kind:	Depth:
			Kind:									

Control Section: Ave. Clay %: <35% Ave. Rock Frag %: <35%

oth Range:

CRUSHING - SAMPLING (SHOOTING GALLERY)

VEGETATION :

MBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

DEEP ROCK FREE TOESLOPE TO 7½ FT

0-6 COAL NOT AFFECTING THE SURFACE USE

6-14

14-28

28-48

48-66

D-12
p-2

	Component Name:				Map Unit Symbol:								Date:			
	Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp
1	↑	0-6	A_1				GR SL	3GR	2M-F GR	SO	VFR	SO	PO	
2	↑	6-14	A_2				GR LSM	8GR	2 MGR ↵ 2M-F SBK	SO	FR	SO	PO	
3	INT	14-28	BAT				GR CL-	14GR 5CB	3F-M NBK	VH	VF	SS	PS	
4	↓	28-48	B&2				STK CL	25GR 15CB 15ST	3C-M NBK	EH	EF	VS	VP	
5	↓	48-66+	B&3/C				CBK CL	35GR 20 CB 10ST	MASSIVE	EH	EF	VS	VP	
6														
7														
8														
9														
10														

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				3VF 1C 2F 2M						1/2-0" LEAF DISCOL. LITTER
2				3VF 2F 1M-C						
3				2VF 1F						
4				1VF						SOME WEATHER SILT AND SS FRAGMENTS
5				VIVF						WEATHERING CHUNKS OF SANDSTONE
6										
7										
8										
9										
10	C1-C									

1A-2

SDA-NRCS

PEDON DESCRIPTION

Pedon ID # :

Draft

Mar-02

s or Component Name:	Map Unit Symbol:	Photo #:	Classification:	Soil Moist. Regime (Tax.):

riber(s):	Date:	Weather:	Temp.: Air:	Latitude: ° ' " N	Datum:	Location:
BL	10-15-06		52° Soil: Depth:	Longitude: ° ' " W		Sec. T. R.

Zone:	mE:	mN:	Topo Quad.:	Site ID: YR: State:	County:	Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID:
	0486932	4398464		UTAH	CARBON	1A-2	KINNEY		Stop #: Interval:

scape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN	SIDESLOPE			2380M	320°	30%	COMPLEX	CONVEX

ope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
LOWER							

iage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability:	Land Cover / Use:
WELL			MOIST TO 20"	MODERATE Ksat:	ASPEN - Artva,

nt Material:	Bedrock: Kind:	Fract.:	Hard.:	Depth:	Lithostrat. Units: Group:	Formation:	Member:
COLLUVIUM							RABBITHOLE

ion: Kind:	Degree:	Runoff:	Surface Frag %: GR:	CB:	ST:	BD:	CN:	FL:	Diagnostic Horz. / Prop.:	Kind:	Depth:
			Kind: 5	2			2		MOLLIC		

Control Section: Ave. Clay %:	Ave. Rock Frag %:	
th Range: <35%	>35%	1A-2 LOWER TOESLOPE WITH 12-15" COAL ON SFC AND ½" LEAF LITTER

VEGETATION :

MBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

COAL FINE 0-15" NOT SAMPLED

1S-3S BURIED A

25-40"

40-60

60-75

75-90"

1A-2
P-2

Component Name: | **Map Unit Symbol:** | **Date:**

	Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp Loc
1		0-15	DUMPED COAL		FINES +	CINDERS		5GR 5CH	LOOSE					
2		15-25	Ab				LOAM	3gr 5cb	2F-MGR	SO	FR	SO	PO	
3	BACKHOE PIT	25-40	Bt				LOAM	5gr 5cb	2M-C SBK	SO	FR	SO	PO	
4		40-60	BC				LOAM	5gr 5cb 3ch	MASSIVE	SH	FI	SS	PS	
5		60-75"	C1				GR SL	10GR 10cb 5ch	MASSIVE	SH	FI	SO	PO	
6		75-90"	C2				GR SL	15gr 15cb	MASSIVE	HA	FI	SO	PO	
7														
8														
9														
0														

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				2VF 1F 1M 1C						COAL MIXED WITH LEAF LITTER
2				3F 2M 2C 2VF						BEGINS NATURAL MOLLIC PROFILE
3				1F, 1M						
4				1F, M						
5				1VF 1F	1F					
6										
7										
8										
9										
0	2-71									

2A-1

USDA-NRCS PEDON DESCRIPTION

Pedon ID #: | Draft | Mar-02

Series or Component Name:	Map Unit Symbol:	Photo #:	Classification:	Soil Moist. Regime (Tax.):
	2A-1		ARGIUSTOLL, FINE-LOAMY	USTIC

Describer(s):	Date:	Weather: Temp.: Air: CLOUDY	Latitude: ° ' " N Datum:	Location:
BC	10-14-06	60° Soil: Depth: 6½	Longitude: ° ' " W	Sec. T. R.

UTM: Zone: mE: mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: Stop #: Interval:
0486811 4397900		UTAH CARBON			

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN.	TOESLOPE			2372 M	270°	27	SIMPLE	CONCAVE

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
LOWER							

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability: Ksat:	Land Cover / Use:
WELL			MOIST TO 10"		GRASS + SAGEBRUSH

Parent Material:	Bedrock: Kind: Fract.: Hard.: Depth:	Lithostrat. Units: Group: Formation: Member:
COLLUVIUM	BLACKHAWK FM /	

Erosion: Kind: Degree:	Runoff:	Surface Frag %: Kind: GR: CB: ST: BD: CN: FL:	Diagnostic Horz. / Prop.: Kind: Depth:
NONE	MODERATE	12 2 3 2 10	MOLLIC ARGILLIC

P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range:	
25-30%	2A-1 TRANSFER

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 5 INCREMENTS 0-10"
10-24"
24-44"
44-65"
65-90 INCHES

BACKHOE PIT!
6½ FEET PHOTO (P) #15

SOIL MIXING FROM LANDSLIDE MOVEMENT.
MASS WASTING BELOW 44"
HORIZONS INDISTINCT BELOW THIS ↑ DEPTH

IN SITU
WEATHERING OF SS + SHALE IN LOWER 2 HORIZONS

2A-1
P-2

Component Name: | **Map Unit Symbol:** | **Date:**

	Obser. Method	Depth (in)	Depth (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp
1	PIT	0	10	A					10GR 5CB	1M-FGR					
2	"	10	24	AB					15GR 5CB	2M-FSBK					
3	"	24	44	Bt					15gr 15CB 5St	3M-FSBK					
4	"	44	65	Bt/C					20GR 15gr 10St 5BY	MA					
5	"	65	80+	C					20GR 10CB 15St 5BY	MASSIVE					
6															
7															
8															
9															
10															

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				3VF 1F						
2				2VF, 1F						
3				1VF 1F						
4				VVF						
5				1F						
6										
7										
8										
9										
10	1-VC									

Describer(s):	Date:	Weather: Temp.: Air:	Latitude: ° ' " N Datum:	Location: 2A-2
BC	10-14-06	CLOUDY Soil: Depth:	Longitude: ° ' " W	Sec. T. R.

UTM: Zone: mE: mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: Stop #: Interval:
0486835 4397839		UTAH 2A-2	KINNEY		

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MOUNTAIN	SIDESLOPE					24	SINGLE	PLANAR → SL. CONCAVE

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
MIDDLE → LOWER							

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability:	Land Cover / Use:
MODERATE			MOIST TO 1.5"	MOD Ksat:	GRASS + SAGEBRUSH

Parent Material:	Bedrock: Kind: Fract.: Hard.: Depth:	Lithostrat. Units: Group: Formation: Member:
COLLUVIUM FROM SANDSTONE		

Erosion: Kind: Degree:	Runoff:	Surface Frag %: GR: CB: ST: BD: CN: FL: Kind:	Diagnostic Horz. / Prop.: Kind: Depth:
NONE		15 5 3 4	MOLLIC

P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range:	
25-30%	2A-2 TRANSFER

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

BACKHOE PIT / TRANSMISSION LINE RT
5½ FT DEEP

SAMPLED 0-5 2A-2
5-14
14-25 <25% SLOPE
25-38
38+ NO SAMPLE

PHOTO # 17 (P)

2A-2
P-2

Map Unit Symbol: Date:

	Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp
1		0-5	A1				LOAM	5 gr 5 cb	2M. GR	SO	VFR	SO	PO	
2		5-14	A2				GR L	10 gr 5 cb	2M. F GR	SO	FR	SO	PO	
3		14-25	BN				GR LOAM	10 gr 10 cb 5 st	2 M SBK	HA	VFI	SS	PS	
4		25-38	B/C				GRV LOAM	20 gr 10 cb 5 st 5 ch	2 F-M ABK	HO	VFI	S	PS	NO
5		38-60+	C2				STX CL	20 gr 10 cb 25 st 10 ch	MASSIVE	VH	VFI	SS	PS	
6														
7														
8														
9														
10														

BACKHOE PIT

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				3F. 2F. 1M						
2				2VF. 2F. 1M						
3				1VF						MIXED COLLUVIUM & WEATHERING SEDIMEN
4				/						PIECES of ROC
5				1VF						
6										
7										
8										
9	C-VC									

Zone:	mE:	mN:	Topo Quad.:	Site ID: YR: State: County: Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID: 2A-3 Stop #: Interval:
0486976	4398624		10-15-06	2A-3	KINNEY		

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN	SIDESLOPE			2384M	300°	27%	SINGLE	CONCAVE

Slope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
MIDDLE							

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability: / Ksat:	Land Cover / Use:
WELL			MOIST TO 13"	MODERATE	

Parent Material:	Bedrock: Kind: Fract.: Hard.: Depth:	Lithostrat. Units: Group: Formation: Member:
COLLUVIUM FROM SANDSTONE + SILTSTONE		

Erosion: Kind: Degree:	Runoff:	Surface Frag %: GR: CB: ST: BD: CN: FL: / Kind:	Diagnostic Horz. / Prop.: Kind: Depth:
MASS WASTING / SLUMPING		10 5 2 2 2	MOLLIC

Control Section: Ave. Clay %: Ave. Rock Frag %: / Depth Range:	
	2A-3 NATIVE SOIL DEEPER A HORIZON UNDER SAGEBRUSH HUMMOCKS UP TO 10-16" DEPTH

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-9"

9-19

19-36

36-52

52-70" NOT SAMPLED STONE LINE

MIXED COLLUVIUM

	Method	(in) (cm)			Dry	Moist		Knd % Rnd Sz	Grade Sz Type	Consistence Dry	Mst	Stk	Pls	Mottles % Sz Cont. Col Mst Shp Loc
1	⌀	0 - 9	A				GR SLOAM	10YR 5/3	2M GR	SO	FR	SO	PO	NONE
2	—	9 - 19	Bt				GR LOAM+	15YR 3/3	2F-M SBK	SH	FI	SS	PO	
3	PUSH CUT	19-36	Bt2				CBV CL	10YR 5/3 10YR 4/4	2M-C NBK	VH	FI	S	P	
4	PUSH CUT	36-52	C1				STV CL	5YR 5/3 10YR 5/4	3F-M SBK	EH	EF	S	P	
5	PUSH CUT	52-75"	C2				BYN CL	10YR 5/4 10YR 4/6	MASSIVE	EH	EF	VS	VP	
6														
7														
8														
9														
10														

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				3VF ZF 1M						
2				1VF, 1F						
3				1VF, 1F						
				1VF						WEATHERED CALCAREOUS COLLUVIUM
				1VF						WEATHERED SILTSTONE AND SANDSTONE COLLUVIUM
	E-VC									

2A-5

Component Name:	2A-5 SUPER SPRUCE	Map Unit Symbol:	Date: 10-16-06

	Obser. Method	Depth (in)	Depth (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp Loc
1	REMOVED	0	6	A				STX LOAM	10GR 1SST 1SB	2M-F GR	SO	VFR	SO	SO	
2	REMOVED	6	12	D				ST LOAM	15GR 1SST 1SB	2MSBK→MGR	SO	FR	PO	PO	
3	AUGER	12	24	Bt				STV C	10CB 10GR 1SST	2M-F BK	HA	F		P	
4	BY HAND	24	48	Bt				GR CLAY	25GR 1SCB	3M PR	FH	EF	VS	VP	(CONCRETION) LSD
5		48	65+	BC				GR CLAY	25GR 1OCB	3M-C NBK	EH	EF	VS	VP	
6															
7															
8															
9															
0															

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				3VF 2F						
2				2VF 1F 1M						
3				1VF						
4				1F						
5										
6										
7										
8										
9										
0										

2A-5

2A-5

2A-5
P-2

LOAD-OUT SITE

BELOW RR TRACK 100 M SE OF SUPLEE SPRING

SAGEBRUSH/RABBITBRUSH COMPLEX HUMMOCKY TOPOGRAPHY

28% 280° ASPECT

INTERM. RABBITBRUSH

BELOW ROAD TO TOWN

Zone:	mE:	mN:	Topo Quad.:	Site ID:	YR:	State:	County:	Pedon #:	Soil Survey Area:	MLRA / LRU:	Transect: ID:	Stop #:	Interval:
WR22	0486808	4397820				UT	CARBON	2A6	KINNEY				

Landscape:	Landform:	Microfeature:	Anthro:	Elevation:	Aspect:	Slope (%):	Slope Complexity:	Slope Shape: (Up & Dn / Across)
MTN..	SLUMP/LANDSLIDE DEPOSIT			2379M	340°	23	COMPLEX	COMPLEX, HUMMOCKY

Hillslope Profile Position:	Geom. Component:	Microrelief:	Physio. Division:	Physio. Province:	Physio. Section:	State Physio. Area:	Local Physio. Area:
LOWER							

Drainage:	Flooding:	Ponding:	Soil Moisture Status:	Permeability:	Land Cover / Use:
WELL			MOIST TO 15"	MODERATE Ksat:	ANTNA - GRASSES

Parent Material:	Bedrock: Kind:	Fract.:	Hard.:	Depth:	Lithostrat. Units:	Group:	Formation:	Member:
COLLUVIUM	MIXED SEDIMENTARY							

Erosion: Kind:	Degree:	Runoff:	Surface Frag %:	GR:	CB:	ST:	BD:	CN:	FL:	Diagnostic Horz. / Prop.:	Kind:	Depth:
SLIGHT			Kind:	5	2	2	2	TR		PACHIC	ARGILLIC	

P.S. Control Section:	Ave. Clay %:	Ave. Rock Frag %:
Depth Range:	21	<35

NEWER RUNOUT INTO COLUMBINE MINE

DEEP ROCK-FREE LANDSLIDE DEPOSIT

~5' NE OF FENCELINE

VEGETATION :

SYMBOL	COMMON NAME	%GD COVER

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-6"

6-12"

12-24

24-40

40-66

66-95+

SOME OF THE BEST-APPEARING TOPSOIL ON PROJECT AREA

2A-6

P-2

	Obser. Method	Depth (in)	Depth (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp Loc
1	↑	0	6	A1				L	Tr GR CB	2M-1 GR	SO	VFR	SO	PO	
2	SLOPE,	6	17	A2				L	3 GR 2 CB	1M SBK → MGR	SO	FR	SO	PO	
3	ROAD CUT	12	21	BW1				L+	5 GR 3 CB	2M-F SBK	SO	FI	SS	PO	
4	CONTINU	21	40	BW2				LOAM+	5 GR 3 CB	2M SBK	SH	FI	SS	PO	
5	↓	40	66	C				GR LOAM	10 GR + CB	2M-C SBK	SH	FI	SS	PO	
6		66	85+	C				LOAM	20 GR + CB	MASSIVE	HA	FI	SS	PO	
7									5% + BY						
8															
9															
0															

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1				3VF 2F 1M						
2				2VF 1F-M						
3				VF 1F						
4				VF						BEGIN COLLUVIUM
5				VF						W/ WEATHERED SS AND FEW BOULDERS
6										
7										
8	9-VC									
9										

GPS UTO6911 7211 10W 2B + 2B-1

PEDON DESCRIPTION

DA-NRCS | Pedon ID #: | Draft | Mar-02

s or Component Name:	Map Unit Symbol: 2B-1	Photo #:	Classification:	Soil Moist. Regime (Tax.):
iber(s): BE	Date: 10-14-06	Weather: Temp.: Air: CLOUDY Soil: Depth:	Latitude: ° ' " N Longitude: ° ' " W Datum:	Location: Sec. T. R.
Zone: mE: 0486811 mN: 4397900	Topo Quad.:	Site ID: YR: State: UT County: CARBON Pedon #:	Soil Survey Area: KINNEY MINE MLRA / LRU:	Transect: ID: Stop #: Interval:
scape:	Landform: MTN SLOPE	Microfeature:	Anthro:	Elevation: 2404 M Aspect: 280 Slope (%): 46 Slope Complexity: PLANAR Slope Shape: (Up & Dn / Across) STRAIGHT
ope Profile Position: MIDDLE-LOWER	Geom. Component:	Microrelief:	Physio. Division: Physio. Province: Physio. Section:	State Physio. Area: Local Physio. Area:
age: WELL	Flooding:	Ponding:	Soil Moisture Status: DRY	Permeability: Ksat: MODERATE Land Cover / Use: GRASS / BRUSH
it Material: COLLUVIUM	Bedrock: Kind: Fract.: Hard.: Depth: BLACK HAWK FM.		Lithostrat. Units: Group: Formation: Member:	
ion: Kind: Degree: SLIGHT	Runoff: RAPID	Surface Frag %: GR: 3 CB: [illegible] ST: [illegible] BD: 4 CN: — FL: — Kind:	Diagnostic Horz. / Prop.: MOLLIC Kind: Depth:	
Control Section: Ave. Clay %: th Range:	Ave. Rock Frag %: 25	2B-1 TRANSPORT ROUTE, SWITCHBACK		

VEGETATION :

MBOL	COMMON NAME	%GD COVER
	SAGEBRUSH	
	SERVICEBERRY	
	RABBITBRUSH	
	GRASSES	

MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED INCREMENTS 0-7
7-19
19-23
23-51 [illegible]

PHOTO PENTAX CAMERA (P)
#14 PIT

SOILS BELOW 19 MIXED MASS WASTING + COLLUVIUM MEETING ALTERED C-CF

Component Name: | Map Unit Symbol: | PSF: 2B-1 P-2

	Obser. Method	Depth (in) (cm)	Horizon	Bnd	Matrix Color Dry	Matrix Color Moist	Texture	Rock Frag Knd % Rnd Sz	Structure Grade Sz Type	Consistence Dry	Consistence Mst	Consistence Stk	Consistence Pls	Mottles % Sz Cont. Col Mst Shp Loc
1		0 - 9	A				L.cm	3gr 10cB 5st						None
2		9 - 19	Bt				CL	20gr 10cB 5st						/
3		19 - 33	Bt				CL	20gr 15cH 10st						/
4		33 - 51	BC				CL	15gr 15cB 15st						/
5		51 - 80	Cr		SANDSTONE COLLUVIUM MIXED WITH HYDR					R BEDS		BLACK HAWK FM		
6		80+	R		HARD	SANDSTONE BEDROCK								
7														
8														
9														
0														

	Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col	Concentrations % Sz Cn Hd Sp Kd Loc Bd Col	Ped / V. Surface Features % Dst Cont Kd Loc Col	Roots Qty Sz Loc	Pores Qty Sz Shp	pH (meth)	Effer. (agent)	Clay %	CCE	Notes
1										
2										
3										
4										
5										
6										
7										
8										
9										
0	1-8C									

USDA - Forest Service

SOIL DESCRIPTION

(Reference FSH 2509.18)

01-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
3A	CUMULIC ENDOAQUOLL, CO-LOAMY	9-5-07	BL				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KUNEY MINE			UT	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
WITH COAL RUN-OUT ALLUVIUM	MIXED		NONE	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock: a. GR	b. CB	c. ST	d. BY
FLOODPLAIN	3	CONCAVE	100'	10°	SPD	3	0	0	0

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table *(Depth)*
WEEDY WITH THISTLE			

HORIZON DESIGNATION (a)	DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	TEXTURE (d)	%	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	% of Rock Fragments (2)	SPECIAL FEATURES (g) Roots (3)	SPECIAL FEATURES (g) Pores (4)	EFFER. CLASS (h)	FIELD pH (i)	BOUNDARY (j)
D1	0-6	10YR 2/1	10YR 5/2	/	SL	10	2F SBK	SH	FI	SO PO	/	GR-10 CB-0 ST-0	3VF 1F	2VF IN 1F TU	NE	7.3	C, W
D2	6-14	10YR 2/2	10YR 4/2	/	SL	14	2F SBK	SH	FI	SO PO	/	GR-5 CB-0 ST-0	2VF 1F	1VF IN 1F TU	NE	7.4	A, W
Ab	14-24	10YR 3/2	10YR 5/2	2FAINT 15%	LOAMY SILT LOAM	22 14	MASSIVE	VH	VFI	SS PO	/	GR-0 CB-0 ST-0	1VF 1F	2VF IN	NE	7.7	
												GR- CB- ST-					
												GR- CB- ST-					
												GR- CB- ST-					
												GR- CB- ST-					
												GR- CB- ST-					
												GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:
	10-24	16	4	>60 EST.

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	CUMULIC	—	10-40"

Previous edition Obsolete.

FS-2500-1 (2/86)

USDA - Forest Service

SOIL DESCRIPTION

HAPLOCRYOLL (Reference FSH 2509.18) 02-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
3A	FINE-LOAMY CUMULIC HAPLUSTOLL	95-07	BC				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY #2				CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind ____ b. Class ____
ALLUVIUM	MIXED		

18. Landform	19. Slope: a. % 7 b. Shape ____ c. Length ____ d. Aspect ____	20. Drainage Class	21. Surface Stone and Rock a. GR 0 b. CB 0 c. ST — d. BY 0
FLOODPLAIN TERRACE			

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table (Depth)
BIG SAGEBRUSH			45" +

HORIZON DESIGNATION (a)	INCH DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d)	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (k) Cutans (1)	SPECIAL FEATURES (k) % of Rock Fragments (2)	SPECIAL FEATURES (k) Roots (3)	SPECIAL FEATURES (k) Pores (4)	EFFER. CLASS (h)	LAB FIELD pH (i)	BOUNDARY (j)
A1	0-6	10YR 3/2	10YR 5/2	/	LOAM 16 20	2M-F SBK	SH	FR	SS PO	/	GR-0 CB-0 ST-0	3VF 1F 1M		NE	6.6	A,W
A2	6-17	10YR 3/3	10YR 5/3	/	L 18 22	2M SBK	SH	FR	SS PS	/	GR-0 CB-0 ST-0	2VF 1F		NE	6.8	A,S
A3	17-32	10YR 3/3	10YR 5/2	/	SIL LOAM 17 23	2M-C SBK	HA	FI	S PS	/	GR-3 CB-0 ST-0	1VF		NE	7.2	A,S
BW	32+	10YR 3/3	10YR 5/3	/	SIL LOAM 22 25	2C-M SBK	SH	FI	S PS	/	GR-0 CB-0 ST-0	1VF		NE	7.4	
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:

Previous edition ... lete.

FS-2500-4 (2/86)

USDA - Forest Service

SOIL DESCRIPTION

(Reference FSH 2509.18)

03-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
3A	FINE-LOAMY CUMMULIC HAPLOCRYOLL	9-5-07	BC				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY #2			UTAH	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind ____ b. Class ____
ALLUVIUM	—		

18. Landform	19. Slope: a. % 3 b. Shape CONCAVE c. Length 200 d. Aspect 350	20. Drainage Class	21. Surface Stone and Rock a. GR ____ b. CB ____ c. ST ____ d. BY ____
FLOODPLAIN		SPD	

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table *(Depth)*
SEDGES & GRASS			

HORIZON DESIGNATION (a)	INCHES DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d)	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	SPECIAL FEATURES (g) % of Rock Fragments (2)	SPECIAL FEATURES (g) Roots (3)	SPECIAL FEATURES (g) Pores (4)	EFFER. CLASS (h)	LAB FIELD pH (i)	BOUNDARY (j)
	0-6	10YR 2/1	10YR 3/2	/	LOAM 19	2M-F GR	SO	VFR	SO PO	/	GR - TR CB - 0 ST - 0	3VF 1FM	2VF IN 1FTU	NE	6.5	C, W
	6-11	10YR 4/1	10YR 3/2	/	LOAM 18	2M-C GR	SO	FR	SS PO	/	GR - 0 CB - 0 ST - 0	2VF 2F	3VF IN 1FT	NE	6.9	C, W
	11-20	10YR 4/3	10YR 3/2	1N PORES	LOAM 21	2M-F SBK	SO	FI	SS PS	/	GR - / CB - / ST - /	1VF 1F	1VF IN 1FTU	NE	7.2	C, S
	20-40	10YR 5/3	10YR 4/2	2N PORES	LOAM 21	3M-C SBK	SH	FI	SS PO	/	GR - / CB - / ST - /	1VF	1VF TU 1FIN	NE	7.6	
											GR - CB - ST -					
											GR - CB - ST -					
											GR - CB - ST -					
											GR - CB - ST -					
											GR - CB - ST -					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:
	10-40	20	0	>60" EST.

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	MOLLIC	CAMBIC	10-40"

Previous edition ... lete.

FS-2500-1 (2/86)

NOT DISTURBED

USDA - Forest Service

SOIL DESCRIPTION

(Reference FSH 2509.18)

-04-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
2A	LOAMY-SKEL TYPIC HAPLUSTOLL	9/5/07	BC				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY MINE			UTAH	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM	SANDSTONE		NONE	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock: a. GR	b. CB	c. ST	d. BY
FANSLOPE	16	CONCAVE	120'	260°	WD	TR	3	TR	0

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table *(Depth)*
GRASSES, BIG SAGEBRUSH W/SNOWBERRY			

HORIZON DESIGNATION (a)	DEPTH INCH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d) %	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	SPECIAL FEATURES (g) % of Rock Fragments (2)	SPECIAL FEATURES (g) Roots (3)	SPECIAL FEATURES (g) Pores (4)	EFFER. CLASS (h)	LAB FIELD pH (i)	BOUNDARY (j)
A1	0-6	10YR 3/2	10YR 5/3		SL LOAM 17 19	2M-F SBK	SO	VFR	SO PO		GR-2 CB-2 ST-0	1VF 2F 1M	2VF 1N	NE	6.6	C, S
A2	6-11	10YR 3/3	10YR 5/2		STV LOAM 17 20	3F-M ABK	VH	VF 1	SS PS		GR-5 CB-20 ST-20	1VF 1F	2VF 1N 1F TV	NE	6.6	G, W
Bw	11-20	7.5YR 5/4	7.5YR 6/4		STX SL LOAM 18 17	3M-F ABK	VH	VF 1	SS PS		GR-10 CB-20 ST-25	1VF	1VF TV	NE	6.7	G, W
C	20+0	7.5YR 5/4	7.5YR 6/2		SCL 21 15	MASSIVE	SH	F1	SO PO		GR-0 CB-0 ST-0		1VF 1N 1VF TV	NE	6.9	
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:
	10-40"	19%	39%	>60 EST

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	MOLLIC	CAMBIC	10-40"

Previous edition ____ obsolete.

FS-2500-3 (2/86)

USDA - Forest Service

SOIL DESCRIPTION

(Reference FSH 2509.18)

MISSING A HORIZON / DISTURBED

05-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
DA05	DISTURBED	9/5/07	BC				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY MINE			UTAH	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM	SANDSTONE		NONE	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock a. GR	b. CB	c. ST	d. BY
TOESLOPE	4	PLANAR	50'		WD	10	5	2	JR

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table *(Depth)*
GRASS + SAGEBRUSH SOIL SURFACE SCRAPED			NONE

HORIZON DESIGNATION (a)	INCH DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d)	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	% of Rock Fragments (2)	Roots (3)	Pores (4)	EFFER. CLASS (h)	LAB FIELD pH (i)	BOUNDARY (j)
B	0-8	7.5YR 4/4	7.5YR 6/4	/	LOAM 22 27	2CPL 1FSBK	HA	VFI	SS PS	/	GR-5 CB-5 ST-3	2VF 1F	2VF IN 2F TU	NE	6.5	CS
C1	8-28	7.5YR 5/4	7.5YR 6/4	/	CBL LOAM SANDY 21 24	2M-F SBK	HA	VFI	S PS	/	GR-10 CB-15 ST-10	1VF 1F	1VF-F TU	NE	6.7	C, W
C2	28-60	7.5YR 6/4	7.5YR 7/4	/	STGL 20 22	2M-F SBK	HA	FI	SS PO	/	GR-15 CB-20 ST-20	1VF	1VF-F TU	NE	7.1	
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	/	/	

Previous edition Obsolete.

FS-2500-1 (2/86)

USDA - Forest Service

SOIL DESCRIPTION

(Reference FSH 2509.18)

06-SP-07 (06-SP-07)

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ___ T. ___ R. ___
DA	DISTURBED	9/5/07	BL				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY MINE			UTAH	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM	SANDSTONE		SLIGHT	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock: a. GR	b. CB	c. ST	d. BY
TOESLOPE / FANSLOPE	12	CONVEX			WD	5	15	5	

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table (Depth)
SAGE RABBITBRUSH, ARTR, PUTR			NONE

HORIZON DESIGNATION (a)	DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d)	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	% of Rock Fragments (2)	Roots (3)	Pores (4)	EFFER. CLASS (h)	LAB FIELD pH (i)	BOUNDARY (j)
REC #1	0-6	10YR 3/1	10YR 4/2	/	LOAM 2C	2MGR	SO	FR	SO PO	/	GR-5 CB-3 ST-3	2VF 1F	2VF IN	NE	7.3	C, W
CUAL	6-55	CUAL FINES SAMPLE			LOAM 25	DRUN, MA	SEL	NIM ACID / BASE		4% POS.	GR-10 CB-5 ST-15	1VF		NE	7.4	C, S
2B	55-80	10YR 3/2	10YR 5/2	/	LOAM ~~SCL~~ LOAM 20	3C-M SBK	HA	FI	SO PO	/	GR-5 CB-5 ST-0	/	1VF TN	NE	6.2	
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	/	/	

Previous edition Obs.

FS-2500-1 (2/86)

USDA - Forest Service

SOIL DESCRIPTION

(Reference FSH 2509.18)

07-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
2A	LO-SM, TYPIC HAPLISTOLL/GR ARGIUDSTOLL.	9/5/07	BC				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY MINE			UTAH	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM	SANDSTONE		NONE	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock: a. GR	b. CB	c. ST	d. BY
FANSLOPE	8	PLANAR	150'	270°	WD	5	5	TR	0

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table *(Depth)*
SAGEBRUSH, GRASSES W/LUPINE & PAINTBRUSH			

HORIZON DESIGNATION (a)	INCH DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	TEXTURE (d)	%C	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (k) Cutans (1)	% of Rock Fragments (2)	SPECIAL FEATURES (k) Roots (3)	SPECIAL FEATURES (k) Pores (4)	EFFER. CLASS (h)	LAB FIELD pH (i)	BOUNDARY (j)
A1	0-6	10YR 3/1	10YR 4/2	/	SL	15 / 16	2M GR	SO	VFR	SO PO	/	GR-5 CB-5 ST-0	3VF 2F 1C	3VF IN	NE	6.6	C,S
A2	6-11	10YR 3/3	10YR 5/3	/	SL	16 / 19	2F SBK → FGR	SO	VFR	SO PO	/	GR-15 CB-15 ST-5	2VF 2F 1C	2VF IN 1F TU	NE	6.5	C,W
Bw	11-28	10YR 4/3	10YR 6/3	/	SL	16 / 16	MASSIVE	HA	VFI	SO PO	/	GR-15 CB-20 ST-20	1M 1VF BY 1F	3VF IN	NE	6.6	G,W
Bt	28-40	7.5YR 5/4	7.5YR 6/4	/	SL	18 / 29	MASSIVE	VH	VFI	SO PO	/	GR-20 CB-25 ST-25	/ BY	2VF TU 2VF IN	NE	7.1	
												GR- CB- ST-					
												GR- CB- ST-					
												GR- CB- ST-					
												GR- CB- ST-					
												GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:
	10-40"	17	>50%.	>60" EST.

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	MOLLIC	CAMBIC	10-40"

Previous edition ... lete.

FS-2500-1 (2/86)

USDA - Forest Service

SOIL DESCRIPTION

(Reference FSH 2509.18)

08-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ___ T. ___ R. ___
2A	FI-LOAMY TYPIC ~~ARGIOSTOLL~~ HAPLUSTOLL	9-5-07	BC				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY MINE			UTAH	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM	SANDSTONE		NONE	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock a. GR	b. CB	c. ST	d. BY
FANSLOPE	10	CONCAVE	200'	290	WD	2	2	3	0

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table *(Depth)*
ART W/ RABBITBRUSH, GRASSES			NONE

HORIZON DESIGNATION (a)	INCHES DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d) %C	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	SPECIAL FEATURES (g) % of Rock Fragments (2)	SPECIAL FEATURES (g) Roots (3)	SPECIAL FEATURES (g) Pores (4)	EFFER. CLASS (h)	LAB / FIELD pH (i)	BOUNDARY (j)
A	0-9	10YR 3/3	10YR 5/3		SLCOM 17 14	2M-F GR	SO	VFR	SO PO		GR-Tr CB-2 ST-0	3VF 2F	3VF-IN	NE	6.5	C,S
BW	9-17	10YR 4/4	10YR 6/3		SLCOM 19 16	2M SBK → M GR	HA	FI	SO PO		GR-3 CB-2 ST-0	2VF 1F	1VF,IN 2F TU	NE	6.6	C,S
Bt1	17-36	7.5YR 5/4	7.5YR 6/4	GR	LCOM 17 21	2M-SBK	SH	FR	SO PO		GR-10 CB-5 ST-0	1VF	1VF-F TU	NE	6.6	G,W
Bt2	36-60	7.5YR 4/4	7.5YR 6/4		SCV SL 15	3M-C SBK	SH	FR	SO PO		GR-15 CB-10 ST-10	1VF	1VF-F TU	NE	6.7	
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:
	10-40"	18%	15%	>60"

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	MOLLIC	CAMBIC	10-40"

Previous edition Obsolete.

FS 2500-1 (2/86)

NOT DISTURBED

USDA - Forest Service

SOIL DESCRIPTION

(Reference FSH 2509.18)

ARGIDSTOLL 09-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
2A	FINE-LOAMY TYPIC ~~HARDSTAFF~~	9.6.07	BC				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY				CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM			NONE	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock: a. GR	b. CB	c. ST	d. BY
TOESLOPE	7	CONVEX	200	310°	WP	1	3	0	0

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table (Depth)
ARTEMISIA W/ GRASSES			NONE

HORIZON DESIGNATION (a)	DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d)	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (k) Cutans (1)	% of Rock Fragments (2)	SPECIAL FEATURES (k) Roots (3)	SPECIAL FEATURES (k) Pores (4)	EFFER. CLASS (h)	LAB FIELD pH (i)	BOUNDARY (j)
A	0-6	10YR 3/2	10YR 5/3	/	SL 14	1F-M GR	LO	LO	SO PO	/	GR-10 CB-0 ST-10	3VF 2F	3VF IN	NE	6.5	C,S
Bw	6-12	10YR 4/4	10YR 6/3	/	SLOAM 19 16	2M-C SBK	SH	FR	SO PO	/	GR-0 CB-0 ST-10	2VF 1F	1VF IN 2F TU	NE	6.5	C,W
Bt1	12-30	7.5YR 4/4	7.5YR 6/4	/	CB LOAM 21 22	3M ABK	SH	FI	SS PO	/	GR-10 CB-10 ST-/	1VF	1F,VF TU	NE	6.5	G,W
Bt2	30-60	7.5YR 5/4	7.5YR 6/4	/	LOAM 14 25	3M ABK	VH	VFI	SS PS		GR-5 CB-0 ST-0	1VF	1VF-F TU	NE	6.9	
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:
	6-26"	20	< 5%	>60

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	OCHRIC → MOLLIC	ARGILLIC	10-40"

Previous edition ~~lete.~~ INTERCHANGE

FS 2500-1 (2/86)

Map Unit 1-A was later determined to be D-A

DISTURBANCE ON SFC ONLY

SOIL DESCRIPTION

(Reference FSH 2509.18)

ARGICRYOLL

10-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
1A	LO-SM, MIXED, TYPIC ARGIXEROLL	9-5-07	BC				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY #2			UT	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM	SANDSTONE		SLIGHT	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock: a. GR	b. CB	c. ST	d. BY
SIDESLOPE	32	CONVEX	25'	316	WD	5	5	3	0

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table *(Depth)*
ASPEN · SNOWBERRY			NONE

HORIZON DESIGNATION (a)	DEPTH INCHES (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d)	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	SPECIAL FEATURES (g) % of Rock Fragments (2)	SPECIAL FEATURES (g) Roots (3)	SPECIAL FEATURES (g) Pores (4)	EFFER. CLASS (h)	LAB FIELD pH (i)	BOUNDARY (j)
A	0-7	10YR 3/2	10YR 5/2		SL 11/15	1M-F SBK	SH	FR	SO PO		GR-10 CB-5 ST-10	1VF-F 2M2C	3VF IN	NE	6.9	C,W
Bt1	7-17	7.5YR 6/4	7.5YR 6/4		CBL LOAM 19/28	2M-F SBK	VH	VFI	S/P	1APF 1APO	GR-5 CB-15 ST-5	1VF-F 2M2C	3VFIN 2FTU	NE	6.6	C S
Bt2	17-40	7.5YR 5/4	7.5YR 6/2		STV LOAM SCL 24/30	3M-C ABK	HA	VFI	S/P	2MPF 1APO	GR-10 CB-10 ST-15	1M 1C	1VFTU 1FIN	NE	6.7	G,W
Bt3	40-70	7.5YR 5/4	10YR 6/4		STX LOAM 18/26	3M-C SBK	VH	VFI	SS/PS	2MPPO	GR-10 CB-15 ST-30	1VF	2VFIN 1FTU	NE	7.3	
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:
	7-27"	20%	30%	>60"

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	MOLLIC	ARGILLIC	10-40"

Previous edition Obsolete. FS-2500-3 (2/86)

ARGIUSTOLL

SOIL DESCRIPTION

(Reference FSH 2509.18)

11-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
2B	LO-SKELETAL Typic HAPLOSTOLL	9-6-07	BK				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY MINE			UTAH	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM	SANDSTONE		NONE	

18. Landform	19. Slope: a. % 32 b. Shape CONVEX c. Length 50' d. Aspect 290°	20. Drainage Class	21. Surface Stone and Rock a. GR ____ b. CB ____ c. ST ____ d. BY ____
TOESLOPE / LANDSLIDE DEPOSIT		WD	

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table *(Depth)*
BIG SAGEBRUSH, GRASSES, RABBITBRUSH			NONE

HORIZON DESIGNATION (a)	INCHES DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d)	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	SPECIAL FEATURES (g) % of Rock Fragments (2)	SPECIAL FEATURES (g) Roots (3)	SPECIAL FEATURES (g) Pores (4)	EFFER. CLASS (h)	LAB FIELD pH (i)	BOUNDARY (j)
A	0-5	10YR 3/2	10YR 5/3	/	CB SL 16	2M-F GR	SD	VFR	SO PO	/	GR - 10 CB - 10 ST - 0	2VF 1F 1M	3VF-N	NE	6.8	C,S
AB	5-13	10YR 4/3	10YR 6/3	/	ST BLOAM 20 17	2F SBK	SH	FI	SS PO	/	GR - 15 CB - 5 ST - 15	1VF 1F 1M	2VF,M 1F TU	NE	6.4	C,S
Bw	13-33	10YR 5/4	10YR 6/2	/	GRV SL 17 14	SG	LO	LO	SO PO	/	GR - 15 CB - 10 ST - 10	1VF 1F	2VF-N	NE	6.6	C,W
Bt	33-55	7.5YR 5/4	7.5YR 6/4	/	GRV LOAM 24 21	2F-M SBK	SH	FR	SO PO	/	GR - 25 CB - 10 ST - 5	1VF 1F	2F TU	NE	6.8	G,W
C2	55-80	7.5YR 5/4	7.5YR 6/4	/	GR F.LOAM 26	3M-F SBK	HA	FI	SS PS	/	GR - 10 CB - 5 ST - 0	/	1F-VF TU	NE	7.1	
											GR - CB - ST -					
											GR - CB - ST -					
											GR - CB - ST -					
											GR - CB - ST -					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:
	10-40"	22	37%	>80'

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	MOLLIC	ARGILLIC ?	10-40'

Previous edition ____ lete.

FS-2500-3 (2/86)

USDA - Forest Service

SOIL DESCRIPTION

(Reference FSH 2509.18)

DISTURBED FA

INCLUSION

12-SP-07

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ____ T. ____ R. ____
DA2A	CO-LOAMY TYPIC HAPLUSTOLL	9-6-07	BC		07-12		

9. Area	10. Forest	11. Ranger District	12. State	13. County
KANNEY MNE			UT	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM	SANDSTONE		NONE	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock: a. GR	b. CB	c. ST	d. BY
SIDESLOPE	23	CONVEX	30'	290°	WD	5	3	2	

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table (Depth)
RABBITBRUSH			NONE

HORIZON DESIGNATION (a)	INCL DEPTH (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	LAB TEXTURE (d)	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	SPECIAL FEATURES (g) % of Rock Fragments (2)	SPECIAL FEATURES (g) Roots (3)	SPECIAL FEATURES (g) Pores (4)	EFFER. CLASS (h)	LAB ~~FIELD~~ pH (i)	BOUNDARY (j)
A1	0-6	10YR 3/3	10YR 5/3	/	S LOAM 16 21	2M GR	SO	VFR	SS PO	/	GR-3 CB-2 ST-0	3VF 2F	3VFIN	NE	7.1	C,S
A2	6-12	10YR 4/3	10YR 5/2	/	S LOAM 16 23	3M-C SBK	HA	FI	SS PS	/	GR-3 CB-2 ST-0	1VF 1F	1VF IN 2F TU	NE	7.2	G,W
BW1	12-24	10YR 4/3	10YR 5/2	/	S LOAM 15 25	3M-C SBK	HA	FI	SS PS	/	GR-4 CB-2 ST-0	1VF	1VFIN 2FTU	NE	7.2	G,W
BW2	24-36	10YR 4/4	10YR 5/2	/	CBSL 15 24	MASS IVE	VH	VFI	SS PS	/	GR-10 CB-15 ST-0	1VF	1F TU	NE	7.4	C,S
C1	36-52	10YR 4/4	10YR 5/2	/	S LOAM 14 26	MASS IVE	EH	VFI	SO PO	/	GR-3 CB-2 ST-0	/	1VF-F TU	NE	7.4	C,S
C2	52-75	10YR 5/4	10YR 6/3	/	S LOAM 15 23	MASS IVE	EH	VFI	SO PS	/	GR-2 CB-2 ST-0	/	1VF-F TU		7.8	
											GR- CB- ST-					
											GR- CB- ST-					
											GR- CB- ST-					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:
	10-40'	14	<10%	200"

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:
	MOLLIC	CAMBIC	10-40"

Previous edition ... lete.

FS-2500-1 (2/86)

WALKING PIT -13 FT

USDA - Forest Service

10 MDS-3

SOIL DESCRIPTION

(Reference FSH 2509.18)

13-SP-OT

1. Map Unit Symbol	2. Family or Series	3. Date	4. By	5. Photo. No.	6. Stop No.	7. USGS Quad	8. Location: Sec. ___ T. ___ R. ___
DA	DISTURBED	9-7-07	BC				

9. Area	10. Forest	11. Ranger District	12. State	13. County
KINNEY #2			UTAH	CARBON

14. Parent Material	15. Bedrock Name	16. Elevation	17. Erosion: a. Kind	b. Class
COLLUVIUM	SS		NONE	

18. Landform	19. Slope: a. %	b. Shape	c. Length	d. Aspect	20. Drainage Class	21. Surface Stone and Rock a. GR	b. CB	c. ST	d. BY
FANSLOPE	12				WD	2	3	3	

22. Potential Natural Vegetation	23. Annual Precipitation	24. Measured Soil Temperature	25. Water Table *(Depth)*
CHNA - SAGEBRUSH			

HORIZON DESIGNATION (a)	DEPTH (inches) (b)	COLOR (c) Moist (1)	COLOR (c) Dry (2)	COLOR (c) Mottling (3)	TEXTURE (d)	%	STRUCTURE (e)	CONSISTENCE (f) Dry (1)	CONSISTENCE (f) Moist (2)	CONSISTENCE (f) Wet (3)	SPECIAL FEATURES (g) Cutans (1)	% of Rock Fragments (2)	Roots (3)	Pores (4)	EFFER. CLASS (h)	LNB FIELD pH (i)	BOUNDARY (j)
D	0-8	10YR 4/3	10YR 5/4	/	SL	16 / 14	2M-F GR	SO	FR	SO PO	/	GR - 0 CB - 0 ST - 0	3VF 1F	3VFIN	NE	7.0	C, S
COAL	8-25	COAL	REFUSE		SAND	6	SG	LO	LO	SO PO	/	GR - 0 CB - 0 ST - 0	1VF	2FIN	NE	6.2	C, S
Bb	25-42	10YR 4/3	10YR 5/3	/	SNDY LOAM	13 / 21	2C SBK	HA	FI	SO PO	/	GR - 0 CB - 0 ST - 0	1VF		NE	6.8	C, W
BCb	42-70	7.5YR 5/4	7.5YR 6/4	/	GRX SL	13 / 6	2F-M SBK	LO	LO	SO PO	/	GR - 60 CB - 5 ST - 0			NE	6.6	
												GR - CB - ST -					
												GR - CB - ST -					
												GR - CB - ST -					
												GR - CB - ST -					
												GR - CB - ST -					

26. Partical Size Control Section	a. Depth:	b. Average Clay %:	c. Average Rock Fragment Content:	27. Depth to Lithic or Paralithic Contact:

28. Diagnostic Horizons	a. Surface:	b. Subsurface:	29. Moist Control Section Depth:

Previous edition ... lete.

FS 2500-3 (2/86)

APPENDIX 4: Soil Pit Profile Photos

KINNEY 06, Soil Pit 1A-1

6" 2VF 2+1M

17" 2M2C 1VF

28" NF1FLY

60" 1VF

KINNEY 06, Soil Pit 1A-2

15-20

25-40

40-60

60-75

75-90

KINNEY 06, Soil Pit 1B-1

0-7 3VF

7-15 2FM1C

15-28 1VR1F

28-60 1F1M

60+ 1VF

KINNEY 06, Soil Pit 2A-1

0-10 A

10-24 AB

24-44 B+

44-65 B+/C

65-80+ C

KINNEY 06, Soil Pit 2A-2

0-5 A1

5-14 A2

14-25 BN

25-38 B/C

38-60+ C2

KINNEY 06, Soil Pit 2A-3

0-9 A

9-19 B+

19-36 B+2

36-52 C1

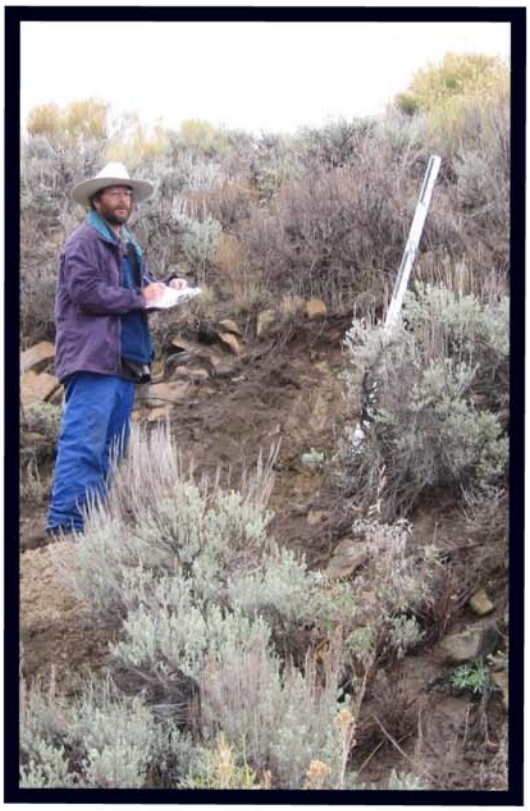
52-75 C2

KINNEY 06, Soil Pit 2A-5

0-6 A

6-12 D

12-24 B+



24-48 B+

48-65+ BC

KINNEY 06, Soil Pit 2A-6

0-6 A1

6-12 A2

12-21 BW1

21-40 BW2

40-66 C

66-85+ C

KINNEY 06, Soil Pit 2A-7

0-7 A

7-20 B+

20-38 C

KINNEY 06, Soil Pit 2B-1

0-9 A

9-19 B+

19-33 B+

33-51 BC

51-80 Cr

80+ R

KINNEY 06, Soil Pit D-1

0-6 BUR

6-16 BUR

16-25 A/B

25-40 C1

40-65 C2

65-95+ C3

KINNEY 06, Soil Pit D-2

0-6 BUR

6-24 BUR

24-45+ C

KINNEY 06, Soil Pit D-3

0-10 A out

10-20
B+ Dist

40-60 C1

60-75+ C2

KINNEY 06, Soil Pit D-4

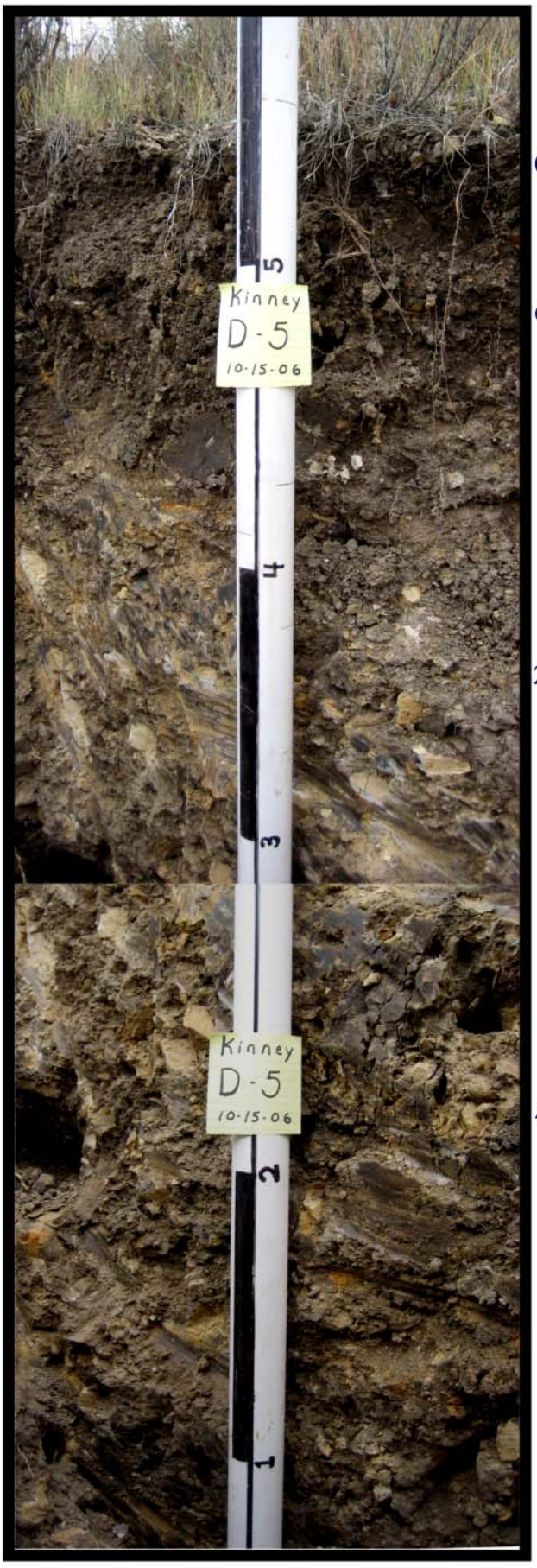
0-8 Disturbed
8-16 Subsoil

12-47
Coal waste

47-85
Coal waste

85-144
Coal waste
(moist)

KINNEY 06, Soil Pit D-5



0-6 D1

6-20 D2

20-40 D3

40-68+ D4

KINNEY 06, Soil Pit D-6

0-6 A

6-24 2C clumped coal

24-48 2C 2

48-72 2C 3

KINNEY 06, Soil Pit D-7

0-6 D1

6-20 D2

20-42 D3

42-58 D4

58-75+ B6

KINNEY 06, Soil Pit D-8

0-6 A

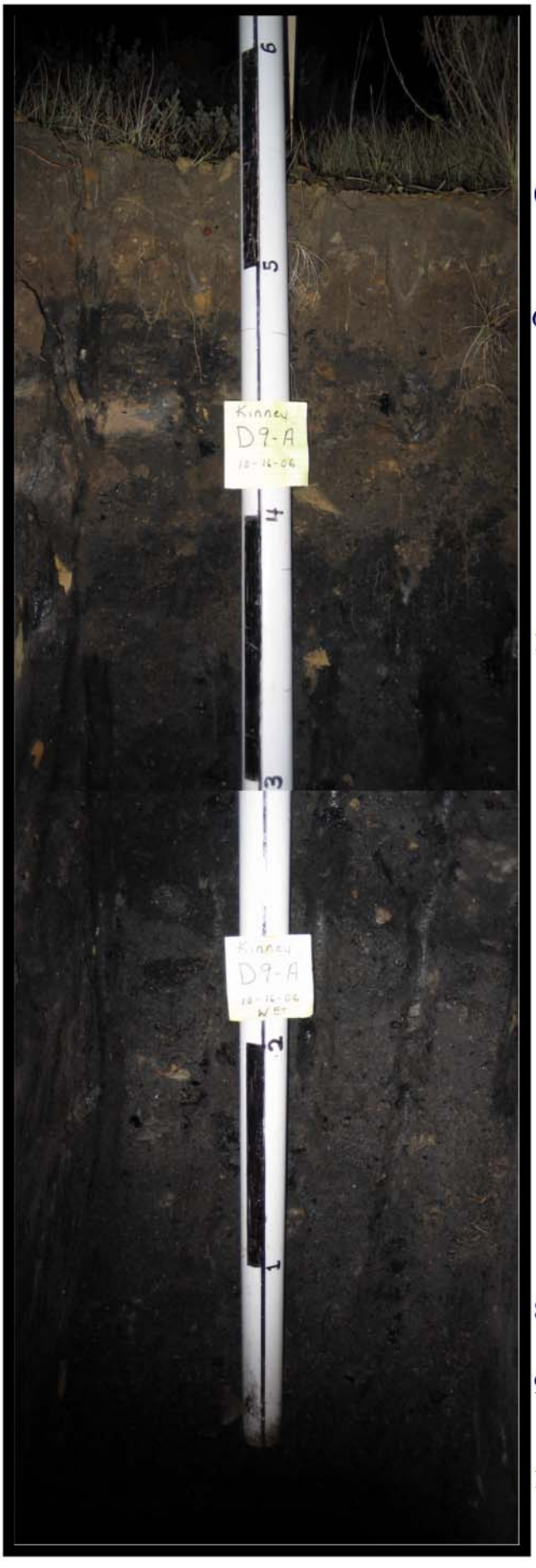
6-13 BA

13-26 B+

26-48 B+2

48-78+ C

KINNEY 06, Soil Pit D9-A



0-6 Disturbed

6-15 Dist. 2

15-80 Coal

80-95 Ab

95-115+ B+b

115-140 B+Cb

KINNEY 06, Soil Pit D9-B

0-11 Mixed Subsoil
over waste material

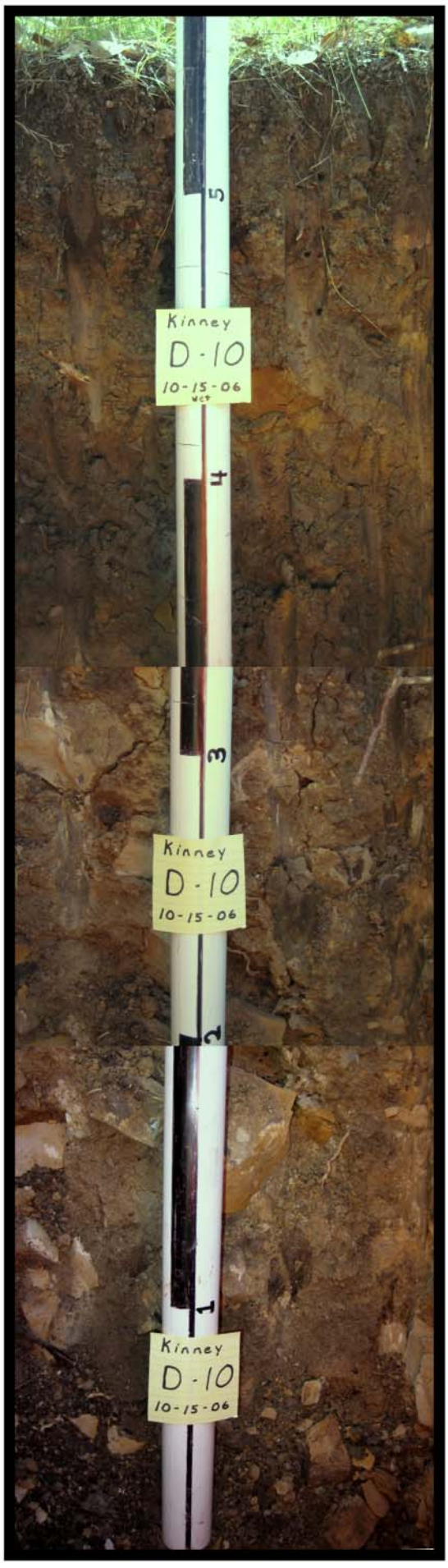
11-29 Coal 50- 70%
fines w/ Subsoil

29-52 Coal 95%
NA w/ Subsoil

52-80 Bb

80-95 Bb

KINNEY 06, Soil Pit D-10



0-5 A

5-11 B+1

11-23 B+2

23-45 B+3

45-65 C

KINNEY 06, Soil Pit D-11

0-12 Subsoil reclaimed

12-62 w/ some
Subsoil mixed

62-80 C
Native soil

80-90+

KINNEY 06, Soil Pit D-12

0-6

9-19 B+

19-33 B+

33-51 BC

51-80 Cr

80+ R

2-07
Kinney Soil Pit

Hand Auger Hole. See Pedon discription for horizons.

3-07
Kinney Soil Pit

Auger Hole in bottom of visable pit. See Pedon discription for horizons.

4-07
Kinney Soil Pit

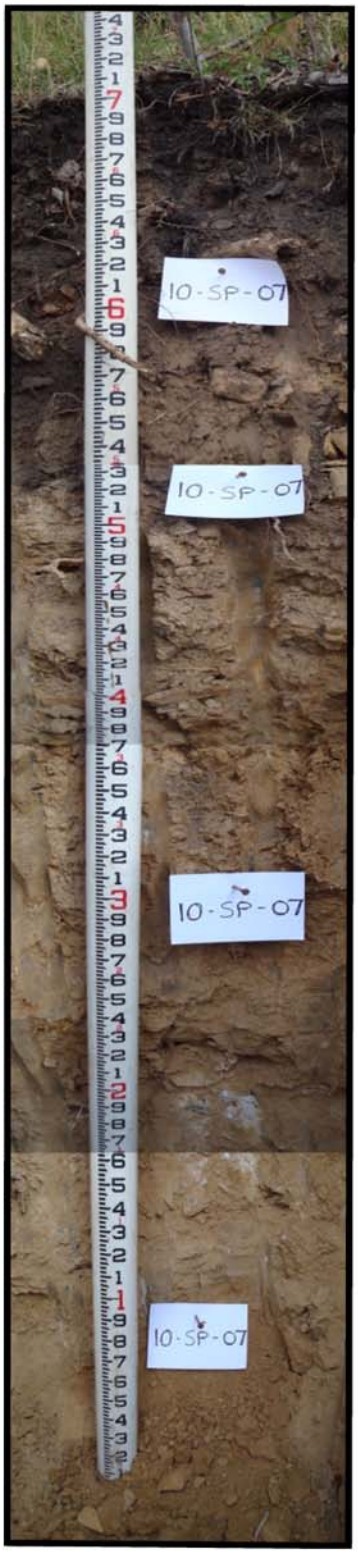
5-07
Kinney Soil Pit

6-07
Kinney Soil Pit

7-07
Kinney Soil Pit

8-07
Kinney Soil Pit

9-07
Kinney Soil Pit

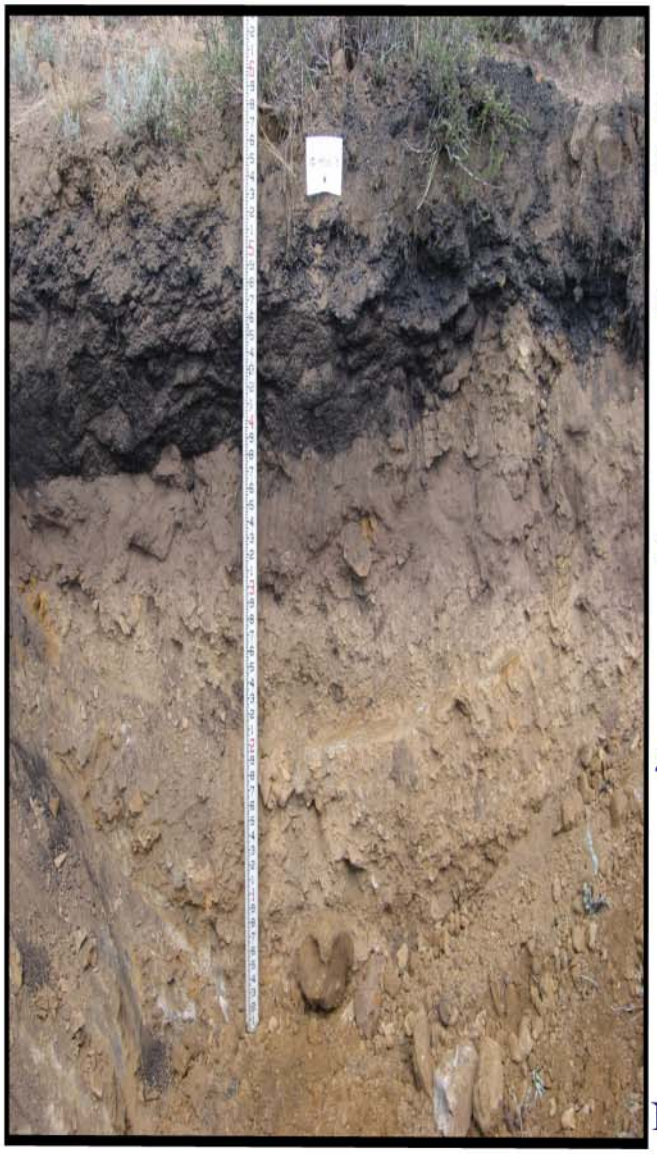


10-07
Kinney Soil Pit

11-07
Kinney Soil Pit

12-07
Kinney Soil Pit

13-07
Kinney Soil Pit
Also (10-MDS-3)



0-8 inches Overburden mix with est. 15% coal chunks

8-15 inches coal layer with some overburden

25-40 inches Buried B horizon

40-60 inches Buried B and C horizons

No potential topsoil at this site (map Unit DA)

Trackhoe trench site 10-MDS-3, Map unit DA

14-07
Kinney Soil Pit

C 30-60 inches sandier, lacks structure and chem. for topsoil material

Bw2 18-30 inches subsoil, same as Bw somewhat coarser

Bw 8-18 inches subsoil, good material

A 0-8 inches, potentially decent topsoil, pending lab results

14-SP-07 (Trackhoe trench 12-MDF-1) located approx. 50 ft. from canal on lowerfanslope, Map unit 2A.

15-CP-07
Trackhoe Pit

15-CP-07, measured on 9/7 had 4'11 inches of coal at "pinch out" beginning at 19 inch depth, followed by buried B or C soil horizons. Not sampled. Staked by lathe photographed by BC. Will send this one. Located in trackhoe parking area.

15-07
Kinney Soil Pit

11 inches potential topsoil, pending lab result

C 26-40 inches very boulder subsoil

Bw 11-26 inches very stony subsoil

A2 5-11 inches topsoil, granular structure

A1 0-5 inches dark-colored topsoil

Oe I inch duff and organic matter layer

15-SP-07 Located near Kinney #1 mine portal Trackhoe scrapped in aspen grove roadcut on 9/7/07, not sapled Map Unit 1A

16-07
Kinney Soil Pit

No topsoil available at this site

13-60 inches Buried B horizon very stony

13-34 inches coal refuse

0-13 inches Overburden and 20% coal chunks in reclaimed materials (AMP cover

16-SP-07 (trackhoe site 13 WSF-2) located in DA map unit north end Hansen property, nearby 2006 soil pit.

18-07
Kinney Soil Pit

14 inches of potetial topsoil at this site Map unit 1A

C 36-60 inches

B 14-36 inches

A2 5-14 inches

A1 0-5 inches

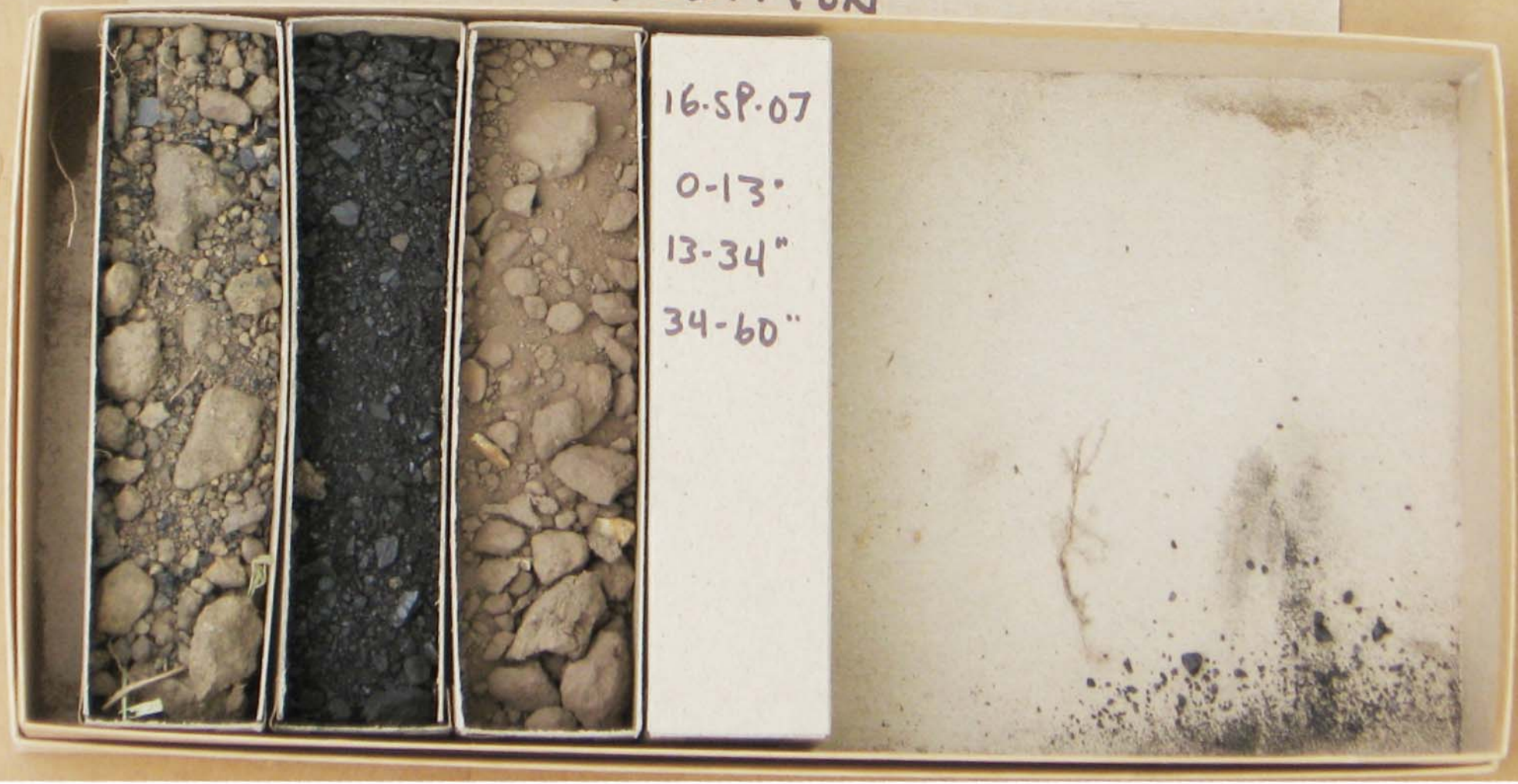
18-SP-07 (trackhoe scrapped nearby Grimes Corner survey flagging, roadcut near Kinney 1 aspen grove). Sampled 9/7/07.

APPENDIX 5: Micromonolith Photos

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION



KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
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SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

APPENDIX 6: Official Soils Series Descriptions

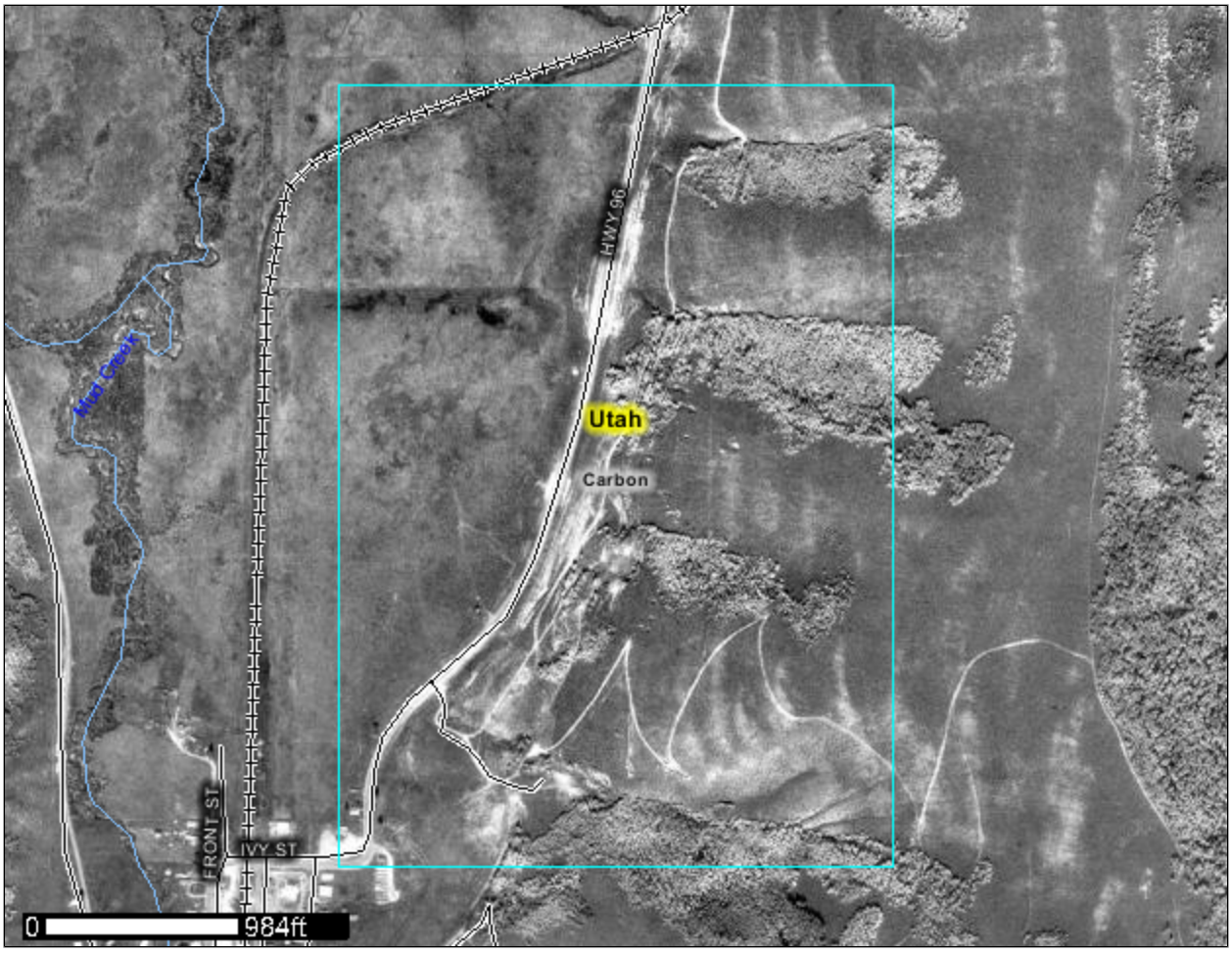
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Carbon Area, Utah, Parts of Carbon and Emery Counties



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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Contents

Preface.....2
How Soil Surveys Are Made.....4
Soil Map.....6
Soil Map.....7
Legend.....8
Map Unit Legend.....9
Map Unit Descriptions.....9
Carbon Area, Utah, Parts of Carbon and Emery Counties Version date: 12/14/2006 5:20:04 PM.....11
29—Dumps,mine.....11
108—Silas loam.....11
109—Silas-Brycan loams.....12
117—Trag-Beje-Senchert complex.....14
118—Trag-Croydon complex.....16
References.....18

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

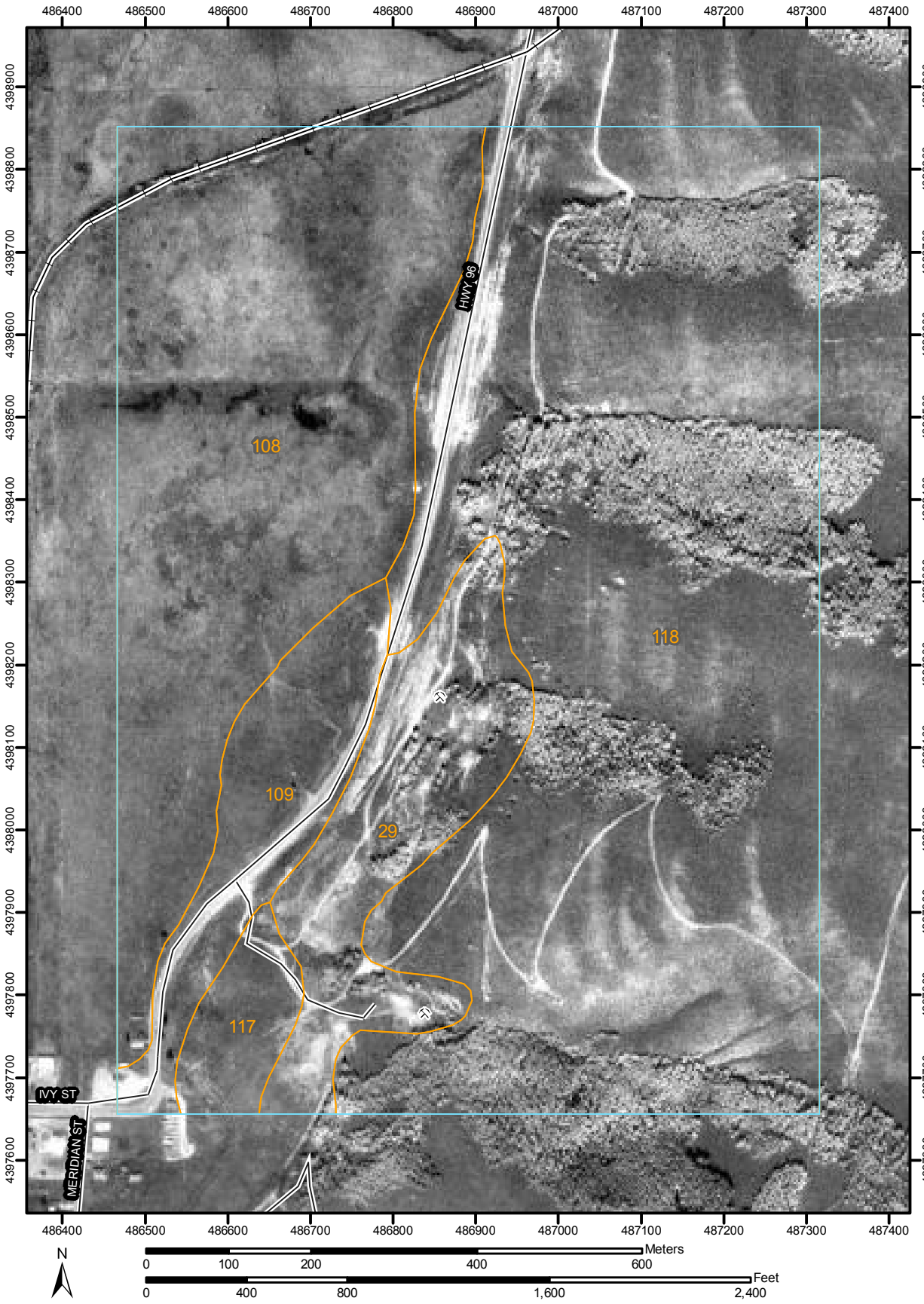
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features

Municipalities
- Cities
- Urban Areas

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

Roads
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 12N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Carbon Area, Utah, Parts of Carbon and Emery Counties
Survey Area Data: Version 3, Dec 14, 2006

Date(s) aerial images were photographed: 9/30/1997; 10/5/1997

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Carbon Area, Utah, Parts of Carbon and Emery Counties (UT616)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
29	Dumps,mine	23.0	9.2%
108	Silas loam	70.8	28.2%
109	Silas-Brycan loams	16.2	6.4%
117	Trag-Beje-Senchert complex	6.1	2.4%
118	Trag-Croydon complex	135.2	53.8%
Totals for Area of Interest (AOI)		251.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Carbon Area, Utah, Parts of Carbon and Emery Counties
Version date:12/14/2006 5:20:04 PM

29—Dumps,mine

Map Unit Composition
Dumps: 100 percent

Description of Dumps

Properties and qualities
Slope: 3 to 65 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Available water capacity: Very low (about 0.0 inches)

Interpretive groups
Land capability (nonirrigated): 8s

Typical profile
0 to 60 inches: Fragmental material

108—Silas loam

Map Unit Setting
Elevation: 7,180 to 7,680 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 38 to 45 degrees F
Frost-free period: 60 to 80 days

Map Unit Composition
Silas and similar soils: 80 percent
Minor components: 5 percent

Description of Silas

Setting
Landform: Valleys
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium derived from sandstone and shale

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability (nonirrigated): 6w
Ecological site: Wet Fresh Meadow (Willow-Sedge) (R048AY008UT)

Typical profile

0 to 2 inches: Loam
2 to 17 inches: Loam
17 to 28 inches: Loam
28 to 43 inches: Loam
43 to 60 inches: Sandy clay loam

Minor Components

Silas, poorly drained

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: Wet Fresh Meadow (Willow-Sedge) (R048AY008UT)

109—Silas-Brycan loams

Map Unit Setting

Elevation: 7,680 to 8,580 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 38 to 45 degrees F
Frost-free period: 60 to 80 days

Map Unit Composition

Silas and similar soils: 65 percent
Brycan and similar soils: 20 percent
Minor components: 7 percent

Description of Silas

Setting

Landform: Valleys
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium derived from sandstone and shale

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability (nonirrigated): 6w

Ecological site: Wet Fresh Meadow (Willow-Sedge) (R048AY008UT)

Typical profile

0 to 2 inches: Loam
2 to 17 inches: Loam
17 to 28 inches: Loam
28 to 43 inches: Loam
43 to 60 inches: Sandy clay loam

Description of Brycan

Setting

Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from sandstone and shale

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: High (about 9.9 inches)

Interpretive groups

Land capability (nonirrigated): 6c
Ecological site: MOUNTAIN LOAM (SALINA WILDRYE) (R048AY409UT)

Typical profile

0 to 12 inches: Loam
12 to 32 inches: Loam
32 to 60 inches: Silt loam

Minor Components

Silas, poorly drained

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: Wet Fresh Meadow (Willow-Sedge) (R048AY008UT)

Flooded soils

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Concave

117—Trag-Beje-Senchert complex

Map Unit Setting

Elevation: 7,180 to 8,480 feet
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Trag and similar soils: 45 percent
Senchert and similar soils: 15 percent
Beje and similar soils: 15 percent

Description of Trag

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium and/or colluvium derived from sandstone and shale

Properties and qualities

Slope: 3 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: High (about 10.8 inches)

Interpretive groups

Land capability (nonirrigated): 6e
Ecological site: MOUNTAIN LOAM (SALINA WILDRYE) (R048AY409UT)

Typical profile

0 to 5 inches: Clay loam
5 to 39 inches: Clay loam
39 to 60 inches: Clay loam

Description of Beje

Setting

Landform: Drainageways
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Slope alluvium and/or colluvium over residuum weathered from sandstone and shale

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Very low (about 2.4 inches)

Interpretive groups

Land capability (nonirrigated): 6s
Ecological site: Mountain Shallow Loam (Mountain Big Sagebrush) (R047XA446UT)

Typical profile

0 to 6 inches: Loam
6 to 14 inches: Clay loam
14 to 18 inches: Unweathered bedrock

Description of Senchert

Setting

Landform: Drainageways, draws
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Colluvium and/or slope alluvium over residuum weathered from sandstone and shale

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups

Land capability (nonirrigated): 6e
Ecological site: High Mountain Loam (Aspen) (R047XA508UT)

Typical profile

0 to 4 inches: Loam
4 to 16 inches: Loam
16 to 35 inches: Clay loam
35 to 39 inches: Unweathered bedrock

118—Trag-Croydon complex

Map Unit Setting

Elevation: 7,580 to 9,470 feet
Mean annual precipitation: 16 to 25 inches
Mean annual air temperature: 34 to 40 degrees F
Frost-free period: 40 to 80 days

Map Unit Composition

Trag and similar soils: 50 percent
Croydon and similar soils: 30 percent

Description of Trag

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium and/or colluvium derived from sandstone and shale

Properties and qualities

Slope: 30 to 60 percent
Surface area covered with cobbles, stones or boulders: 13.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: High (about 10.2 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Ecological site: MOUNTAIN LOAM (SALINA WILDRYE) (R048AY409UT)

Typical profile

0 to 10 inches: Stony loam
10 to 36 inches: Clay loam
36 to 60 inches: Clay loam

Description of Croydon

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium and/or slope alluvium over residuum weathered from sandstone and shale

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Ecological site: High Mountain Loam (Aspen) (R047XA508UT)

Typical profile

0 to 16 inches: Loam
16 to 23 inches: Loam
23 to 48 inches: Clay loam
48 to 52 inches: Weathered bedrock

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	4-CP	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample Type :**	-4 Mesh Moist
Matrix:	Coal		
Net Sample Weight:	1690.50		

SGS Minerals Sample ID: 072-28962-001

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	9.92		
% Ash	[ASTM D 3174/5142]	7.69	8.53	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	11266	12507	13674
% Sulfur	[ASTM D 4239]	0.52	0.58	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	6.82	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.46	lb	ASTM D 5865
Pounds of SO2/mm Btu	0.92	lb	ASTM D 5865

Somer Rodriguez, Denver Laboratory

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	5-CP	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample Type :**	-4 Mesh Moist
Matrix:	Coal		
Net Sample Weight:	1976.90		

SGS Minerals Sample ID: 072-28962-002

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	9.60		
% Ash	[ASTM D 3174/5142]	9.09	10.06	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	11071	12247	13616
% Sulfur	[ASTM D 4239]	0.57	0.63	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	8.21	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.51	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.03	lb	ASTM D 5865

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August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	6-CP	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample Type :**	-4 Mesh Moist
Matrix:	Coal		
Net Sample Weight:	1981.50		

SGS Minerals Sample ID: 072-28962-003

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	9.86		
% Ash	[ASTM D 3174/5142]	9.13	10.13	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	10803	11985	13336
% Sulfur	[ASTM D 4239]	0.56	0.62	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	8.45	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.52	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.03	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: 7-CP
Date Received: 09/24/2007
Matrix: Coal
Net Sample Weight: 2054.90

Mine : Kinney Pad
Sample Type : -4 Mesh Moist

SGS Minerals Sample ID: 072-28962-004

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	9.16		
% Ash	[ASTM D 3174/5142]	8.92	9.82	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	11124	12245	13579
% Sulfur	[ASTM D 4239]	0.57	0.62	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	8.02	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.51	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.02	lb	ASTM D 5865

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August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	8-CP	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample Type :**	-4 Mesh Moist
Matrix:	Coal		
Net Sample Weight:	1783.60		

SGS Minerals Sample ID: 072-28962-005

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	12.09		
% Ash	[ASTM D 3174/5142]	8.20	9.33	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	10584	12040	13279
% Sulfur	[ASTM D 4239]	0.51	0.58	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	7.75	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.48	lb	ASTM D 5865
Pounds of SO2/mm Btu	0.96	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	9-CP	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample Type :**	-4 Mesh Moist
Matrix:	Coal		
Net Sample Weight:	1660.50		

SGS Minerals Sample ID: 072-28962-006

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	9.51		
% Ash	[ASTM D 3174/5142]	8.54	9.43	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	11071	12234	13509
% Sulfur	[ASTM D 4239]	0.51	0.56	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	7.71	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.46	lb	ASTM D 5865
Pounds of SO2/mm Btu	0.92	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	10-CP	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample Type :**	-4 Mesh Moist
Matrix:	Coal		
Net Sample Weight:	1855.60		

SGS Minerals Sample ID: 072-28962-007

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	8.81		
% Ash	[ASTM D 3174/5142]	8.95	9.81	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	11181	12261	13596
% Sulfur	[ASTM D 4239]	0.60	0.66	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	8.00	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.54	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.08	lb	ASTM D 5865

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Carbon Resources LLC
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Albuquerque, NM 87192
USA

Client Sample ID:	11-CP	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample Type :**	-4 Mesh Moist
Matrix:	Coal		
Net Sample Weight:	1961.30		

SGS Minerals Sample ID: 072-28962-008

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	10.61		
% Ash	[ASTM D 3174/5142]	11.42	12.77	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	10486	11730	13448
% Sulfur	[ASTM D 4239]	0.46	0.52	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	10.89	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.44	lb	ASTM D 5865
Pounds of SO2/mm Btu	0.88	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	12-CP	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample Type :**	-4 Mesh Moist
Matrix:	Coal		
Net Sample Weight:	1967.70		

SGS Minerals Sample ID: 072-28962-009

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	9.46		
% Ash	[ASTM D 3174/5142]	8.85	9.77	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	10941	12084	13393
% Sulfur	[ASTM D 4239]	0.50	0.55	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	8.09	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.46	lb	ASTM D 5865
Pounds of SO2/mm Btu	0.91	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	13-CP	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample ID :**	W 1' 4' ?
Matrix:	Coal	**Sample Type :**	-4 Mesh Moist
Net Sample Weight:	1588.20		

SGS Minerals Sample ID: 072-28962-010

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	10.42		
% Ash	[ASTM D 3174/5142]	8.55	9.55	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	11018	12299	13597
% Sulfur	[ASTM D 4239]	0.52	0.58	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	7.76	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.47	lb	ASTM D 5865
Pounds of SO2/mm Btu	0.94	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: 15-CS-1
Date Received: 09/24/2007
Matrix: Coal
Net Sample Weight: 2415.60

Mine : Kinney Pad
Sample Type : -4 Mesh Moist

SGS Minerals Sample ID: 072-28962-011

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	9.22		
% Ash	[ASTM D 3174/5142]	13.17	14.51	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	9986	10999	12866
% Sulfur	[ASTM D 4239]	0.45	0.50	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	13.19	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.45	lb	ASTM D 5865
Pounds of SO2/mm Btu	0.91	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	9-B	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample ID :**	30 - 52 Clean Coal
Matrix:	Coal	**Sample Type :**	-4 Mesh Moist
Net Sample Weight:	1971.30		

SGS Minerals Sample ID: 072-28962-012

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	8.48		
% Ash	[ASTM D 3174/5142]	11.75	12.84	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	10581	11562	13265
% Sulfur	[ASTM D 4239]	0.66	0.72	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	11.11	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.62	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.24	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	D-4	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample ID :**	19" - 72"
Matrix:	Coal	**Sample Type :**	-2" Moist
Net Sample Weight:	3054.40		

SGS Minerals Sample ID: 072-28962-013

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	12.47		
% Ash	[ASTM D 3174/5142]	41.28	47.16	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	5929	6774	12820
% Sulfur	[ASTM D 4239]	0.44	0.51	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	69.62	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.75	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.49	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	DA-9-B	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample ID :**	14" - 54"
Matrix:	Coal	**Sample Type :**	-2" Moist
Net Sample Weight:	3852.40		

SGS Minerals Sample ID: 072-28962-014

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	15.19		
% Ash	[ASTM D 3174/5142]	34.89	41.14	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	6496	7660	13013
% Sulfur	[ASTM D 4239]	0.40	0.47	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	53.71	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.61	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.22	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	D9-A Coal	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample Type :**	-2" Moist
Matrix:	Coal		
Net Sample Weight:	1653.10		

SGS Minerals Sample ID: 072-28962-015

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	7.29		
% Ash	[ASTM D 3174/5142]	34.08	36.76	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	7726	8333	13176
% Sulfur	[ASTM D 4239]	0.55	0.59	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	44.11	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.71	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.42	lb	ASTM D 5865

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	D9-A	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample ID :**	Coal Spa?
Matrix:	Coal	**Sample Type :**	-2" Moist
Net Sample Weight:	2990.00		

SGS Minerals Sample ID: 072-28962-016

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	6.81		
% Ash	[ASTM D 3174/5142]	37.09	39.80	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	7312	7847	13035
% Sulfur	[ASTM D 4239]	0.52	0.55	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	50.72	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.71	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.41	lb	ASTM D 5865

Somer Rodriguez, Denver Laboratory

SGS North America Inc. | Minerals Services Division
4665 Paris St Suite B-200 Denver CO 80239
t (303) 373-4772 f (303) 373-4791 www.sgs.com/minerals

Member of SGS Group

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Analysis Report

August 13, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	D-11	**Mine :**	Kinney Pad
Date Received:	09/24/2007	**Sample ID :**	11 - 48 Coal Material
Matrix:	Coal	**Sample Type :**	-2" Moist
Net Sample Weight:	2812.30		

SGS Minerals Sample ID: 072-28962-017

		As Received	Dry	MAF
% Moisture, Total	[ASTM D 3302]	11.33		
% Ash	[ASTM D 3174/5142]	34.95	39.41	
Gross Calorific Value (Btu/lb)	[ASTM D 5865]	7063	7965	13146
% Sulfur	[ASTM D 4239]	0.41	0.46	

Tests	Result	Unit	Method
Pounds of Ash/mm Btu	49.48	lb	ASTM D 5865
Pounds of Sulfur/mm Btu	0.57	lb	ASTM D 5865
Pounds of SO2/mm Btu	1.15	lb	ASTM D 5865

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ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Bruce Chesler, Greg Hunt

Project ID:
ACZ Project ID: L59731

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59731. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59731. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 8048: (800) 334-5493

Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59731

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 20 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59731. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Total Kjeldahl Nitrogen values flagged with an "N1", the Laboratory Fortified Blank (LFB) failed high due to suspected ammonia contamination in the tube. The data was flagged and accepted since there are no specified control limits for the soil method.

3. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 0-6"

ACZ Sample ID: ***L59731-01***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 11:01	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.57		*	meq/L	0.01	0.05	12/14/06 16:55	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.12		*	meq/L	0.02	0.08	12/14/06 16:55	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	140			mg/Kg	20	50	11/29/06 4:42	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.324		*	meq/L	0.008	0.03	12/14/06 16:55	gme
Sodium Absorption Ratio	Calculation	0.23				0.03	0.15	12/20/06 0:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.22		*	meq/L	0.01	0.04	12/14/06 16:55	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.4		*	%	0.1	0.5	11/14/06 15:11	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.247		*	mmhos/cm	0.001	0.01	11/15/06 11:00	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.3		*	%	0.1	0.5	11/16/06 8:43	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.9		*	units	0.1	0.1	11/15/06 11:00	srs/aep
Saturation Percent	USDA No. 60 (2)	34.60		*	%	0.01	0.1	11/15/06 11:00	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.5		*	% Passing	0.1	0.5	11/29/06 8:00	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	75.6		*	% Passing	0.1	0.5	11/21/06 11:00	as
Solids, Percent	CLPSOW390, PART F, D-98	88.1		*	%	0.1	0.5	11/19/06 16:14	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		72.5		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		11.3		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 0-6"

ACZ Sample ID: ***L59731-01***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/21/06 17:28	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:00	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 15:05	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/14/06 17:00	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 8:00	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.1			mg/Kg	0.2	1	12/20/06 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.1	H	*	mg/Kg	0.2	1	11/29/06 19:41	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/29/06 19:41	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.15	H	*	%	0.01	0.05	11/16/06 13:06	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	28	H	*	mg/Kg	1	5	11/28/06 17:48	jag

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 6-16"

ACZ Sample ID: ***L59731-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 11:32	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.28		*	meq/L	0.01	0.05	12/14/06 17:02	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.15		*	meq/L	0.02	0.08	12/14/06 17:02	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	80			mg/Kg	20	50	11/29/06 4:50	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.070		*	meq/L	0.008	0.03	12/14/06 17:02	gme
Sodium Absorption Ratio	Calculation	0.11	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.10		*	meq/L	0.01	0.04	12/14/06 17:02	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	23.3		*	%	0.1	0.5	11/14/06 19:34	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.215		*	mmhos/cm	0.001	0.01	11/15/06 13:18	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.2		*	%	0.1	0.5	11/16/06 9:05	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.1		*	units	0.1	0.1	11/15/06 13:18	srs/aep
Saturation Percent	USDA No. 60 (2)	53.40		*	%	0.01	0.1	11/15/06 13:18	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	87.8		*	% Passing	0.1	0.5	11/29/06 8:12	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	95.4		*	% Passing	0.1	0.5	11/21/06 11:18	as
Solids, Percent	CLPSOW390, PART F, D-98	91.5		*	%	0.1	0.5	11/19/06 18:42	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		15.0		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		70.0		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		15.0		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 6-16"

ACZ Sample ID: ***L59731-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/21/06 19:25	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:01	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 15:17	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/14/06 18:36	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 8:14	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.1			mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.1	H	*	mg/Kg	0.2	1	11/29/06 19:43	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/29/06 19:43	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.30	H	*	%	0.01	0.06	11/16/06 13:09	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	36	H	*	mg/Kg	1	5	11/28/06 17:51	jag

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 16-25"

ACZ Sample ID: ***L59731-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 12:03	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.82		*	meq/L	0.01	0.05	12/14/06 17:06	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.14		*	meq/L	0.02	0.08	12/14/06 17:06	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	70			mg/Kg	20	50	11/29/06 5:14	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.096		*	meq/L	0.008	0.03	12/14/06 17:06	gme
Sodium Absorption Ratio	Calculation	0.08	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.06		*	meq/L	0.01	0.04	12/14/06 17:06	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.7		*	%	0.1	0.5	11/14/06 21:45	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.182		*	mmhos/cm	0.001	0.01	11/15/06 14:27	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.4		*	%	0.1	0.5	11/16/06 9:27	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	11/15/06 14:27	srs/aep
Saturation Percent	USDA No. 60 (2)	35.80		*	%	0.01	0.1	11/15/06 14:27	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.9		*	% Passing	0.1	0.5	11/29/06 8:25	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	70.0		*	% Passing	0.1	0.5	11/21/06 11:37	as
Solids, Percent	CLPSOW390, PART F, D-98	91.2		*	%	0.1	0.5	11/19/06 19:57	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		76.3		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		7.5		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

Carbon Resources
Project ID:
Sample ID: D-1 16-25"

ACZ Sample ID: ***L59731-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/21/06 20:24	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:03	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 15:22	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/14/06 19:24	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 8:28	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.6			mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.6	H	*	mg/Kg	0.2	1	11/29/06 19:46	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/29/06 19:46	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.057	H	*	%	0.002	0.008	11/16/06 13:11	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	14	H	*	mg/Kg	1	5	11/28/06 17:52	jag

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 25-40"

ACZ Sample ID: ***L59731-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 12:19	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.76		*	meq/L	0.01	0.05	12/14/06 17:09	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.15		*	meq/L	0.02	0.08	12/14/06 17:09	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	60			mg/Kg	20	50	11/29/06 5:18	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.081		*	meq/L	0.008	0.03	12/14/06 17:09	gme
Sodium Absorption Ratio	Calculation	0.11	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.08		*	meq/L	0.01	0.04	12/14/06 17:09	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.9		*	%	0.1	0.5	11/14/06 23:57	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.158		*	mmhos/cm	0.001	0.01	11/15/06 15:36	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.2	B	*	%	0.1	0.5	11/16/06 9:49	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/15/06 15:36	srs/aep
Saturation Percent	USDA No. 60 (2)	34.60		*	%	0.01	0.1	11/15/06 15:36	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	88.6		*	% Passing	0.1	0.5	11/29/06 8:37	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	88.7		*	% Passing	0.1	0.5	11/21/06 11:56	as
Solids, Percent	CLPSOW390, PART F, D-98	95.5		*	%	0.1	0.5	11/19/06 21:11	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		13.8		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		73.8		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		12.5		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 25-40"

ACZ Sample ID: ***L59731-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/21/06 21:22	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:04	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 15:28	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/14/06 20:12	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 8:42	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.9	B		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	BH	*	mg/Kg	0.2	1	11/29/06 19:47	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/29/06 19:47	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.062	H	*	%	0.002	0.01	11/16/06 13:12	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	29	H	*	mg/Kg	1	5	11/28/06 17:54	jag

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 40-65"

ACZ Sample ID: ***L59731-05***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 12:34	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.04		*	meq/L	0.01	0.05	12/14/06 17:12	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.22		*	meq/L	0.02	0.08	12/14/06 17:12	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	50	B		mg/Kg	20	50	11/29/06 5:22	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.076		*	meq/L	0.008	0.03	12/14/06 17:12	gme
Sodium Absorption Ratio	Calculation	0.11	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.09		*	meq/L	0.01	0.04	12/14/06 17:12	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.6		*	%	0.1	0.5	11/15/06 2:08	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.214		*	mmhos/cm	0.001	0.01	11/15/06 16:45	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.2	B	*	%	0.1	0.5	11/16/06 10:10	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/15/06 16:45	srs/aep
Saturation Percent	USDA No. 60 (2)	30.20		*	%	0.01	0.1	11/15/06 16:45	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.5		*	% Passing	0.1	0.5	11/29/06 8:50	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	78.5		*	% Passing	0.1	0.5	11/21/06 12:15	as
Solids, Percent	CLPSOW390, PART F, D-98	94.3		*	%	0.1	0.5	11/19/06 22:25	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		80.0		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		7.5		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 40-65"

ACZ Sample ID: ***L59731-05***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/21/06 22:21	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:06	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 15:34	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/14/06 21:00	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 8:56	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		U		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	BH	*	mg/Kg	0.2	1	11/29/06 19:52	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/29/06 19:52	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.036	H	*	%	0.002	0.01	11/16/06 13:13	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	20	H	*	mg/Kg	1	5	11/28/06 17:55	jag

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 65-90"

ACZ Sample ID: ***L59731-06***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 12:50	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.36		*	meq/L	0.01	0.05	12/14/06 17:16	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.24		*	meq/L	0.02	0.08	12/14/06 17:16	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	70			mg/Kg	20	50	11/29/06 5:26	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.054		*	meq/L	0.008	0.03	12/14/06 17:16	gme
Sodium Absorption Ratio	Calculation	0.15				0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.14		*	meq/L	0.01	0.04	12/14/06 17:16	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.5		*	%	0.1	0.5	11/15/06 4:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.257		*	mmhos/cm	0.001	0.01	11/15/06 17:54	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5	B	*	%	0.1	0.5	11/16/06 10:32	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/15/06 17:54	srs/aep
Saturation Percent	USDA No. 60 (2)	31.10		*	%	0.01	0.1	11/15/06 17:54	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	93.8		*	% Passing	0.1	0.5	11/29/06 9:03	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	67.1		*	% Passing	0.1	0.5	11/21/06 12:34	as
Solids, Percent	CLPSOW390, PART F, D-98	94.2		*	%	0.1	0.5	11/19/06 23:39	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		83.8		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		3.8		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		LS		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-1 65-90"

ACZ Sample ID: ***L59731-06***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/21/06 23:19	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:07	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 15:40	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/14/06 21:48	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 9:11	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		U		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	BH	*	mg/Kg	0.2	1	11/29/06 19:53	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/29/06 19:53	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.033	H	*	%	0.002	0.01	11/16/06 13:14	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	20	H	*	mg/Kg	1	5	11/28/06 17:56	jag

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-2 0-6"

ACZ Sample ID: ***L59731-07***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 13:36	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.80		*	meq/L	0.01	0.05	12/14/06 17:26	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.16		*	meq/L	0.02	0.08	12/14/06 17:26	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	90			mg/Kg	20	50	11/29/06 5:30	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.105		*	meq/L	0.008	0.03	12/14/06 17:26	gme
Sodium Absorption Ratio	Calculation	0.08	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.06		*	meq/L	0.01	0.04	12/14/06 17:26	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.1		*	%	0.1	0.5	11/15/06 6:31	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.178		*	mmhos/cm	0.001	0.01	11/15/06 19:03	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	11/16/06 10:54	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/15/06 19:03	srs/aep
Saturation Percent	USDA No. 60 (2)	33.50		*	%	0.01	0.1	11/15/06 19:03	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.4		*	% Passing	0.1	0.5	11/29/06 9:15	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	68.8		*	% Passing	0.1	0.5	11/21/06 12:53	as
Solids, Percent	CLPSOW390, PART F, D-98	92.2		*	%	0.1	0.5	11/20/06 0:54	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		15.0		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		77.5		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		7.5		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-2 0-6"

ACZ Sample ID: ***L59731-07***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 0:18	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:09	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 15:45	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/14/06 22:36	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 9:25	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.2	B		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	BH	*	mg/Kg	0.2	1	11/29/06 19:54	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	11/29/06 19:54	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.060	H	*	%	0.006	0.03	11/16/06 13:52	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	15	H	*	mg/Kg	1	5	11/28/06 17:59	jag

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-2 6-24"

ACZ Sample ID: ***L59731-08***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 13:52	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.16		*	meq/L	0.01	0.05	12/14/06 17:29	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.13		*	meq/L	0.02	0.08	12/14/06 17:29	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	80			mg/Kg	20	50	11/29/06 5:34	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.075		*	meq/L	0.008	0.03	12/14/06 17:29	gme
Sodium Absorption Ratio	Calculation	0.05	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.02	B	*	meq/L	0.01	0.04	12/14/06 17:29	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.3	B	*	%	0.1	0.5	11/15/06 8:42	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.497		*	mmhos/cm	0.001	0.01	11/15/06 20:12	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.4	B	*	%	0.1	0.5	11/16/06 11:16	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/15/06 20:12	srs/aep
Saturation Percent	USDA No. 60 (2)	33.30		*	%	0.01	0.1	11/15/06 20:12	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.1		*	% Passing	0.1	0.5	11/29/06 9:28	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	72.6		*	% Passing	0.1	0.5	11/21/06 13:12	as
Solids, Percent	CLPSOW390, PART F, D-98	91.1		*	%	0.1	0.5	11/20/06 2:08	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		13.8		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		78.8		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		7.5		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

Carbon Resources
Project ID:
Sample ID: D-2 6-24"

ACZ Sample ID: ***L59731-08***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 1:17	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:11	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 15:51	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/14/06 23:24	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 9:39	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		U		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	BH	*	mg/Kg	0.2	1	11/29/06 19:55	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/29/06 19:55	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.030	H	*	%	0.002	0.009	11/16/06 13:53	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	13	H	*	mg/Kg	1	5	11/28/06 18:00	jag

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 0-10"

ACZ Sample ID: ***L59731-09***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 14:07	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.57		*	mg/Kg	0.05	0.3	11/18/06 4:52	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	1.20		*	meq/L	0.01	0.05	12/14/06 17:33	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.21		*	meq/L	0.02	0.08	12/14/06 17:33	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	320			mg/Kg	20	50	11/29/06 5:38	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.325		*	meq/L	0.008	0.03	12/14/06 17:33	gme
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 15:22	djt
Sodium Absorption Ratio	Calculation	0.08	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.07		*	meq/L	0.01	0.04	12/14/06 17:33	gme

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 0-10"

ACZ Sample ID: ***L59731-09***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	0			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	14			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	14			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	2.3		*	%	0.1	0.5	11/15/06 10:54	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.271		*	mmhos/cm	0.001	0.01	11/15/06 21:21	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.4		*	%	0.1	0.5	11/16/06 11:38	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.6		*	units	0.1	0.1	11/15/06 21:21	srs/aep
Saturation Percent	USDA No. 60 (2)	40.70		*	%	0.01	0.1	11/15/06 21:21	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	92.4		*	% Passing	0.1	0.5	11/29/06 9:41	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	81.1		*	% Passing	0.1	0.5	11/21/06 13:31	as
Solids, Percent	CLPSOW390, PART F, D-98	88.8		*	%	0.1	0.5	11/20/06 3:22	erf/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.01	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Pyritic Sulfide		0.01	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Sulfate			U	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Total		0.02	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.02	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		72.5		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		8.8		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 0-10"

ACZ Sample ID: ***L59731-09***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 2:15	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:12	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 9:15	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 15:57	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 0:12	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 9:53	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.5			mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.5	H	*	mg/Kg	0.2	1	11/29/06 19:56	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/29/06 19:56	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.32	H	*	%	0.02	0.1	11/16/06 13:54	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	29	H	*	mg/Kg	1	5	11/28/06 18:01	jag

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 10-20"

ACZ Sample ID: ***L59731-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 14:23	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.66		*	mg/Kg	0.05	0.3	11/18/06 5:00	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	1.52		*	meq/L	0.01	0.05	12/14/06 17:36	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.24		*	meq/L	0.02	0.08	12/14/06 17:36	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	190			mg/Kg	20	50	11/29/06 5:42	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.175		*	meq/L	0.008	0.03	12/14/06 17:36	gme
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 15:29	djt
Sodium Absorption Ratio	Calculation	0.09	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.09		*	meq/L	0.01	0.04	12/14/06 17:36	gme

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 10-20"

ACZ Sample ID: ***L59731-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	0			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	15			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	15			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.7		*	%	0.1	0.5	11/15/06 13:05	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.273		*	mmhos/cm	0.001	0.01	11/15/06 22:30	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.5		*	%	0.1	0.5	11/16/06 11:59	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	11/15/06 22:30	srs/aep
Saturation Percent	USDA No. 60 (2)	35.30		*	%	0.01	0.1	11/15/06 22:30	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	92.6		*	% Passing	0.1	0.5	11/29/06 9:53	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	75.2		*	% Passing	0.1	0.5	11/21/06 13:50	as
Solids, Percent	CLPSOW390, PART F, D-98	93.7		*	%	0.1	0.5	11/20/06 4:37	erf/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.02	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Sulfate			U	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Total		0.02	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.02	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		71.3		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		11.3		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

Carbon Resources
Project ID:
Sample ID: D-3 10-20"

ACZ Sample ID: ***L59731-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 3:14	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:14	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 9:45	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:02	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 1:00	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 10:07	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.9	B		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	BH	*	mg/Kg	0.2	1	11/29/06 19:58	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/29/06 19:58	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.108	H	*	%	0.004	0.02	11/16/06 13:56	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	20	H	*	mg/Kg	1	5	11/28/06 18:02	jag

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 20-40"

ACZ Sample ID: ***L59731-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 14:38	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.65		*	mg/Kg	0.05	0.3	11/18/06 5:24	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	0.68		*	meq/L	0.01	0.05	12/14/06 17:39	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.14		*	meq/L	0.02	0.08	12/14/06 17:39	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	110			mg/Kg	20	50	11/29/06 5:46	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.073		*	meq/L	0.008	0.03	12/14/06 17:39	gme
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 13:41	djt
Sodium Absorption Ratio	Calculation	0.09	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.06		*	meq/L	0.01	0.04	12/14/06 17:39	gme

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 20-40"

ACZ Sample ID: ***L59731-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	0			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	10			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	10			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.6		*	%	0.1	0.5	11/15/06 15:17	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.169		*	mmhos/cm	0.001	0.01	11/15/06 23:39	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.0		*	%	0.1	0.5	11/16/06 12:21	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.6		*	units	0.1	0.1	11/15/06 23:39	srs/aep
Saturation Percent	USDA No. 60 (2)	37.00		*	%	0.01	0.1	11/15/06 23:39	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.1		*	% Passing	0.1	0.5	11/29/06 10:06	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	81.7		*	% Passing	0.1	0.5	11/21/06 14:09	as
Solids, Percent	CLPSOW390, PART F, D-98	95.4		*	%	0.1	0.5	11/20/06 5:51	erf/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.02	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Sulfate		0.01	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Total		0.02	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.01	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		72.5		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		8.8		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 20-40"

ACZ Sample ID: ***L59731-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 4:12	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:15	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 10:00	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:08	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 1:48	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 10:22	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.4	B		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.2	H	*	mg/Kg	0.2	1	11/29/06 19:59	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/29/06 19:59	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.092	H	*	%	0.003	0.01	11/16/06 13:57	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	16	H	*	mg/Kg	1	5	11/28/06 18:03	jag

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 40-60"

ACZ Sample ID: ***L59731-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 14:54	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.48		*	mg/Kg	0.05	0.3	11/18/06 5:28	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	1.13		*	meq/L	0.01	0.05	12/14/06 17:43	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.26		*	meq/L	0.02	0.08	12/14/06 17:43	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	110			mg/Kg	20	50	11/29/06 5:50	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.058		*	meq/L	0.008	0.03	12/14/06 17:43	gme
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 13:45	djt
Sodium Absorption Ratio	Calculation	0.08	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.07		*	meq/L	0.01	0.04	12/14/06 17:43	gme

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 40-60"

ACZ Sample ID: ***L59731-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	0			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	18			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	18			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.8		*	%	0.1	0.5	11/15/06 17:28	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.247		*	mmhos/cm	0.001	0.01	11/16/06 0:48	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.8		*	%	0.1	0.5	11/16/06 12:43	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.8		*	units	0.1	0.1	11/16/06 0:48	srs/aep
Saturation Percent	USDA No. 60 (2)	38.90		*	%	0.01	0.1	11/16/06 0:48	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	93.1		*	% Passing	0.1	0.5	11/29/06 10:18	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	67.3		*	% Passing	0.1	0.5	11/21/06 14:28	as
Solids, Percent	CLPSOW390, PART F, D-98	93.9		*	%	0.1	0.5	11/20/06 7:05	erf/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.02	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Sulfate		0.01	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Sulfur Total		0.03	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.02	B	*	%	0.01	0.1	11/24/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		72.5		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		10.0		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 40-60"

ACZ Sample ID: ***L59731-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 5:11	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:17	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 10:15	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:14	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 2:36	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 10:36	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.2	B		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.0	H	*	mg/Kg	0.2	1	11/29/06 20:00	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/29/06 20:00	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.095	H	*	%	0.004	0.02	11/16/06 13:58	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	17	H	*	mg/Kg	1	5	11/28/06 18:05	jag

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 60-75"

ACZ Sample ID: ***L59731-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 15:09	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	1.11		*	mg/Kg	0.05	0.3	11/18/06 5:32	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	13.40		*	meq/L	0.01	0.05	12/14/06 17:46	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	5.67		*	meq/L	0.02	0.08	12/14/06 17:46	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	130			mg/Kg	20	50	11/29/06 6:02	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.157		*	meq/L	0.008	0.03	12/14/06 17:46	gme
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 13:48	djt
Sodium Absorption Ratio	Calculation	0.05	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.17		*	meq/L	0.01	0.04	12/14/06 17:46	gme

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 60-75"

ACZ Sample ID: ***L59731-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	4			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	18			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	14			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.9		*	%	0.1	0.5	11/15/06 19:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.162		*	mmhos/cm	0.001	0.01	11/16/06 1:57	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.8		*	%	0.1	0.5	11/16/06 13:05	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.4		*	units	0.1	0.1	11/16/06 1:57	srs/aep
Saturation Percent	USDA No. 60 (2)	37.90		*	%	0.01	0.1	11/16/06 1:57	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	92.6		*	% Passing	0.1	0.5	11/29/06 10:31	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	79.8		*	% Passing	0.1	0.5	11/21/06 14:47	as
Solids, Percent	CLPSOW390, PART F, D-98	93.8		*	%	0.1	0.5	11/20/06 8:19	erf/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.02	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Sulfate		0.11		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Total		0.13		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.02	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		72.5		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		10.0		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3 60-75"

ACZ Sample ID: ***L59731-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 6:09	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:19	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 10:30	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:20	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 3:24	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 10:50	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.4	B		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.2	H	*	mg/Kg	0.2	1	11/29/06 20:01	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/29/06 20:01	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.16	H	*	%	0.01	0.05	11/16/06 13:59	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	15	H	*	mg/Kg	1	5	11/28/06 18:06	jag

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3

ACZ Sample ID: ***L59731-14***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 15:25	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	2.30		*	mg/Kg	0.05	0.3	11/18/06 5:36	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	15.30		*	meq/L	0.01	0.05	12/14/06 17:49	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	3.06		*	meq/L	0.02	0.08	12/14/06 17:49	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	80			mg/Kg	20	50	11/29/06 6:06	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.125		*	meq/L	0.008	0.03	12/14/06 17:49	gme
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 13:52	djt
Sodium Absorption Ratio	Calculation		U			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.07		*	meq/L	0.01	0.04	12/14/06 17:49	gme

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3

ACZ Sample ID: ***L59731-14***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	14			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	33			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	19			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	30.1		*	%	0.1	0.5	11/15/06 21:51	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.156		*	mmhos/cm	0.001	0.01	11/16/06 3:06	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.3		*	%	0.1	0.5	11/16/06 13:27	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/16/06 3:06	srs/aep
Saturation Percent	USDA No. 60 (2)	59.20		*	%	0.01	0.1	11/16/06 3:06	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	98.1		*	% Passing	0.1	0.5	11/29/06 10:44	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	49.5		*	% Passing	0.1	0.5	11/21/06 15:06	as
Solids, Percent	CLPSOW390, PART F, D-98	90.2		*	%	0.1	0.5	11/20/06 9:34	erf/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.23		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Sulfate		0.23		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Total		0.46		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.23		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		15.0		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		71.3		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		13.8		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-3

ACZ Sample ID: ***L59731-14***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 7:08	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:20	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 10:45	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:25	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 4:12	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 11:04	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.0			mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.0	H	*	mg/Kg	0.2	1	11/29/06 20:03	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/29/06 20:03	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.120		*	%	0.004	0.02	11/16/06 14:00	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	5	H	*	mg/Kg	1	5	11/28/06 18:07	jag

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-4 0-8"

ACZ Sample ID: ***L59731-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 15:40	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.82		*	meq/L	0.01	0.05	12/14/06 17:53	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.13		*	meq/L	0.02	0.08	12/14/06 17:53	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	150			mg/Kg	20	50	11/29/06 6:10	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.071		*	meq/L	0.008	0.03	12/14/06 17:53	gme
Sodium Absorption Ratio	Calculation	0.07	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.05		*	meq/L	0.01	0.04	12/14/06 17:53	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.4		*	%	0.1	0.5	11/16/06 0:02	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.199		*	mmhos/cm	0.001	0.01	11/16/06 4:15	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.2		*	%	0.1	0.5	11/16/06 13:49	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.6		*	units	0.1	0.1	11/16/06 4:15	srs/aep
Saturation Percent	USDA No. 60 (2)	40.20		*	%	0.01	0.1	11/16/06 4:15	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	90.9		*	% Passing	0.1	0.5	11/29/06 10:56	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	88.7		*	% Passing	0.1	0.5	11/21/06 15:25	as
Solids, Percent	CLPSOW390, PART F, D-98	87.6		*	%	0.1	0.5	11/20/06 10:48	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		71.3		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		11.3		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-4 0-8"

ACZ Sample ID: ***L59731-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 8:07	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:22	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:31	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 5:00	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 11:19	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.3			mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.3	H	*	mg/Kg	0.2	1	11/29/06 20:07	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/29/06 20:07	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.063	H	*	%	0.002	0.01	11/16/06 14:01	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	22	H	*	mg/Kg	1	5	11/28/06 18:08	jag

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-4 8-16"

ACZ Sample ID: ***L59731-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 15:56	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.47		*	meq/L	0.01	0.05	12/14/06 17:56	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.12		*	meq/L	0.02	0.08	12/14/06 17:56	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	150			mg/Kg	20	50	11/29/06 6:14	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.058		*	meq/L	0.008	0.03	12/14/06 17:56	gme
Sodium Absorption Ratio	Calculation	0.05	B			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.03	B	*	meq/L	0.01	0.04	12/14/06 17:56	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.3		*	%	0.1	0.5	11/16/06 2:14	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.136		*	mmhos/cm	0.001	0.01	11/16/06 5:24	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.9		*	%	0.1	0.5	11/16/06 14:10	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.8		*	units	0.1	0.1	11/16/06 5:24	srs/aep
Saturation Percent	USDA No. 60 (2)	39.20		*	%	0.01	0.1	11/16/06 5:24	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	90.8		*	% Passing	0.1	0.5	11/29/06 11:09	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	84.6		*	% Passing	0.1	0.5	11/21/06 15:44	as
Solids, Percent	CLPSOW390, PART F, D-98	94.9		*	%	0.1	0.5	11/20/06 12:02	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		68.8		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		12.5		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-4 8-16"

ACZ Sample ID: ***L59731-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 9:05	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:23	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:37	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 5:48	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 11:33	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.3	B		mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.1	H	*	mg/Kg	0.2	1	11/29/06 20:09	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/29/06 20:09	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.089	H	*	%	0.002	0.01	11/16/06 14:02	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	21	H	*	mg/Kg	1	5	11/28/06 18:09	jag

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-4 19-72"

ACZ Sample ID: ***L59731-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 16:42	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	2.25		*	mg/Kg	0.05	0.3	11/18/06 5:40	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	16.90		*	meq/L	0.01	0.05	12/14/06 18:06	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	8.58		*	meq/L	0.02	0.08	12/14/06 18:06	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	90			mg/Kg	20	50	11/29/06 6:19	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.129		*	meq/L	0.008	0.03	12/14/06 18:06	gme
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 13:56	djt
Sodium Absorption Ratio	Calculation		U			0.03	0.15	12/20/06 15:21	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.08		*	meq/L	0.01	0.04	12/14/06 18:06	gme

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-4 19-72"

ACZ Sample ID: ***L59731-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	0			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	23			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	23			t CaCO3/Kt	1	5	12/20/06 15:21	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	3.2		*	%	0.1	0.5	11/16/06 4:25	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.195		*	mmhos/cm	0.001	0.01	11/16/06 6:33	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.3		*	%	0.1	0.5	11/16/06 14:32	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/16/06 6:33	srs/aep
Saturation Percent	USDA No. 60 (2)	61.60		*	%	0.01	0.1	11/16/06 6:33	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	97.6		*	% Passing	0.1	0.5	11/29/06 11:22	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	62.8		*	% Passing	0.1	0.5	11/21/06 16:03	as
Solids, Percent	CLPSOW390, PART F, D-98	93.5		*	%	0.1	0.5	11/20/06 13:17	erf/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.01	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Pyritic Sulfide		0.01	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Sulfate			U	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Total		0.02	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.02	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		77.5		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		6.3		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-4 19-72"

ACZ Sample ID: ***L59731-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 10:04	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:25	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 11:00	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:42	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 6:36	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 11:47	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.1			mg/Kg	0.2	1	12/20/06 15:21	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.1	H	*	mg/Kg	0.2	1	11/29/06 20:10	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/29/06 20:10	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.68		*	%	0.02	0.1	11/16/06 14:06	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	4	BH	*	mg/Kg	1	5	11/28/06 18:12	jag

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-5 0-6"

ACZ Sample ID: ***L59731-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 16:58	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.17		*	meq/L	0.01	0.05	12/14/06 18:10	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.24		*	meq/L	0.02	0.08	12/14/06 18:10	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	140			mg/Kg	20	50	11/29/06 6:23	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.093		*	meq/L	0.008	0.03	12/14/06 18:10	gme
Sodium Absorption Ratio	Calculation	0.07	B			0.03	0.15	12/20/06 15:22	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.06		*	meq/L	0.01	0.04	12/14/06 18:10	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.5		*	%	0.1	0.5	11/16/06 6:37	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.258		*	mmhos/cm	0.001	0.01	11/16/06 7:42	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.3		*	%	0.1	0.5	11/16/06 14:54	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.8		*	units	0.1	0.1	11/16/06 7:42	srs/aep
Saturation Percent	USDA No. 60 (2)	45.90		*	%	0.01	0.1	11/16/06 7:42	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	93.8		*	% Passing	0.1	0.5	11/29/06 11:34	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	76.1		*	% Passing	0.1	0.5	11/21/06 16:22	as
Solids, Percent	CLPSOW390, PART F, D-98	90.0		*	%	0.1	0.5	11/20/06 14:31	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		21.3		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		65.0		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		13.8		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SCL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-5 0-6"

ACZ Sample ID: ***L59731-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 11:02	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:26	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:48	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 7:24	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 12:01	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.5	B		mg/Kg	0.2	1	12/20/06 15:22	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.2	H	*	mg/Kg	0.2	1	11/29/06 20:11	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	11/29/06 20:11	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.115	H	*	%	0.003	0.02	11/16/06 14:07	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	24	H	*	mg/Kg	1	5	11/28/06 18:14	jag

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-5 6-20"

ACZ Sample ID: ***L59731-19***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 17:13	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.81		*	meq/L	0.01	0.05	12/14/06 18:13	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.15		*	meq/L	0.02	0.08	12/14/06 18:13	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	90			mg/Kg	20	50	11/29/06 6:27	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.064		*	meq/L	0.008	0.03	12/14/06 18:13	gme
Sodium Absorption Ratio	Calculation	0.07	B			0.03	0.15	12/20/06 15:22	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.05		*	meq/L	0.01	0.04	12/14/06 18:13	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.4		*	%	0.1	0.5	11/16/06 8:48	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.180		*	mmhos/cm	0.001	0.01	11/16/06 8:51	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.6		*	%	0.1	0.5	11/16/06 15:16	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.8		*	units	0.1	0.1	11/16/06 8:51	srs/aep
Saturation Percent	USDA No. 60 (2)	47.00		*	%	0.01	0.1	11/16/06 8:51	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	93.1		*	% Passing	0.1	0.5	11/29/06 11:47	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	89.1		*	% Passing	0.1	0.5	11/21/06 16:41	as
Solids, Percent	CLPSOW390, PART F, D-98	92.2		*	%	0.1	0.5	11/20/06 15:45	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		21.3		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		65.0		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		13.8		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SCL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-5 6-20"

ACZ Sample ID: ***L59731-19***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 12:01	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:28	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 16:54	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 8:12	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 12:15	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.5	B		mg/Kg	0.2	1	12/20/06 15:22	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.1	H	*	mg/Kg	0.2	1	11/29/06 20:12	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	11/29/06 20:12	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.070	H	*	%	0.002	0.01	11/16/06 14:08	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	24	H	*	mg/Kg	1	5	11/28/06 18:15	jag

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-5 20-40"

ACZ Sample ID: ***L59731-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/14/06 17:29	jlf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.34		*	meq/L	0.01	0.05	12/14/06 18:16	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.10		*	meq/L	0.02	0.08	12/14/06 18:16	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	80			mg/Kg	20	50	11/29/06 6:31	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.079		*	meq/L	0.008	0.03	12/14/06 18:16	gme
Sodium Absorption Ratio	Calculation	0.08	B			0.03	0.15	12/20/06 15:22	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.04		*	meq/L	0.01	0.04	12/14/06 18:16	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.0		*	%	0.1	0.5	11/16/06 11:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.121		*	mmhos/cm	0.001	0.01	11/16/06 10:00	srs/aep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.7		*	%	0.1	0.5	11/16/06 15:38	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.8		*	units	0.1	0.1	11/16/06 10:00	srs/aep
Saturation Percent	USDA No. 60 (2)	52.20		*	%	0.01	0.1	11/16/06 10:00	srs/aep
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	94.2		*	% Passing	0.1	0.5	11/29/06 12:00	as/rje
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	84.7		*	% Passing	0.1	0.5	11/21/06 17:00	as
Solids, Percent	CLPSOW390, PART F, D-98	94.3		*	%	0.1	0.5	11/20/06 16:59	erf/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		21.3		*	%	0.1	0.5	11/27/06 0:00	brg
Sand		63.8		*	%	0.1	0.5	11/27/06 0:00	brg
Silt		15.0		*	%	0.1	0.5	11/27/06 0:00	brg
Texture Classification		SCL		*				11/27/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-5 20-40"

ACZ Sample ID: ***L59731-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/22/06 12:59	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:30	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 17:00	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/15/06 9:00	erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 12:30	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.9	B		mg/Kg	0.2	1	12/20/06 15:22	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.6	H	*	mg/Kg	0.2	1	11/29/06 20:14	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	11/29/06 20:14	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.035	H	*	%	0.002	0.01	11/16/06 14:09	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	20	H	*	mg/Kg	1	5	11/28/06 18:16	jag

** Please refer to Qualifier Reports for detail.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicated MDL
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.
X	Quality control sample is out of control.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

Carbon Resources
Project ID:

ACZ Project ID: ***L59731***

Boron, soluble (Hot Water) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216774													
WG216774ICV	ICV	11/18/06 4:16	II061113-6	2		1.938	mg/L	96.9	90	110			
WG216774ICB	ICB	11/18/06 4:20				U	mg/L		-0.03	0.03			
L59459-01DUP	DUP	11/18/06 4:44			.4	.4	mg/L				0	20	
WG216738PBS	PBS	11/18/06 4:48				U	mg/L		-0.15	0.15			
L59731-09DUP	DUP	11/18/06 4:56			.57	.72	mg/L				23.3	20	RC
L59731-10AS	AS	11/18/06 5:16	II061116-2	2.5	.66	3.185	mg/L	101	75	125			
L59731-10ASD	ASD	11/18/06 5:20	II061116-2	2.5	.66	3.202	mg/L	101.7	75	125	0.53	20	

Calcium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217041													
WG217041ICV	ICV	12/14/06 16:39	II061113-6	100		97.37	mg/L	97.4	90	110			
WG217041ICB	ICB	12/14/06 16:42				U	mg/L		-0.6	0.6			
L59731-01DUP	DUP	12/14/06 16:59			1.57	.904	meq/L				53.8	20	RC

Carbon, total organic (TOC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216535													
WG216535PBS	PBS	11/14/06 13:00				U	%		-0.3	0.3			
L59731-01DUP	DUP	11/14/06 17:22			1.4	1.3	%				7.4	20	

Conductivity @25C M120.1 - Meter, w/ Saturated Paste Prep

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216612													
L59731-01DUP	DUP	11/15/06 12:09			.247	.223	mmhos/cm				10.2	20	

Magnesium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217041													
WG217041ICV	ICV	12/14/06 16:39	II061113-6	100		96.52	mg/L	96.5	90	110			
WG217041ICB	ICB	12/14/06 16:42				U	mg/L		-0.6	0.6			
L59731-01DUP	DUP	12/14/06 16:59			.12	.063	meq/L				61.8	20	RC

Neutralization Potential as CaCO3 M600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216720													
WG216720LCSS	LCSS	11/16/06 8:00	PCN20880	100		91.19	%						
L59731-20DUP	DUP	11/16/06 15:59			2.7	2.61	%				3.4	20	

Carbon Resources
Project ID:

ACZ Project ID: ***L59731***

Nitrate/Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217339													
WG217339ICV	ICV	11/29/06 19:33	WI060906-3	2.416		2.352	mg/L	97.4	90	110			
WG217339ICB	ICB	11/29/06 19:34				.027	mg/L		-0.06	0.06			
WG217339LFB	LFB	11/29/06 19:38	WI060906-4	2		2.055	mg/L	102.8	90	110			
WG217122PBS	PBS	11/29/06 19:39				.95	mg/Kg		-0.6	0.6			N1
L59731-01DUP	DUP	11/29/06 19:42			1.1	1.1	mg/Kg				0	20	RA
L59731-02AS	AS	11/29/06 19:44	WI060906-4	20	1.1	21.28	mg/Kg	100.9	75	125			

Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217339													
WG217339ICV	ICV	11/29/06 19:33	WI060906-3	.609		.644	mg/L	105.7	90	110			
WG217339ICB	ICB	11/29/06 19:34				U	mg/L		-0.03	0.03			
WG217339LFB	LFB	11/29/06 19:38	WI060906-4	1		1.029	mg/L	102.9	90	110			
WG217122PBS	PBS	11/29/06 19:39				.78	mg/Kg		-0.3	0.3			N1
L59731-01DUP	DUP	11/29/06 19:42			U	U	mg/Kg				0	20	RA
L59731-02AS	AS	11/29/06 19:44	WI060906-4	10	U	9.81	mg/Kg	98.1	75	125			

Nitrogen, total Kjeldahl M351.2 - TKN by Block Digester

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216678													
WG216503ICV	ICV	11/16/06 13:02	WI061027-1	4		3.9	mg/L	97.5	90	110			
WG216503ICB	ICB	11/16/06 13:03				U	mg/L		-0.3	0.3			
WG216503PBS	PBS	11/16/06 13:04				.0039	%		-0.006	0.006			
WG216503LFB	LFB	11/16/06 13:05	WI061027-5	2.5		2.91	%	116.4	85	115			N1
L59731-01MS	MS	11/16/06 13:08	5XPTSTKN	.0535	.15	.238	%	164.5	75	125			M1
L59731-02DUP	DUP	11/16/06 13:10			.3	.307	%				2.3	20	
WG216678ICV1	ICV	11/16/06 13:46	WI061027-1	4		3.62	mg/L	90.5	90	110			
WG216678ICB1	ICB	11/16/06 13:47				U	mg/L		-0.3	0.3			
WG216678ICV2	ICV	11/16/06 13:50	WI061027-1	4		3.67	mg/L	91.8	90	110			
WG216678ICB2	ICB	11/16/06 13:51				U	mg/L		-0.3	0.3			

Percent Clay ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217118													
L59731-01DUP	DUP	11/27/06 12:45			16.3	16.3	%				0	20	

Percent Sand ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217118													
L59731-01DUP	DUP	11/27/06 12:45			72.5	72.5	%				0	20	

Percent Silt ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217118													
L59731-01DUP	DUP	11/27/06 12:45			11.3	11.3	%				0	20	

Carbon Resources
Project ID:

ACZ Project ID: ***L59731***

pH, Saturated Paste USDA No. 60 (21A)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216612													
L59731-01DUP	DUP	11/15/06 12:09			7.9	7.48	units				5.5	20	

Phosphorus, extractable (AB-DTPA) M365.1 - Automated Ascorbic Acid

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217261													
WG217261ICV	ICV	11/28/06 17:43	SCN000224	.65228		.686	mg/L	105.2	90	110			
WG217261ICB	ICB	11/28/06 17:45				U	mg/L		-0.03	0.03			
WG217261LFB	LFB	11/28/06 17:46	WI061125-2	.5		.515	mg/Kg	103	85	115			
WG216998PBS	PBS	11/28/06 17:47				7.2	mg/Kg		-3	3			N1
L59731-01AS	AS	11/28/06 17:49	WI061125-2	50	28	79.1	mg/Kg	102.2	75	125			
L59731-01DUP	DUP	11/28/06 17:50			28	27.4	mg/Kg				2.2	20	

Potassium, extractable (AB-DTPA) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217217													
WG217217ICV	ICV	11/29/06 4:17	II061113-6	20		20.17	mg/L	100.9	90	110			
WG217217ICB	ICB	11/29/06 4:21				U	mg/L		-0.9	0.9			
WG216998PBS	PBS	11/29/06 4:37				U	mg/L		-60	60			
L59731-01DUP	DUP	11/29/06 4:46			140	140	mg/L				0	20	
L59731-02AS	AS	11/29/06 4:58	II061116-2	4973.4095	80	5197	mg/L	102.9	75	125			
L59731-02ASD	ASD	11/29/06 5:02	II061116-2	4973.4095	80	5305	mg/L	105.1	75	125	2.06	20	

Potassium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217041													
WG217041ICV	ICV	12/14/06 16:39	II061113-6	20		19.94	mg/L	99.7	90	110			
WG217041ICB	ICB	12/14/06 16:42				U	mg/L		-0.9	0.9			
L59731-01DUP	DUP	12/14/06 16:59			.324	.1741	meq/L				60.2	20	RC

Saturation Percent USDA No. 60 (2)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216612													
L59731-01DUP	DUP	11/15/06 12:09			34.6	36.33	%				4.9	20	

Carbon Resources

ACZ Project ID: ***L59731***

Project ID:

Selenium, soluble (Hot Water) SM3500-Se.C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217220													
WG217220ICV	ICV	11/30/06 10:30	II061127-5	.025		.0272	mg/L	108.8	90	110			
WG217220ICB	ICB	11/30/06 10:33				U	mg/L		-0.003	0.003			
WG217223													
L59732-20AS	AS	11/30/06 14:14	II061113-3	.1	U	.097	mg/Kg	97	85	115			
L59732-20ASD	ASD	11/30/06 14:25	II061113-3	.1	U	.0985	mg/Kg	98.5	85	115	1.53	20	
WG216738PBS	PBS	11/30/06 15:18				U	mg/Kg		-0.015	0.015			
L59731-09DUP	DUP	11/30/06 15:25			U	U	mg/Kg				0	20	RA
L59731-10AS	AS	11/30/06 15:33	II061113-3	.1	U	.0961	mg/Kg	96.1	85	115			
L59731-10ASD	ASD	11/30/06 15:36	II061113-3	.1	U	.0958	mg/Kg	95.8	85	115	0.31	20	

Sodium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217041													
WG217041ICV	ICV	12/14/06 16:39	II061113-6	100		99.89	mg/L	99.9	90	110			
WG217041ICB	ICB	12/14/06 16:42				U	mg/L		-0.9	0.9			
L59731-01DUP	DUP	12/14/06 16:59			.22	.161	meq/L				30.7	20	RC

Solids, Percent CLPSOW390, PART F, D-98

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216793													
WG216793PBS	PBS	11/19/06 15:00				U	%		99.9	100.1			
L59731-01DUP	DUP	11/19/06 17:28			88.1	88.45	%				0.4	20	

Sulfur Organic Residual M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
L59732-20DUP	DUP	11/25/06 18:00			.02	.02	%				0	20	RA

Sulfur Pyritic Sulfide M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
L59732-20DUP	DUP	11/25/06 18:00			U	U	%				0	20	RA

Sulfur Sulfate M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
L59732-20DUP	DUP	11/25/06 18:00			.02	.02	%				0	20	RA

Sulfur Total M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
WG217075PBS	PBS	11/24/06 11:00				U	%		-0.03	0.03			
WG217075LCSS	LCSS	11/24/06 13:23	PCN25383	4.24		4.3	%		80	120			
L59732-20DUP	DUP	11/25/06 18:00			.04	.04	%				0	20	RA

Carbon Resources
Project ID:

ACZ Project ID: ***L59731***

Total Sulfur Minus Sulfate M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
L59732-20DUP	DUP	11/25/06 18:00			.02	.02	%				0	20	RA

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-01	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-02	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-03	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-04	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-05	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-06	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-07	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-08	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-09	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217041	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-10	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217041	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-11	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217041	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-12	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217041	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-13	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217041	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-14	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217041	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-15	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-16	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-17	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217041	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-18	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-19	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59731***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59731-20	WG217041	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217339	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216678	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	N1	See Case Narrative.
	WG217261	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Selenium, soluble (Hot Water)	SM3500-Se.C

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
pH, Saturated Paste	USDA No. 60 (21A)
Saturation Percent	USDA No. 60 (2)
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2
Solids, Percent	CLPSOW390, PART F, D-98
Sulfur Forms	M600/2-78-054 3.2.4
Texture by Hydrometer	ASTM D 422 Hydrometer

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59731
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
BUCKET X 8		22.5	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59731
Date Received: 10/31/2006
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L59731-01	D-1 0-6"									X		
L59731-02	D-1 6-16"									X		
L59731-03	D-1 16-25"									X		
L59731-04	D-1 25-40"									X		
L59731-05	D-1 40-65"									X		
L59731-06	D-1 65-90"									X		
L59731-07	D-2 0-6"									X		
L59731-08	D-2 6-24"									X		
L59731-09	D-3 0-10"									X		
L59731-10	D-3 10-20"									X		
L59731-11	D-3 20-40"									X		
L59731-12	D-3 40-60"									X		
L59731-13	D-3 60-75"									X		
L59731-14	D-3									X		
L59731-15	D-4 0-8"									X		
L59731-16	D-4 8-16"									X		
L59731-17	D-4 19-72"									X		
L59731-18	D-5 0-6"									X		
L59731-19	D-5 6-20"									X		
L59731-20	D-5 20-40"									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59731

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

LOG 10-26-06

Sue Webber

From: GHuntBBC@aol.com
Sent: Friday, October 27, 2006 12:52 PM
To: bches@scinternet.net; Sue Webber
Subject: Sue Weber Carbon Resources Soil Samples

FROM: **Geo-Hunt Consulting**
16577 Columbine Lane
Cedaredge, CO 81413
970-856-9477

TO: **Sue Webber, Project Manager**
ACZ Laboratories, Inc.
2773 Downhill Drive,
Steamboat Springs, Co 80487

RE: **TRANSMITTAL OF SOIL SAMPLES**

Dear Sue:
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

10/31/2006

Very Fine Sand

analyst: as
date: 12-7-06

ACZ L#	Total sample wt. gms	% <2000um sieve	Wt. of sxs used for Texture gms	Wt. of sxs between 105um & 53um gm.	% VFS
L59731-01	236.40	75.6	40.0	4.5	**8.5**
L59731-02	210.40	95.4	40.0	5.1	**12.2**
L59731-03	368.20	70.0	40.0	4.6	**8.1**
L59731-04	268.60	88.7	40.0	5.1	**11.4**
L59731-05	222.00	78.5	40.0	4.3	**8.5**
L59731-06	242.80	67.1	40.0	3.7	**6.2**
L59731-07	336.60	68.8	40.0	5.0	**8.6**
L59731-08	314.90	72.6	40.0	4.9	**8.9**
L59731-09	270.98	81.1	40.0	3.8	**7.6**
L59731-10	318.20	75.2	40.0	4.0	**7.4**
L59731-11	342.70	81.7	40.0	4.4	**8.9**
L59731-12	387.20	67.3	40.0	4.1	**6.9**
L59731-13	309.80	79.8	40.0	3.7	**7.4**
L59731-14	263.00	49.5	40.0	1.5	**1.9**
L59731-15	320.50	88.7	40.0	4.1	**9.1**
L59731-16	424.10	84.6	40.0	4.4	**9.2**
L59731-17	480.40	62.8	40.0	1.5	**2.4**
L59731-18	228.40	76.1	40.0	3.3	**6.2**
L59731-19	296.80	89.1	40.0	3.1	**6.9**
L59731-20	325.70	84.7	40.0	2.7	**5.8**
dup L59731-01	236.40	75.6	40.0	4.2	**8.0**

(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture

(VFS of Texture) x (% <2000um) = % VFS

additional data from:

-sieve2000 WG216879

-sieve53 WG217297

-texture WG217118

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59732

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59732. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59732. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59732

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 19 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59732. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-5 40-60"

ACZ Sample ID: ***L59732-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/16/06 18:52	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.33		*	meq/L	0.01	0.05	11/29/06 20:24	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.31		*	meq/L	0.02	0.08	11/29/06 20:24	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	80		*	mg/Kg	20	50	12/04/06 14:12	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.076		*	meq/L	0.008	0.03	11/29/06 20:24	msh
Sodium Absorption Ratio	Calculation	0.33				0.03	0.15	12/21/06 10:11	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.30		*	meq/L	0.01	0.04	11/29/06 20:24	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.6		*	%	0.1	0.5	11/21/06 12:12	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.249		*	mmhos/cm	0.001	0.01	11/22/06 14:00	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.3		*	%	0.1	0.5	12/07/06 12:28	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.7		*	units	0.1	0.1	11/22/06 14:00	srs
Saturation Percent	USDA No. 60 (2)	52.30		*	%	0.01	0.1	11/22/06 14:00	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	86.9		*	% Passing	0.1	0.5	12/08/06 8:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	84.4		*	% Passing	0.1	0.5	11/22/06 10:00	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	91.6		*	%	0.1	0.5	11/28/06 13:03	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		21.3		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		37.5		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		41.3		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		SiL		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

Carbon Resources
Project ID:
Sample ID: D-5 40-60"

ACZ Sample ID: ***L59732-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 11:12	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:31	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 17:06	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 19:00	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 12:44	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	7.9			mg/Kg	0.2	1	12/21/06 10:11	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	8.6	H	*	mg/Kg	0.2	1	11/30/06 21:43	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	11/30/06 21:43	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.088	H	*	%	0.005	0.02	12/18/06 15:16	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	18	H	*	mg/Kg	1	5	11/30/06 19:50	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-6 0-7"

ACZ Sample ID: ***L59732-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/16/06 21:33	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	2.48		*	meq/L	0.01	0.05	11/29/06 20:32	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.38		*	meq/L	0.02	0.08	11/29/06 20:32	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	240		*	mg/Kg	20	50	12/04/06 14:18	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.451		*	meq/L	0.008	0.03	11/29/06 20:32	msh
Sodium Absorption Ratio	Calculation	0.11	B			0.03	0.15	12/21/06 10:12	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.14		*	meq/L	0.01	0.04	11/29/06 20:32	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.6		*	%	0.1	0.5	11/21/06 12:36	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.275		*	mmhos/cm	0.001	0.01	11/22/06 19:03	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.7		*	%	0.1	0.5	12/07/06 12:42	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	11/22/06 19:03	srs
Saturation Percent	USDA No. 60 (2)	52.10		*	%	0.01	0.1	11/22/06 19:03	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	87.7		*	% Passing	0.1	0.5	12/08/06 8:30	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	87.6		*	% Passing	0.1	0.5	11/22/06 10:23	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	87.9		*	%	0.1	0.5	11/28/06 14:07	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		22.5		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		30.0		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		47.5		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		SiL		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-6 0-7"

ACZ Sample ID: ***L59732-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 11:36	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:33	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 17:18	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 19:12	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 12:58	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	9.0			mg/Kg	0.2	1	12/21/06 10:12	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	9.8	H	*	mg/Kg	0.2	1	11/30/06 21:46	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 21:46	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.093	H	*	%	0.008	0.04	12/18/06 15:18	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	15	H	*	mg/Kg	1	5	11/30/06 19:52	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-6 24-48"

ACZ Sample ID: ***L59732-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/17/06 0:14	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.21		*	meq/L	0.01	0.05	11/29/06 20:36	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.76		*	meq/L	0.02	0.08	11/29/06 20:36	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	70		*	mg/Kg	20	50	12/04/06 14:39	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.094		*	meq/L	0.008	0.03	11/29/06 20:36	msh
Sodium Absorption Ratio	Calculation	0.21				0.03	0.15	12/21/06 10:12	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.30		*	meq/L	0.01	0.04	11/29/06 20:36	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.3		*	%	0.1	0.5	11/21/06 12:48	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.451		*	mmhos/cm	0.001	0.01	11/22/06 21:34	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.2		*	%	0.1	0.5	12/07/06 12:57	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	11/22/06 21:34	srs
Saturation Percent	USDA No. 60 (2)	54.40		*	%	0.01	0.1	11/22/06 21:34	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	88.7		*	% Passing	0.1	0.5	12/08/06 9:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	72.4		*	% Passing	0.1	0.5	11/22/06 10:46	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	94.7		*	%	0.1	0.5	11/28/06 15:11	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		20.0		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		40.0		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		40.0		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		SiL/L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-6 24-48"

ACZ Sample ID: ***L59732-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 11:48	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:34	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 17:24	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 19:18	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 13:12	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.3			mg/Kg	0.2	1	12/21/06 10:12	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.1	H	*	mg/Kg	0.2	1	11/30/06 21:48	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 21:48	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.067	H	*	%	0.003	0.02	12/18/06 15:20	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	12	H	*	mg/Kg	1	5	11/30/06 19:55	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-6 48-72"

ACZ Sample ID: ***L59732-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/17/06 1:34	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	2.96		*	meq/L	0.01	0.05	11/29/06 20:40	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.69		*	meq/L	0.02	0.08	11/29/06 20:40	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	100		*	mg/Kg	20	50	12/04/06 14:43	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.086		*	meq/L	0.008	0.03	11/29/06 20:40	msh
Sodium Absorption Ratio	Calculation	0.20				0.03	0.15	12/21/06 10:12	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.28		*	meq/L	0.01	0.04	11/29/06 20:40	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.4		*	%	0.1	0.5	11/21/06 13:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.452		*	mmhos/cm	0.001	0.01	11/23/06 0:06	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.3		*	%	0.1	0.5	12/07/06 13:11	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.4		*	units	0.1	0.1	11/23/06 0:06	srs
Saturation Percent	USDA No. 60 (2)	51.00		*	%	0.01	0.1	11/23/06 0:06	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.1		*	% Passing	0.1	0.5	12/08/06 9:30	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	61.4		*	% Passing	0.1	0.5	11/22/06 11:10	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	93.0		*	%	0.1	0.5	11/28/06 16:15	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		20.0		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		37.5		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		42.5		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		SiL		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-6 48-72"

ACZ Sample ID: ***L59732-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 12:00	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:36	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 17:30	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 19:25	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 13:26	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	2.3			mg/Kg	0.2	1	12/21/06 10:12	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	3.1	H	*	mg/Kg	0.2	1	11/30/06 21:49	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 21:49	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.083	H	*	%	0.003	0.02	12/18/06 15:21	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	10	H	*	mg/Kg	1	5	11/30/06 19:56	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 0-6"

ACZ Sample ID: ***L59732-05***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/17/06 2:55	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	4.92		*	meq/L	0.01	0.05	11/29/06 20:44	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.72		*	meq/L	0.02	0.08	11/29/06 20:44	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	250		*	mg/Kg	20	50	12/04/06 14:46	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.672		*	meq/L	0.008	0.03	11/29/06 20:44	msh
Sodium Absorption Ratio	Calculation	0.09	B			0.03	0.15	12/21/06 10:12	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.16		*	meq/L	0.01	0.04	11/29/06 20:44	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.3		*	%	0.1	0.5	11/21/06 13:12	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.689		*	mmhos/cm	0.001	0.01	11/23/06 2:37	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.7		*	%	0.1	0.5	12/07/06 13:25	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.2		*	units	0.1	0.1	11/23/06 2:37	srs
Saturation Percent	USDA No. 60 (2)	49.60		*	%	0.01	0.1	11/23/06 2:37	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	90.3		*	% Passing	0.1	0.5	12/08/06 10:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	68.2		*	% Passing	0.1	0.5	11/22/06 11:33	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	85.8		*	%	0.1	0.5	11/28/06 17:18	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		20.0		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		30.0		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		50.0		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		SiL		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 0-6"

ACZ Sample ID: ***L59732-05***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 12:12	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:38	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 17:36	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 19:31	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 13:41	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.9			mg/Kg	0.2	1	12/21/06 10:12	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.9	H	*	mg/Kg	0.2	1	11/30/06 21:51	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/30/06 21:51	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.088	H	*	%	0.005	0.02	12/18/06 15:22	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	7	H	*	mg/Kg	1	5	11/30/06 19:57	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 6-20"

ACZ Sample ID: ***L59732-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/17/06 4:15	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	2.98		*	meq/L	0.01	0.05	11/29/06 20:48	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.56		*	meq/L	0.02	0.08	11/29/06 20:48	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	130		*	mg/Kg	20	50	12/04/06 14:50	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.149		*	meq/L	0.008	0.03	11/29/06 20:48	msh
Sodium Absorption Ratio	Calculation	0.12	B			0.03	0.15	12/21/06 10:12	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.17		*	meq/L	0.01	0.04	11/29/06 20:48	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.1		*	%	0.1	0.5	11/21/06 13:24	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.462		*	mmhos/cm	0.001	0.01	11/23/06 5:09	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.3		*	%	0.1	0.5	12/07/06 13:39	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	11/23/06 5:09	srs
Saturation Percent	USDA No. 60 (2)	47.30		*	%	0.01	0.1	11/23/06 5:09	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	92.9		*	% Passing	0.1	0.5	12/08/06 10:30	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	53.9		*	% Passing	0.1	0.5	11/22/06 11:56	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	87.4		*	%	0.1	0.5	11/28/06 18:22	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		22.5		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		30.0		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		47.5		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		SiL		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 6-20"

ACZ Sample ID: ***L59732-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 12:24	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:39	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 17:42	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 19:37	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 13:55	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.4	B		mg/Kg	0.2	1	12/21/06 10:12	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.2	H	*	mg/Kg	0.2	1	11/30/06 21:52	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 21:52	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.057	H	*	%	0.003	0.01	12/18/06 15:24	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	10	H	*	mg/Kg	1	5	11/30/06 19:58	pjb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 20-42"

ACZ Sample ID: ***L59732-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/17/06 8:17	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.93		*	meq/L	0.01	0.05	11/29/06 21:00	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.32		*	meq/L	0.02	0.08	11/29/06 21:00	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	90		*	mg/Kg	20	50	12/04/06 14:53	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.128		*	meq/L	0.008	0.03	11/29/06 21:00	msh
Sodium Absorption Ratio	Calculation	0.12	B			0.03	0.15	12/21/06 10:13	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.10		*	meq/L	0.01	0.04	11/29/06 21:00	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.9		*	%	0.1	0.5	11/21/06 13:36	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.203		*	mmhos/cm	0.001	0.01	11/23/06 7:41	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.3		*	%	0.1	0.5	12/07/06 13:54	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.8		*	units	0.1	0.1	11/23/06 7:41	srs
Saturation Percent	USDA No. 60 (2)	43.30		*	%	0.01	0.1	11/23/06 7:41	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.5		*	% Passing	0.1	0.5	12/08/06 11:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	67.7		*	% Passing	0.1	0.5	11/22/06 12:20	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	92.5		*	%	0.1	0.5	11/28/06 19:26	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		21.3		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		32.5		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		46.3		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		SiL		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 20-42"

ACZ Sample ID: ***L59732-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 12:36	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:41	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 17:48	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 19:44	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 14:09	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.5	B		mg/Kg	0.2	1	12/21/06 10:13	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.2	H	*	mg/Kg	0.2	1	11/30/06 21:57	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	11/30/06 21:57	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.045	H	*	%	0.003	0.02	12/18/06 15:25	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	8	H	*	mg/Kg	1	5	11/30/06 19:59	pjb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 42-58"

ACZ Sample ID: ***L59732-08***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/17/06 9:38	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.63		*	meq/L	0.01	0.05	11/29/06 21:04	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.42		*	meq/L	0.02	0.08	11/29/06 21:04	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	110		*	mg/Kg	20	50	12/04/06 14:56	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.086		*	meq/L	0.008	0.03	11/29/06 21:04	msh
Sodium Absorption Ratio	Calculation	0.22				0.03	0.15	12/21/06 10:13	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.23		*	meq/L	0.01	0.04	11/29/06 21:04	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.2		*	%	0.1	0.5	11/21/06 13:48	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.301		*	mmhos/cm	0.001	0.01	11/23/06 10:12	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.8		*	%	0.1	0.5	12/07/06 14:08	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.6		*	units	0.1	0.1	11/23/06 10:12	srs
Saturation Percent	USDA No. 60 (2)	54.30		*	%	0.01	0.1	11/23/06 10:12	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	90.9		*	% Passing	0.1	0.5	12/08/06 11:30	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	70.3		*	% Passing	0.1	0.5	11/22/06 12:43	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	93.0		*	%	0.1	0.5	11/28/06 20:30	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		22.5		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		32.5		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		45.0		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		Si/C/L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 42-58"

ACZ Sample ID: ***L59732-08***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 12:48	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:42	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 17:54	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 19:50	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 14:23	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		U		mg/Kg	0.2	1	12/21/06 10:13	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	BH	*	mg/Kg	0.2	1	11/30/06 21:58	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 21:58	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.068	H	*	%	0.003	0.02	12/18/06 15:26	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	8	H	*	mg/Kg	1	5	11/30/06 20:02	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 58-70"

ACZ Sample ID: ***L59732-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/17/06 10:58	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.35		*	meq/L	0.01	0.05	11/29/06 21:08	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.83		*	meq/L	0.02	0.08	11/29/06 21:08	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	140		*	mg/Kg	20	50	12/04/06 15:00	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.106		*	meq/L	0.008	0.03	11/29/06 21:08	msh
Sodium Absorption Ratio	Calculation	0.13	B			0.03	0.15	12/21/06 10:13	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.20		*	meq/L	0.01	0.04	11/29/06 21:08	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.8		*	%	0.1	0.5	11/21/06 14:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.477		*	mmhos/cm	0.001	0.01	11/23/06 12:44	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.8		*	%	0.1	0.5	12/07/06 14:22	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.2		*	units	0.1	0.1	11/23/06 12:44	srs
Saturation Percent	USDA No. 60 (2)	36.50		*	%	0.01	0.1	11/23/06 12:44	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	76.4		*	% Passing	0.1	0.5	12/08/06 12:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	94.6		*	% Passing	0.1	0.5	11/22/06 13:06	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	95.7		*	%	0.1	0.5	11/28/06 21:33	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		52.5		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		35.0		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-7 58-70"

ACZ Sample ID: ***L59732-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 13:00	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:44	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:00	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 19:56	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 14:38	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		U		mg/Kg	0.2	1	12/21/06 10:13	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	BH	*	mg/Kg	0.2	1	11/30/06 21:59	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 21:59	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.065	H	*	%	0.004	0.02	12/18/06 15:29	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	16	H	*	mg/Kg	1	5	11/30/06 20:04	pjb

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-8 0-6"

ACZ Sample ID: ***L59732-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/17/06 12:19	pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.91		*	meq/L	0.01	0.05	11/29/06 21:12	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.79		*	meq/L	0.02	0.08	11/29/06 21:12	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	360		*	mg/Kg	20	50	12/04/06 15:03	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	1.110		*	meq/L	0.008	0.03	11/29/06 21:12	msh
Sodium Absorption Ratio	Calculation	0.08	B			0.03	0.15	12/21/06 10:13	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.13		*	meq/L	0.01	0.04	11/29/06 21:12	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	2.5		*	%	0.1	0.5	11/21/06 14:12	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.587		*	mmhos/cm	0.001	0.01	11/23/06 15:15	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.2		*	%	0.1	0.5	12/07/06 14:37	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	11/23/06 15:15	srs
Saturation Percent	USDA No. 60 (2)	64.60		*	%	0.01	0.1	11/23/06 15:15	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	79.7		*	% Passing	0.1	0.5	12/08/06 12:30	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	92.1		*	% Passing	0.1	0.5	11/22/06 13:30	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	80.4		*	%	0.1	0.5	11/28/06 22:37	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		8.8		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		52.5		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		38.8		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-8 0-6"

ACZ Sample ID: ***L59732-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 13:12	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:45	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:06	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 20:03	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 14:52	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	2.1			mg/Kg	0.2	1	12/21/06 10:13	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.1	H	*	mg/Kg	0.2	1	11/30/06 22:00	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/30/06 22:00	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.22	H	*	%	0.01	0.06	12/18/06 15:30	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	25	H	*	mg/Kg	1	5	11/30/06 20:19	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-8 6-13"

ACZ Sample ID: ***L59732-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/06/06 18:39	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.13		*	meq/L	0.01	0.05	11/29/06 21:16	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.28		*	meq/L	0.02	0.08	11/29/06 21:16	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	280		*	mg/Kg	20	50	12/04/06 15:07	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.420		*	meq/L	0.008	0.03	11/29/06 21:16	msh
Sodium Absorption Ratio	Calculation	0.14	B			0.03	0.15	12/21/06 10:13	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.12		*	meq/L	0.01	0.04	11/29/06 21:16	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.1		*	%	0.1	0.5	11/21/06 14:24	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.275		*	mmhos/cm	0.001	0.01	11/23/06 17:47	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.8		*	%	0.1	0.5	12/07/06 14:51	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.1		*	units	0.1	0.1	11/23/06 17:47	srs
Saturation Percent	USDA No. 60 (2)	41.50		*	%	0.01	0.1	11/23/06 17:47	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	78.9		*	% Passing	0.1	0.5	12/08/06 13:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	90.5		*	% Passing	0.1	0.5	11/22/06 13:53	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	84.9		*	%	0.1	0.5	11/28/06 23:41	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		10.0		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		55.0		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		35.0		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-8 6-13"

ACZ Sample ID: ***L59732-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 13:24	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:47	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:12	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 20:09	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 15:06	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.7			mg/Kg	0.2	1	12/21/06 10:13	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.7	H	*	mg/Kg	0.2	1	11/30/06 22:02	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/30/06 22:02	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.153	H	*	%	0.004	0.02	12/08/06 18:21	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	20	H	*	mg/Kg	1	5	11/30/06 20:06	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-8 13-20"

ACZ Sample ID: ***L59732-12***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/06/06 19:38	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.56		*	meq/L	0.01	0.05	11/29/06 21:20	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.23		*	meq/L	0.02	0.08	11/29/06 21:20	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	190		*	mg/Kg	20	50	12/04/06 15:10	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.235		*	meq/L	0.008	0.03	11/29/06 21:20	msh
Sodium Absorption Ratio	Calculation	0.17				0.03	0.15	12/21/06 10:14	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.11		*	meq/L	0.01	0.04	11/29/06 21:20	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.4	B	*	%	0.1	0.5	11/21/06 14:36	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.164		*	mmhos/cm	0.001	0.01	11/23/06 20:19	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	12/07/06 15:05	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	11/23/06 20:19	srs
Saturation Percent	USDA No. 60 (2)	38.80		*	%	0.01	0.1	11/23/06 20:19	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	75.8		*	% Passing	0.1	0.5	12/08/06 13:30	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	96.9		*	% Passing	0.1	0.5	11/22/06 14:16	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	96.5		*	%	0.1	0.5	11/29/06 0:45	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		55.0		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		32.5		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

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2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-8 13-20"

ACZ Sample ID: ***L59732-12***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 13:36	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:49	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:18	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 20:15	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 15:20	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.8	B		mg/Kg	0.2	1	12/21/06 10:14	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	BH	*	mg/Kg	0.2	1	11/30/06 22:03	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/30/06 22:03	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.054	H	*	%	0.006	0.03	12/08/06 18:25	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	20	H	*	mg/Kg	1	5	11/30/06 20:07	pjb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-8 20-48"

ACZ Sample ID: ***L59732-13***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/06/06 20:38	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.60		*	meq/L	0.01	0.05	11/29/06 21:24	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.30		*	meq/L	0.02	0.08	11/29/06 21:24	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	200		*	mg/Kg	20	50	12/04/06 15:21	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.220		*	meq/L	0.008	0.03	11/29/06 21:24	msh
Sodium Absorption Ratio	Calculation	0.17				0.03	0.15	12/21/06 10:14	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.12		*	meq/L	0.01	0.04	11/29/06 21:24	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.3	B	*	%	0.1	0.5	11/21/06 14:48	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.184		*	mmhos/cm	0.001	0.01	11/23/06 22:50	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	12/07/06 15:19	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/23/06 22:50	srs
Saturation Percent	USDA No. 60 (2)	38.00		*	%	0.01	0.1	11/23/06 22:50	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	76.1		*	% Passing	0.1	0.5	12/08/06 14:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	92.6		*	% Passing	0.1	0.5	11/22/06 14:40	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	95.7		*	%	0.1	0.5	11/29/06 1:48	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		53.8		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		30.0		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-8 20-48"

ACZ Sample ID: ***L59732-13***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 13:48	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:50	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:24	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 20:22	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 15:34	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		U		mg/Kg	0.2	1	12/21/06 10:14	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	BH	*	mg/Kg	0.2	1	11/30/06 22:04	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 22:04	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.029	H	*	%	0.001	0.007	12/08/06 18:02	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	17	H	*	mg/Kg	1	5	11/30/06 20:08	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 0-6"

ACZ Sample ID: ***L59732-14***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/06/06 21:08	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.48		*	meq/L	0.01	0.05	11/29/06 21:28	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.39		*	meq/L	0.02	0.08	11/29/06 21:28	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	170		*	mg/Kg	20	50	12/04/06 15:24	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.199		*	meq/L	0.008	0.03	11/29/06 21:28	msh
Sodium Absorption Ratio	Calculation	0.09	B			0.03	0.15	12/21/06 10:14	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.13		*	meq/L	0.01	0.04	11/29/06 21:28	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	2.0		*	%	0.1	0.5	11/21/06 15:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.445		*	mmhos/cm	0.001	0.01	11/24/06 1:22	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.0		*	%	0.1	0.5	12/07/06 15:34	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	11/24/06 1:22	srs
Saturation Percent	USDA No. 60 (2)	51.60		*	%	0.01	0.1	11/24/06 1:22	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	85.6		*	% Passing	0.1	0.5	12/08/06 14:30	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	75.6		*	% Passing	0.1	0.5	11/22/06 15:03	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	87.3		*	%	0.1	0.5	11/29/06 2:52	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		47.5		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		36.3		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 0-6"

ACZ Sample ID: ***L59732-14***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 14:00	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:52	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:30	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 20:28	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 15:49	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.0			mg/Kg	0.2	1	12/21/06 10:14	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.8	H	*	mg/Kg	0.2	1	11/30/06 22:05	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 22:05	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.119	H	*	%	0.005	0.03	12/08/06 18:27	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	11	H	*	mg/Kg	1	5	11/30/06 20:09	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 6-12"

ACZ Sample ID: ***L59732-15***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/06/06 21:37	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.25		*	meq/L	0.01	0.05	11/29/06 21:32	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.54		*	meq/L	0.02	0.08	11/29/06 21:32	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	120		*	mg/Kg	20	50	12/04/06 15:28	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.087		*	meq/L	0.008	0.03	11/29/06 21:32	msh
Sodium Absorption Ratio	Calculation	0.08	B			0.03	0.15	12/21/06 10:14	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.12		*	meq/L	0.01	0.04	11/29/06 21:32	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	2.2		*	%	0.1	0.5	11/21/06 15:12	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.466		*	mmhos/cm	0.001	0.01	11/24/06 3:53	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.9		*	%	0.1	0.5	12/07/06 15:48	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.7		*	units	0.1	0.1	11/24/06 3:53	srs
Saturation Percent	USDA No. 60 (2)	47.60		*	%	0.01	0.1	11/24/06 3:53	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	84.6		*	% Passing	0.1	0.5	12/08/06 15:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	79.3		*	% Passing	0.1	0.5	11/22/06 15:26	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	88.7		*	%	0.1	0.5	11/29/06 3:56	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		50.0		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		32.5		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 6-12"

ACZ Sample ID: ***L59732-15***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 14:12	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:53	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:36	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 20:34	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 16:03	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2		U		mg/Kg	0.2	1	12/21/06 10:14	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	BH	*	mg/Kg	0.2	1	11/30/06 22:07	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 22:07	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.118	H	*	%	0.007	0.03	12/08/06 18:28	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	11	H	*	mg/Kg	1	5	11/30/06 20:11	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 12-30"

ACZ Sample ID: ***L59732-16***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/13/06 16:48	jag/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	2.31		*	mg/Kg	0.05	0.3	11/18/06 5:44	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	1.33		*	meq/L	0.01	0.05	11/29/06 21:36	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.28		*	meq/L	0.02	0.08	11/29/06 21:36	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	80		*	mg/Kg	20	50	12/04/06 15:31	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.099		*	meq/L	0.008	0.03	11/29/06 21:36	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 13:59	djt
Sodium Absorption Ratio	Calculation	0.10	B			0.03	0.15	12/21/06 10:14	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.09		*	meq/L	0.01	0.04	11/29/06 21:36	msh

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 12-30"

ACZ Sample ID: ***L59732-16***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	15			t CaCO3/Kt	1	5	12/21/06 10:14	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	42			t CaCO3/Kt	1	5	12/21/06 10:14	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	27			t CaCO3/Kt	1	5	12/21/06 10:14	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	29.6		*	%	0.1	0.5	11/21/06 15:24	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.265		*	mmhos/cm	0.001	0.01	11/24/06 6:25	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	4.2		*	%	0.1	0.5	12/07/06 16:02	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	11/24/06 6:25	srs
Saturation Percent	USDA No. 60 (2)	37.50		*	%	0.01	0.1	11/24/06 6:25	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	94.4		*	% Passing	0.1	0.5	12/08/06 15:30	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	59.8		*	% Passing	0.1	0.5	11/22/06 15:50	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	90.9		*	%	0.1	0.5	11/29/06 5:00	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.18		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Pyritic Sulfide		0.07	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Sulfate		0.23		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Total		0.48		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.25		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		68.8		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		18.8		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		SL		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 12-30"

ACZ Sample ID: ***L59732-16***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 14:24	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:55	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 11:15	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:42	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 20:41	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 16:17	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.7	B		mg/Kg	0.2	1	12/21/06 10:14	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	BH	*	mg/Kg	0.2	1	11/30/06 22:08	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/30/06 22:08	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	1.1	H	*	%	0.1	0.5	12/14/06 15:21	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	3	BH	*	mg/Kg	1	5	11/30/06 20:12	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 30-68"

ACZ Sample ID: ***L59732-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/13/06 17:23	jag/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	2.16		*	mg/Kg	0.05	0.3	11/18/06 5:48	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	20.90		*	meq/L	0.01	0.05	11/29/06 21:48	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	11.00		*	meq/L	0.02	0.08	11/29/06 21:48	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	100		*	mg/Kg	20	50	12/04/06 15:34	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.159		*	meq/L	0.008	0.03	11/29/06 21:48	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 14:03	djt
Sodium Absorption Ratio	Calculation	0.03	B			0.03	0.15	12/21/06 10:14	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.12		*	meq/L	0.01	0.04	11/29/06 21:48	msh

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 30-68"

ACZ Sample ID: ***L59732-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	19			t CaCO3/Kt	1	5	12/21/06 10:14	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	54			t CaCO3/Kt	1	5	12/21/06 10:14	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	35			t CaCO3/Kt	1	5	12/21/06 10:14	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	24.4		*	%	0.1	0.5	11/21/06 15:36	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	2.110		*	mmhos/cm	0.001	0.01	11/24/06 8:56	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	5.4		*	%	0.1	0.5	12/07/06 16:17	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.1		*	units	0.1	0.1	11/24/06 8:56	srs
Saturation Percent	USDA No. 60 (2)	55.20		*	%	0.01	0.1	11/24/06 8:56	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	97.4		*	% Passing	0.1	0.5	12/08/06 16:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	51.7		*	% Passing	0.1	0.5	11/22/06 16:13	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	89.4		*	%	0.1	0.5	11/29/06 6:03	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.23		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Sulfate		0.43		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Total		0.62		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.19		*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		57.5		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		25.0		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 30-68"

ACZ Sample ID: ***L59732-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 14:36	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:57	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 11:30	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:48	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 20:47	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 16:31	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.8	B		mg/Kg	0.2	1	12/21/06 10:14	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	BH	*	mg/Kg	0.2	1	11/30/06 22:13	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	11/30/06 22:13	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.49	H	*	%	0.02	0.08	12/14/06 15:23	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	2	BH	*	mg/Kg	1	5	11/30/06 20:16	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 80-95"

ACZ Sample ID: ***L59732-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/06/06 22:07	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.91		*	mg/Kg	0.05	0.3	11/18/06 6:01	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	2.34		*	meq/L	0.01	0.05	11/29/06 21:52	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.29		*	meq/L	0.02	0.08	11/29/06 21:52	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	120		*	mg/Kg	20	50	12/04/06 15:38	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.149		*	meq/L	0.008	0.03	11/29/06 21:52	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 14:07	djt
Sodium Absorption Ratio	Calculation	0.07	B			0.03	0.15	12/21/06 10:15	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.09		*	meq/L	0.01	0.04	11/29/06 21:52	msh

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 80-95"

ACZ Sample ID: ***L59732-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	2			t CaCO3/Kt	1	5	12/21/06 10:15	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	17			t CaCO3/Kt	1	5	12/21/06 10:15	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	15			t CaCO3/Kt	1	5	12/21/06 10:15	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	4.3		*	%	0.1	0.5	11/21/06 15:48	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.346		*	mmhos/cm	0.001	0.01	11/24/06 11:28	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.7		*	%	0.1	0.5	12/07/06 16:31	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	11/24/06 11:28	srs
Saturation Percent	USDA No. 60 (2)	49.00		*	%	0.01	0.1	11/24/06 11:28	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	85.5		*	% Passing	0.1	0.5	12/08/06 16:30	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	80.3		*	% Passing	0.1	0.5	11/22/06 16:36	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	90.6		*	%	0.1	0.5	11/29/06 7:07	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.03	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Sulfate		0.03	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Total		0.06	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.03	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		15.0		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		53.8		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		31.3		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 80-95"

ACZ Sample ID: ***L59732-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 14:48	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:58	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 11:45	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 18:54	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 20:53	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 16:46	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.6	B		mg/Kg	0.2	1	12/21/06 10:15	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.4	H	*	mg/Kg	0.2	1	11/30/06 22:14	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	11/30/06 22:14	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.180	H	*	%	0.007	0.04	12/08/06 18:30	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	9	H	*	mg/Kg	1	5	11/30/06 20:17	pjb

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 95-115"

ACZ Sample ID: ***L59732-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/06/06 23:36	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.86		*	mg/Kg	0.05	0.3	11/18/06 6:05	wfg
Calcium, soluble (Sat. Paste)	M6010B ICP	1.35		*	meq/L	0.01	0.05	11/29/06 21:56	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.29		*	meq/L	0.02	0.08	11/29/06 21:56	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	150		*	mg/Kg	20	50	12/04/06 15:41	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.051		*	meq/L	0.008	0.03	11/29/06 21:56	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	11/30/06 14:10	djt
Sodium Absorption Ratio	Calculation	0.24				0.03	0.15	12/21/06 10:15	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.22		*	meq/L	0.01	0.04	11/29/06 21:56	msh

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 95-115"

ACZ Sample ID: ***L59732-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	1			t CaCO3/Kt	1	5	12/21/06 10:15	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	13			t CaCO3/Kt	1	5	12/21/06 10:15	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	12			t CaCO3/Kt	1	5	12/21/06 10:15	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	2.4		*	%	0.1	0.5	11/21/06 16:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.254		*	mmhos/cm	0.001	0.01	11/24/06 14:00	srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.3		*	%	0.1	0.5	12/07/06 16:45	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.7		*	units	0.1	0.1	11/24/06 14:00	srs
Saturation Percent	USDA No. 60 (2)	51.00		*	%	0.01	0.1	11/24/06 14:00	srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	84.5		*	% Passing	0.1	0.5	12/08/06 17:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	74.4		*	% Passing	0.1	0.5	11/22/06 17:00	as/srs
Solids, Percent	CLPSOW390, PART F, D-98	89.7		*	%	0.1	0.5	11/29/06 8:11	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.02	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Sulfate		0.02	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Sulfur Total		0.04	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.02	B	*	%	0.01	0.1	11/25/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		15.0		*	%	0.1	0.5	12/07/06 0:00	brg
Sand		55.0		*	%	0.1	0.5	12/07/06 0:00	brg
Silt		30.0		*	%	0.1	0.5	12/07/06 0:00	brg
Texture Classification		L		*				12/07/06 0:00	brg
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 95-115"

ACZ Sample ID: ***L59732-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/27/06 15:00	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 10:00	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/17/06 12:00	srs/aep
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/27/06 19:00	jjr
Saturated Paste Extraction	USDA No. 60 (2)							11/20/06 21:00	srs/erf
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/13/06 17:00	as/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.3			mg/Kg	0.2	1	12/21/06 10:15	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.9	H	*	mg/Kg	0.2	1	11/30/06 22:15	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	11/30/06 22:15	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.39	H	*	%	0.01	0.05	12/08/06 18:06	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	11	H	*	mg/Kg	1	5	11/30/06 20:18	pjb

** Please refer to Qualifier Reports for detail.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicated MDL
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.
X	Quality control sample is out of control.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

Carbon Resources
Project ID:

ACZ Project ID: ***L59732***

Boron, soluble (Hot Water) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216774													
WG216774ICV	ICV	11/18/06 4:16	II061113-6	2		1.938	mg/L	96.9	90	110			
WG216774ICB	ICB	11/18/06 4:20				U	mg/L		-0.03	0.03			
L59459-01DUP	DUP	11/18/06 4:44			.4	.4	mg/L				0	20	
WG216738PBS	PBS	11/18/06 4:48				U	mg/L		-0.15	0.15			
L59731-09DUP	DUP	11/18/06 4:56			.57	.72	mg/L				23.3	20	RC
L59731-10AS	AS	11/18/06 5:16	II061116-2	2.5	.66	3.185	mg/L	101	75	125			
L59731-10ASD	ASD	11/18/06 5:20	II061116-2	2.5	.66	3.202	mg/L	101.7	75	125	0.53	20	

Calcium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217319													
WG217319ICV	ICV	11/29/06 20:05	II061128-2	100		98.76	mg/L	98.8	90	110			
WG217319ICB	ICB	11/29/06 20:09				U	mg/L		-0.6	0.6			
L59732-01DUP	DUP	11/29/06 20:28			1.33	1.853	meq/L				32.8	20	RC

Carbon, total organic (TOC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216966													
WG216966PBS	PBS	11/21/06 12:00				U	%		-0.3	0.3			
L59732-01DUP	DUP	11/21/06 12:24			1.6	1.6	%				0	20	

Conductivity @25C M120.1 - Meter, w/ Saturated Paste Prep

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217046													
L59732-01DUP	DUP	11/22/06 16:31			.249	.347	mmhos/cn				32.9	20	RA TB

Magnesium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217319													
WG217319ICV	ICV	11/29/06 20:05	II061128-2	100		96.21	mg/L	96.2	90	110			
WG217319ICB	ICB	11/29/06 20:09				U	mg/L		-0.6	0.6			
L59732-01DUP	DUP	11/29/06 20:28			.31	.442	meq/L				35.1	20	RC

Neutralization Potential as CaCO3 M600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217777													
WG217777LCSS	LCSS	12/07/06 12:14	PCN20880	100		102.96	%						
L59732-20DUP	DUP	12/07/06 16:59			1.3	1.3	%				0	20	

Carbon Resources
Project ID:

ACZ Project ID: ***L59732***

Nitrate/Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217443													
WG217443ICV	ICV	11/30/06 20:53	WI060906-3	2.416		2.399	mg/L	99.3	90	110			
WG217443ICB	ICB	11/30/06 20:54				U	mg/L		-0.06	0.06			
WG217444													
WG217444ICV	ICV	11/30/06 21:38	WI060906-3	2.416		2.261	mg/L	93.6	90	110			
WG217444ICB	ICB	11/30/06 21:39				U	mg/L		-0.06	0.06			
WG217444LFB	LFB	11/30/06 21:41	WI060906-4	2		1.937	mg/Kg	96.9	85	115			
WG217125PBS	PBS	11/30/06 21:42				1.27	mg/Kg		-0.6	0.6			N1
L59732-01DUP	DUP	11/30/06 21:44			8.6	8.5	mg/Kg				1.2	20	
L59732-02AS	AS	11/30/06 21:47	WI060906-4	20	9.8	28.23	mg/Kg	92.2	75	125			

Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217443													
WG217443ICV	ICV	11/30/06 20:53	WI060906-3	.609		.661	mg/L	108.5	90	110			
WG217443ICB	ICB	11/30/06 20:54				U	mg/L		-0.03	0.03			
WG217444													
WG217444ICV	ICV	11/30/06 21:38	WI060906-3	.609		.652	mg/L	107.1	90	110			
WG217444ICB	ICB	11/30/06 21:39				U	mg/L		-0.03	0.03			
WG217444LFB	LFB	11/30/06 21:41	WI060906-4	1		1.003	mg/Kg	100.3	85	115			
WG217125PBS	PBS	11/30/06 21:42				U	mg/Kg		-0.3	0.3			
L59732-01DUP	DUP	11/30/06 21:44			.7	.72	mg/Kg				2.8	20	RA
L59732-02AS	AS	11/30/06 21:47	WI060906-4	10	.8	10.25	mg/Kg	94.5	75	125			

Carbon Resources
Project ID:

ACZ Project ID: ***L59732***

Nitrogen, total Kjeldahl M351.2 - TKN by Block Digester

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217861													
WG217691ICV	ICV	12/08/06 17:01	WI061129-2	4		3.92	mg/L	98	90	110			
WG217691ICB	ICB	12/08/06 17:02				U	mg/L		-0.3	0.3			
WG217691PBS2	PBS	12/08/06 17:36				U	%		-0.003	0.003			
WG217691LFB2	LFB	12/08/06 17:37	WI061129-6	2.5		2.47	%	98.8	85	115			
L59735-14MS	MS	12/08/06 17:39	WI061129-6	.0325	.019	.0476	%	88	75	125			
WG217691PBS1	PBS	12/08/06 17:53				U	%		-0.003	0.003			
WG217691LFB1	LFB	12/08/06 17:54	WI061129-6	2.5		2.54	%	101.6	85	115			
L59735-15DUP	DUP	12/08/06 18:14			.19	.232	%				19.9	20	
L59732-11DUP	DUP	12/08/06 18:24			.153	.1393	%				9.4	20	
L59732-12MS	MS	12/08/06 18:26	5XPTSTKN	.0345	.054	.095	%	118.8	75	125			
WG218152													
WG218152ICV1	ICV	12/14/06 15:10	WI061129-2	4		3.93	mg/L	98.3	90	110			
WG218073ICB	ICB	12/14/06 15:12				U	mg/L		-0.3	0.3			
WG218073PBS	PBS	12/14/06 15:19				U	%		-0.006	0.006			
WG218073LFB	LFB	12/14/06 15:20	WI061129-6	2.5		2.66	%	106.4	85	115			
L60028-01MS	MS	12/14/06 15:27	100XTKN	.0535	6	5.94	%	-112.1	75	125			M3
L60098-01DUP	DUP	12/14/06 15:29			6.7	6.97	%				4	20	
WG218282													
WG218275ICV	ICV	12/18/06 11:56	WI061129-2	4		3.9	mg/L	97.5	90	110			
WG218275ICB	ICB	12/18/06 11:57				U	mg/L		-0.3	0.3			
WG218283													
WG218274PBS	PBS	12/18/06 13:45				U	%		-0.0024	0.0024			
WG218274LFB	LFB	12/18/06 13:46	WI061129-6	2.5		2.36	%	94.4	85	115			
WG218274ICV	ICV	12/18/06 15:14	WI061129-2	4		3.82	mg/L	95.5	90	110			
WG218274ICB	ICB	12/18/06 15:15				U	mg/L		-0.3	0.3			
L59732-01MS	MS	12/18/06 15:17	5XPTSTKN	.0235	.088	.116	%	119.1	75	125			
L59732-02DUP	DUP	12/18/06 15:19			.093	.1318	%				34.5	20	RD

Percent Clay ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217417													
L59732-01DUP	DUP	12/07/06 9:24			21.3	21.3	%				0	20	

Percent Sand ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217417													
L59732-01DUP	DUP	12/07/06 9:24			37.5	37.5	%				0	20	

Percent Silt ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217417													
L59732-01DUP	DUP	12/07/06 9:24			41.3	41.3	%				0	20	

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Carbon Resources
Project ID:

ACZ Project ID: ***L59732***

pH, Saturated Paste USDA No. 60 (21A)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217046													
L59732-01DUP	DUP	11/22/06 16:31			7.7	7.69	units				0.1	20	

Phosphorus, extractable (AB-DTPA) M365.1 - Automated Ascorbic Acid

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217438													
WG217438ICV	ICV	11/30/06 18:55	SCN000224	.65228		.649	mg/L	99.5	90	110			
WG217438ICB	ICB	11/30/06 18:57				.013	mg/L		-0.03	0.03			
WG217440													
WG217440ICV	ICV	11/30/06 19:33	SCN000224	.65228		.663	mg/L	101.6	90	110			
WG217440ICB	ICB	11/30/06 19:35				.013	mg/L		-0.03	0.03			
WG217440LFB1	LFB	11/30/06 19:36	WI061125-2	.5		.484	mg/Kg	96.8	85	115			
L59811-01DUP	DUP	11/30/06 19:39			8	7.6	mg/Kg				5.1	20	RA
L59811-02AS	AS	11/30/06 19:42	WI061125-2	50	6	51.3	mg/Kg	90.6	75	125			
WG217005PBS	PBS	11/30/06 19:49				7.1	mg/Kg		-3	3			N1
L59732-01DUP	DUP	11/30/06 19:51			18	17.5	mg/Kg				2.8	20	
L59732-02AS	AS	11/30/06 19:54	WI061125-2	50	15	62.5	mg/Kg	95	75	125			
WG217440LFB2	LFB	11/30/06 20:10	WI061125-2	.5		.505	mg/Kg	101	85	115			

Potassium, extractable (AB-DTPA) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217467													
WG217467ICV	ICV	12/04/06 13:51	II061128-2	20		18.58	mg/L	92.9	90	110			
WG217467ICB	ICB	12/04/06 13:54				U	mg/L		-0.9	0.9			
WG217005PBS	PBS	12/04/06 14:08				U	mg/L		-60	60			
L59732-01DUP	DUP	12/04/06 14:15			80	88	mg/L				9.5	20	RA
L59732-02AS	AS	12/04/06 14:22	II061116-2	4973.4095	240	5814	mg/L	112.1	75	125			
L59732-02ASD	ASD	12/04/06 14:25	II061116-2	4973.4095	240	6145	mg/L	118.7	75	125	5.54	20	

Potassium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217319													
WG217319ICV	ICV	11/29/06 20:05	II061128-2	20		19.22	mg/L	96.1	90	110			
WG217319ICB	ICB	11/29/06 20:09				U	mg/L		-0.9	0.9			
L59732-01DUP	DUP	11/29/06 20:28			.076	.0599	meq/L				23.7	20	RA

Saturation Percent USDA No. 60 (2)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217046													
L59732-01DUP	DUP	11/22/06 16:31			52.3	51.04	%				2.4	20	

Carbon Resources
Project ID:

ACZ Project ID: ***L59732***

Selenium, soluble (Hot Water) SM3500-Se.C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217220													
WG217220ICV	ICV	11/30/06 10:30	II061127-5	.025		.0272	mg/L	108.8	90	110			
WG217220ICB	ICB	11/30/06 10:33				U	mg/L		-0.003	0.003			
WG217223													
L59732-20AS	AS	11/30/06 14:14	II061113-3	.1	U	.097	mg/Kg	97	85	115			
L59732-20ASD	ASD	11/30/06 14:25	II061113-3	.1	U	.0985	mg/Kg	98.5	85	115	1.53	20	
WG216738PBS	PBS	11/30/06 15:18				U	mg/Kg		-0.015	0.015			
L59731-09DUP	DUP	11/30/06 15:25			U	U	mg/Kg				0	20	RA
L59731-10AS	AS	11/30/06 15:33	II061113-3	.1	U	.0961	mg/Kg	96.1	85	115			
L59731-10ASD	ASD	11/30/06 15:36	II061113-3	.1	U	.0958	mg/Kg	95.8	85	115	0.31	20	

Sodium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217319													
WG217319ICV	ICV	11/29/06 20:05	II061128-2	100		95.35	mg/L	95.4	90	110			
WG217319ICB	ICB	11/29/06 20:09				U	mg/L		-0.9	0.9			
L59732-01DUP	DUP	11/29/06 20:28			.3	.578	meq/L				63.3	20	RC

Solids, Percent CLPSOW390, PART F, D-98

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217210													
WG217210PBS	PBS	11/28/06 12:00				U	%		99.9	100.1			
L59732-20DUP	DUP	11/29/06 9:15			89.7	89.49	%				0.2	20	

Sulfur Organic Residual M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
L59732-20DUP	DUP	11/25/06 18:00			.02	.02	%				0	20	RA

Sulfur Pyritic Sulfide M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
L59732-20DUP	DUP	11/25/06 18:00			U	U	%				0	20	RA

Sulfur Sulfate M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
L59732-20DUP	DUP	11/25/06 18:00			.02	.02	%				0	20	RA

Sulfur Total M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
WG217075PBS	PBS	11/24/06 11:00				U	%		-0.03	0.03			
WG217075LCSS	LCSS	11/24/06 13:23	PCN25383	4.24		4.3	%		80	120			
L59732-20DUP	DUP	11/25/06 18:00			.04	.04	%				0	20	RA

Carbon Resources
Project ID:

ACZ Project ID: ***L59732***

Total Sulfur Minus Sulfate M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217075													
L59732-20DUP	DUP	11/25/06 18:00			.02	.02	%				0	20	RA

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-01	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-02	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-03	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-04	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-05	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-06	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-07	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-08	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-09	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-10	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218283	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-11	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-12	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-13	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-14	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-15	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-16	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217319	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218152	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M3	The accuracy of the spike recovery does not apply because analyte concentration in the sample is disproportionate to the spike level. The recovery of the method control sample was acceptable.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-17	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217319	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218152	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M3	The accuracy of the spike recovery does not apply because analyte concentration in the sample is disproportionate to the spike level. The recovery of the method control sample was acceptable.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-18	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217319	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59732***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59732-20	WG216774	Boron, soluble (Hot Water)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217319	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217467	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217319	Potassium, soluble (Sat. Paste)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217223	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217319	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217046	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217075	Sulfur Organic Residual	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Total Sulfur minus Sulfate	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217444	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217440	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Selenium, soluble (Hot Water)	SM3500-Se.C

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
pH, Saturated Paste	USDA No. 60 (21A)
Saturation Percent	USDA No. 60 (2)
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2
Solids, Percent	CLPSOW390, PART F, D-98
Sulfur Forms	M600/2-78-054 3.2.4
Texture by Hydrometer	ASTM D 422 Hydrometer

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59732
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
BUCKET X 8		22.5	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59732
Date Received: 10/31/2006
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L59732-01	D-5 40-60"									X		
L59732-02	D-6 0-7"									X		
L59732-03	D-6 24-48"									X		
L59732-04	D-6 48-72"									X		
L59732-05	D-7 0-6"									X		
L59732-06	D-7 6-20"									X		
L59732-07	D-7 20-42"									X		
L59732-08	D-7 42-58"									X		
L59732-09	D-7 58-70"									X		
L59732-10	D-8 0-6"									X		
L59732-11	D-8 6-13"									X		
L59732-12	D-8 13-20"									X		
L59732-13	D-8 20-48"									X		
L59732-14	D-9A 0-6"									X		
L59732-15	D-9A 6-12"									X		
L59732-16	D-9A 12-30"									X		
L59732-17	D-9A 30-68"									X		
L59732-18	D-9A 80-95"									X		
L59732-20	D-9A 95-115"									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59732

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

LDC 10.26.00

Sue Webber

From: GHuntBBC@aol.com
Sent: Friday, October 27, 2006 12:52 PM
To: bches@scinternet.net; Sue Webber
Subject: Sue Weber Carbon Resources Soil Samples

FROM: **Geo-Hunt Consulting**
16577 Columbine Lane
Cedaredge, CO 81413
970-856-9477

TO: **Sue Webber, Project Manager**
ACZ Laboratories, Inc.
2773 Downhill Drive,
Steamboat Springs, Co 80487

RE: **TRANSMITTAL OF SOIL SAMPLES**

Dear Sue:
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

10/31/2006

Very Fine Sand

analyst: as
date: 12-12-06

ACZ L#	Total sample wt. gms	% <2000um sieve	Wt. of sxs used for Texture gms	Wt. of sxs between 105um & 53um gm.	% VFS
L59732-01	219.77	84.4	40.0	6.2	**13.10**
L59732-02	300.77	87.6	40.0	5.6	**12.30**
L59732-03	240.99	72.4	40.0	6.2	**11.30**
L59732-04	272.23	61.4	40.0	5.8	**8.9**
L59732-05	211.88	68.2	40.0	5.7	**9.7**
L59732-06	228.73	53.9	40.0	5.2	**7.1**
L59732-07	225.47	67.7	40.0	5.0	**8.5**
L59732-08	257.01	70.3	40.0	5.2	**9.1**
L59732-09	234.19	94.6	40.0	10.0	**23.6**
L59732-10	212.60	92.1	40.0	8.8	**20.3**
L59732-11	186.83	90.5	40.0	9.3	**21.1**
L59732-12	207.24	96.9	40.0	10.0	**24.2**
L59732-13	208.49	92.6	40.0	10.3	**23.9**
L59732-14	221.90	75.6	40.0	7.6	**14.4**
L59732-15	232.91	79.3	40.0	7.8	**15.4**
L59732-16	274.03	59.8	40.0	3.8	**5.6**
L59732-17	254.63	51.7	40.0	2.0	**2.6**
L59732-18	181.46	80.3	40.0	7.2	**14.5**
L59732-20	200.70	74.4	40.0	8.3	**15.5**
dup L59732-01	219.77	84.4	40.	6.6	**13.9**

(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture

(VFS of Texture) x (% <2000um) = % VFS

additional data from:

-sieve2000 WG216880

-sieve53 WG217642

-texture WG217417

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59733

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59733. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59733. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 8048: (800) 334-5493

Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59733

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 20 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59733. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 115-145"

ACZ Sample ID: ***L59733-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 14:49	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.57		*	mg/Kg	0.05	0.3	12/08/06 5:29	gme
Calcium, soluble (Sat. Paste)	M6010B ICP	12.70			meq/L	0.01	0.05	12/07/06 4:26	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	2.67			meq/L	0.02	0.08	12/07/06 4:26	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	200		*	mg/Kg	20	50	12/06/06 12:49	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.351			meq/L	0.008	0.03	12/07/06 4:26	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	12/01/06 11:43	djt
Sodium Absorption Ratio	Calculation	0.10	B			0.03	0.15	12/21/06 10:26	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.30			meq/L	0.01	0.04	12/07/06 4:26	msh

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 115-145"

ACZ Sample ID: ***L59733-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	0			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	5			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	5			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.3	B	*	%	0.1	0.5	12/05/06 9:22	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	1.250		*	mmhos/cm	0.001	0.01	11/30/06 10:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5		*	%	0.1	0.5	11/30/06 9:32	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.1		*	units	0.1	0.1	11/30/06 10:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	42.50		*	%	0.01	0.1	11/30/06 10:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	81.2		*	% Passing	0.1	0.5	12/11/06 9:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	81.5		*	% Passing	0.1	0.5	11/24/06 8:00	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	89.5		*	%	0.1	0.5	11/28/06 13:00	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.01	B	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Sulfur Sulfate		0.01	B	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Sulfur Total		0.02	B	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.01	B	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		22.5		*	%	0.1	0.5	12/08/06 0:00	srs
Sand		50.0		*	%	0.1	0.5	12/08/06 0:00	srs
Silt		27.5		*	%	0.1	0.5	12/08/06 0:00	srs
Texture Classification		L		*				12/08/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9A 115-145"

ACZ Sample ID: ***L59733-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 9:20	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:00	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/28/06 15:13	jjr
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 16:11	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 16:00	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:00	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.6			mg/Kg	0.2	1	12/21/06 10:26	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.2	H	*	mg/Kg	0.2	1	12/02/06 18:13	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/02/06 18:13	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.046	H	*	%	0.004	0.02	11/18/06 20:41	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	13	H	*	mg/Kg	1	5	11/30/06 20:29	paulb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 0-6"

ACZ Sample ID: ***L59733-02***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 15:06	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.46		*	mg/Kg	0.05	0.3	12/08/06 5:45	gme
Calcium, soluble (Sat. Paste)	M6010B ICP	2.76			meq/L	0.01	0.05	12/07/06 4:30	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.39			meq/L	0.02	0.08	12/07/06 4:30	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	250		*	mg/Kg	20	50	12/06/06 12:56	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.317			meq/L	0.008	0.03	12/07/06 4:30	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	12/01/06 11:54	djt
Sodium Absorption Ratio	Calculation	0.18				0.03	0.15	12/21/06 10:26	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.23			meq/L	0.01	0.04	12/07/06 4:30	msh

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 0-6"

ACZ Sample ID: ***L59733-02***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	0			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	24			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	24			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.7		*	%	0.1	0.5	12/05/06 10:08	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.430		*	mmhos/cm	0.001	0.01	11/30/06 11:21	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.4		*	%	0.1	0.5	11/30/06 9:49	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.4		*	units	0.1	0.1	11/30/06 11:21	lwt/srs
Saturation Percent	USDA No. 60 (2)	41.50		*	%	0.01	0.1	11/30/06 11:21	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	85.0		*	% Passing	0.1	0.5	12/11/06 10:15	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	82.3		*	% Passing	0.1	0.5	11/24/06 12:15	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	86.6		*	%	0.1	0.5	11/28/06 14:01	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.02	B	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Sulfur Sulfate			U	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Sulfur Total		0.02	B	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.02	B	*	%	0.01	0.1	11/30/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		25.0		*	%	0.1	0.5	12/09/06 0:00	srs
Sand		35.0		*	%	0.1	0.5	12/09/06 0:00	srs
Silt		40.0		*	%	0.1	0.5	12/09/06 0:00	srs
Texture Classification		SiL		*				12/09/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 0-6"

ACZ Sample ID: ***L59733-02***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 10:02	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:03	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/28/06 15:26	jjr
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 16:34	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 16:06	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:03	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	2.9			mg/Kg	0.2	1	12/21/06 10:26	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	3.5	H	*	mg/Kg	0.2	1	12/02/06 18:16	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/02/06 18:16	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.133	H	*	%	0.003	0.02	11/18/06 20:43	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	20	H	*	mg/Kg	1	5	11/30/06 20:31	paulb

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2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 6-12"

ACZ Sample ID: ***L59733-03***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 15:23	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.49		*	mg/Kg	0.05	0.3	12/08/06 5:49	gme
Calcium, soluble (Sat. Paste)	M6010B ICP	2.47			meq/L	0.01	0.05	12/07/06 4:34	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.39			meq/L	0.02	0.08	12/07/06 4:34	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	170		*	mg/Kg	20	50	12/08/06 1:51	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.120			meq/L	0.008	0.03	12/07/06 4:34	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	12/01/06 11:57	djt
Sodium Absorption Ratio	Calculation	0.17				0.03	0.15	12/21/06 10:26	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.21			meq/L	0.01	0.04	12/07/06 4:34	msh

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 6-12"

ACZ Sample ID: ***L59733-03***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	0			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	22			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	22			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	2.4		*	%	0.1	0.5	12/05/06 10:31	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.370		*	mmhos/cm	0.001	0.01	11/30/06 12:42	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.2		*	%	0.1	0.5	11/30/06 10:05	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.4		*	units	0.1	0.1	11/30/06 12:42	lwt/srs
Saturation Percent	USDA No. 60 (2)	34.90		*	%	0.01	0.1	11/30/06 12:42	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	80.7		*	% Passing	0.1	0.5	12/11/06 11:31	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	88.2		*	% Passing	0.1	0.5	11/24/06 16:31	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	85.7		*	%	0.1	0.5	11/28/06 15:02	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.03	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Sulfate			U	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Total		0.03	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.03	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	12/09/06 0:00	srs
Sand		51.3		*	%	0.1	0.5	12/09/06 0:00	srs
Silt		31.3		*	%	0.1	0.5	12/09/06 0:00	srs
Texture Classification		L		*				12/09/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 6-12"

ACZ Sample ID: ***L59733-03***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 10:22	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:06	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/28/06 15:40	jjr
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 16:45	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 16:12	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:06	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.9	B		mg/Kg	0.2	1	12/21/06 10:26	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.6	H	*	mg/Kg	0.2	1	12/02/06 18:18	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/02/06 18:18	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.24	H	*	%	0.02	0.1	11/18/06 20:45	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	31	H	*	mg/Kg	1	5	11/30/06 20:33	paulb

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ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 12-30"

ACZ Sample ID: ***L59733-04***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 15:32	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	2.27		*	mg/Kg	0.05	0.3	12/08/06 6:01	gme
Calcium, soluble (Sat. Paste)	M6010B ICP	18.50			meq/L	0.01	0.05	12/07/06 4:38	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	3.87			meq/L	0.02	0.08	12/07/06 4:38	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	120		*	mg/Kg	20	50	12/08/06 2:15	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.174			meq/L	0.008	0.03	12/07/06 4:38	msh
Selenium, soluble (Hot Water)	SM3500-Se.C	0.007	B	*	mg/Kg	0.005	0.03	12/01/06 12:01	djt
Sodium Absorption Ratio	Calculation	0.07	B			0.03	0.15	12/21/06 10:26	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.25			meq/L	0.01	0.04	12/07/06 4:38	msh

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 12-30"

ACZ Sample ID: ***L59733-04***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	16			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	51			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	35			t CaCO3/Kt	1	5	12/21/06 10:26	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	23.1		*	%	0.1	0.5	12/05/06 10:54	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	1.610		*	mmhos/cm	0.001	0.01	11/30/06 14:03	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	5.1		*	%	0.1	0.5	11/30/06 10:21	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.1		*	units	0.1	0.1	11/30/06 14:03	lwt/srs
Saturation Percent	USDA No. 60 (2)	50.30		*	%	0.01	0.1	11/30/06 14:03	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	96.3		*	% Passing	0.1	0.5	12/11/06 12:47	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	47.2		*	% Passing	0.1	0.5	11/24/06 20:47	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	91.9		*	%	0.1	0.5	11/28/06 16:02	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.20		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Pyritic Sulfide		0.12		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Sulfate		0.20		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Total		0.52		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.32		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		23.8		*	%	0.1	0.5	12/09/06 0:00	srs
Sand		50.0		*	%	0.1	0.5	12/09/06 0:00	srs
Silt		26.3		*	%	0.1	0.5	12/09/06 0:00	srs
Texture Classification		L		*				12/09/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 12-30"

ACZ Sample ID: ***L59733-04***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 10:43	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:09	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/28/06 15:53	jjr
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 16:57	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 16:18	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:09	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.5			mg/Kg	0.2	1	12/21/06 10:26	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.5	H	*	mg/Kg	0.2	1	12/02/06 18:19	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	12/02/06 18:19	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.73		*	%	0.04	0.2	11/18/06 20:46	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	3	BH	*	mg/Kg	1	5	11/30/06 20:34	paulb

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 30-52"

ACZ Sample ID: ***L59733-05***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 15:41	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	1.41		*	mg/Kg	0.05	0.3	12/08/06 6:05	gme
Calcium, soluble (Sat. Paste)	M6010B ICP	25.10			meq/L	0.01	0.05	12/07/06 4:46	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	1.48			meq/L	0.02	0.08	12/07/06 4:46	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	30	B	*	mg/Kg	20	50	12/08/06 2:19	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.062			meq/L	0.008	0.03	12/07/06 4:46	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	12/01/06 12:05	djt
Sodium Absorption Ratio	Calculation	0.04	B			0.03	0.15	12/21/06 10:27	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.16			meq/L	0.01	0.04	12/07/06 4:46	msh

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 30-52"

ACZ Sample ID: ***L59733-05***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	35			t CaCO3/Kt	1	5	12/21/06 10:27	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	46			t CaCO3/Kt	1	5	12/21/06 10:27	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	11			t CaCO3/Kt	1	5	12/21/06 10:27	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	54.0		*	%	0.1	0.5	12/05/06 11:17	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	1.770		*	mmhos/cm	0.001	0.01	11/30/06 16:45	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	4.6		*	%	0.1	0.5	11/30/06 10:38	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.1		*	units	0.1	0.1	11/30/06 16:45	lwt/srs
Saturation Percent	USDA No. 60 (2)	59.00		*	%	0.01	0.1	11/30/06 16:45	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	97.1		*	% Passing	0.1	0.5	12/11/06 14:03	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	72.1		*	% Passing	0.1	0.5	11/25/06 1:03	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	91.5		*	%	0.1	0.5	11/28/06 17:03	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.51		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Pyritic Sulfide		0.08	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Sulfate		0.54		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Total		1.13		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.59		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		2.5		*	%	0.1	0.5	12/09/06 0:00	srs
Sand		93.8		*	%	0.1	0.5	12/09/06 0:00	srs
Silt		3.8		*	%	0.1	0.5	12/09/06 0:00	srs
Texture Classification		S		*				12/09/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 30-52"

ACZ Sample ID: ***L59733-05***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 11:04	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:12	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/28/06 16:06	jjr
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 17:08	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 16:30	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:12	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.2			mg/Kg	0.2	1	12/21/06 10:27	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.2	H	*	mg/Kg	0.2	1	12/02/06 18:24	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	12/02/06 18:24	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	1.43		*	%	0.05	0.3	11/18/06 22:38	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	1	BH	*	mg/Kg	1	5	11/30/06 20:35	paulb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 52-80"

ACZ Sample ID: ***L59733-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 15:49	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	1.73		*	mg/Kg	0.05	0.3	12/08/06 6:09	gme
Calcium, soluble (Sat. Paste)	M6010B ICP	20.10			meq/L	0.01	0.05	12/07/06 4:50	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	6.54			meq/L	0.02	0.08	12/07/06 4:50	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	150		*	mg/Kg	20	50	12/08/06 2:23	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.424			meq/L	0.008	0.03	12/07/06 4:50	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	12/01/06 12:08	djt
Sodium Absorption Ratio	Calculation	0.05	B			0.03	0.15	12/21/06 10:27	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.21			meq/L	0.01	0.04	12/07/06 4:50	msh

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 52-80"

ACZ Sample ID: ***L59733-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	2			t CaCO3/Kt	1	5	12/21/06 10:27	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	7			t CaCO3/Kt	1	5	12/21/06 10:27	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	5			t CaCO3/Kt	1	5	12/21/06 10:27	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.4		*	%	0.1	0.5	12/05/06 11:39	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	1.850		*	mmhos/cm	0.001	0.01	11/30/06 18:06	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	11/30/06 10:54	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	11/30/06 18:06	lwt/srs
Saturation Percent	USDA No. 60 (2)	38.00		*	%	0.01	0.1	11/30/06 18:06	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	78.6		*	% Passing	0.1	0.5	12/11/06 15:18	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	82.7		*	% Passing	0.1	0.5	11/25/06 5:18	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	95.5		*	%	0.1	0.5	11/28/06 18:04	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.02	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Sulfate		0.04	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Total		0.05	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.01	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		13.8		*	%	0.1	0.5	12/09/06 0:00	srs
Sand		60.0		*	%	0.1	0.5	12/09/06 0:00	srs
Silt		26.3		*	%	0.1	0.5	12/09/06 0:00	srs
Texture Classification		SL		*				12/09/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 52-80"

ACZ Sample ID: ***L59733-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 11:25	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:15	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/28/06 16:20	jjr
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 17:20	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 16:36	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:15	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.4	B		mg/Kg	0.2	1	12/21/06 10:27	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.1	H	*	mg/Kg	0.2	1	12/02/06 18:25	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/02/06 18:25	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.094	H	*	%	0.002	0.01	11/18/06 20:48	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	11	H	*	mg/Kg	1	5	11/30/06 20:37	paulb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 80-102"

ACZ Sample ID: ***L59733-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 16:15	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	0.86		*	mg/Kg	0.05	0.3	12/08/06 6:13	gme
Calcium, soluble (Sat. Paste)	M6010B ICP	19.40			meq/L	0.01	0.05	12/07/06 5:02	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	6.62			meq/L	0.02	0.08	12/07/06 5:02	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	180		*	mg/Kg	20	50	12/08/06 2:27	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.583			meq/L	0.008	0.03	12/07/06 5:02	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	12/01/06 12:19	djt
Sodium Absorption Ratio	Calculation	0.06	B			0.03	0.15	12/21/06 10:27	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.24			meq/L	0.01	0.04	12/07/06 5:02	msh

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 80-102"

ACZ Sample ID: ***L59733-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	0			t CaCO3/Kt	1	5	12/21/06 10:27	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	6			t CaCO3/Kt	1	5	12/21/06 10:27	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	6			t CaCO3/Kt	1	5	12/21/06 10:27	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.9		*	%	0.1	0.5	12/05/06 12:02	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	1.730		*	mmhos/cm	0.001	0.01	11/30/06 19:27	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	11/30/06 11:10	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	11/30/06 19:27	lwt/srs
Saturation Percent	USDA No. 60 (2)	37.90		*	%	0.01	0.1	11/30/06 19:27	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	79.8		*	% Passing	0.1	0.5	12/11/06 16:34	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	82.7		*	% Passing	0.1	0.5	11/25/06 9:34	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	95.9		*	%	0.1	0.5	11/28/06 19:05	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.01	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Pyritic Sulfide			U	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Sulfate		0.02	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Total		0.03	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.01	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		15.0		*	%	0.1	0.5	12/09/06 0:00	srs
Sand		53.8		*	%	0.1	0.5	12/09/06 0:00	srs
Silt		31.3		*	%	0.1	0.5	12/09/06 0:00	srs
Texture Classification		L		*				12/09/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-9B 80-102"

ACZ Sample ID: ***L59733-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 11:45	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:18	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/28/06 16:33	jjr
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 17:31	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 16:42	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:18	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.4	B		mg/Kg	0.2	1	12/21/06 10:27	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.1	H	*	mg/Kg	0.2	1	12/02/06 18:27	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/02/06 18:27	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.060	H	*	%	0.002	0.01	11/18/06 20:53	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	11	H	*	mg/Kg	1	5	11/30/06 20:40	paulb

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-10 0-5"

ACZ Sample ID: ***L59733-08***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 16:24	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.23			meq/L	0.01	0.05	12/07/06 5:07	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.67			meq/L	0.02	0.08	12/07/06 5:07	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	410		*	mg/Kg	20	50	12/08/06 2:31	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	1.110			meq/L	0.008	0.03	12/07/06 5:07	msh
Sodium Absorption Ratio	Calculation	0.16				0.03	0.15	12/21/06 10:27	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.23			meq/L	0.01	0.04	12/07/06 5:07	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	3.3		*	%	0.1	0.5	12/05/06 12:25	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.530		*	mmhos/cm	0.001	0.01	11/30/06 20:48	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.0		*	%	0.1	0.5	11/30/06 11:27	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/30/06 20:48	lwt/srs
Saturation Percent	USDA No. 60 (2)	50.70		*	%	0.01	0.1	11/30/06 20:48	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	68.2		*	% Passing	0.1	0.5	12/11/06 17:50	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	81.6		*	% Passing	0.1	0.5	11/25/06 13:50	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	82.6		*	%	0.1	0.5	11/28/06 20:05	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		15.0		*	%	0.1	0.5	12/09/06 0:00	srs
Sand		47.5		*	%	0.1	0.5	12/09/06 0:00	srs
Silt		37.5		*	%	0.1	0.5	12/09/06 0:00	srs
Texture Classification		L		*				12/09/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-10 0-5"

ACZ Sample ID: ***L59733-08***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 12:06	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:22	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 17:42	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 16:48	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:22	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.8			mg/Kg	0.2	1	12/21/06 10:27	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.8	H	*	mg/Kg	0.2	1	12/02/06 18:28	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	12/02/06 18:28	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.307	H	*	%	0.009	0.04	11/18/06 22:56	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	21	H	*	mg/Kg	1	5	11/30/06 20:41	paulb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-10 5-11"

ACZ Sample ID: ***L59733-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 16:32	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.34			meq/L	0.01	0.05	12/07/06 5:11	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.28			meq/L	0.02	0.08	12/07/06 5:11	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	180		*	mg/Kg	20	50	12/08/06 2:35	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.147			meq/L	0.008	0.03	12/07/06 5:11	msh
Sodium Absorption Ratio	Calculation	0.40				0.03	0.15	12/21/06 10:27	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.36			meq/L	0.01	0.04	12/07/06 5:11	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	3.1		*	%	0.1	0.5	12/05/06 12:48	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.280		*	mmhos/cm	0.001	0.01	11/30/06 22:09	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.7		*	%	0.1	0.5	11/30/06 11:43	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	11/30/06 22:09	lwt/srs
Saturation Percent	USDA No. 60 (2)	48.30		*	%	0.01	0.1	11/30/06 22:09	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.1		*	% Passing	0.1	0.5	12/11/06 19:06	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	47.4		*	% Passing	0.1	0.5	11/25/06 18:06	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	87.4		*	%	0.1	0.5	11/28/06 21:06	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		25.0		*	%	0.1	0.5	12/10/06 0:00	srs
Sand		33.8		*	%	0.1	0.5	12/10/06 0:00	srs
Silt		41.3		*	%	0.1	0.5	12/10/06 0:00	srs
Texture Classification		SiL		*				12/10/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-10 5-11"

ACZ Sample ID: ***L59733-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 12:27	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:25	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 17:54	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 16:54	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:25	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.5			mg/Kg	0.2	1	12/21/06 10:27	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.1	H	*	mg/Kg	0.2	1	12/02/06 18:29	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/02/06 18:29	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.115	H	*	%	0.003	0.01	11/18/06 22:43	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	13	H	*	mg/Kg	1	5	11/30/06 20:42	paulb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-10 11-23"

ACZ Sample ID: ***L59733-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 16:41	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.82			meq/L	0.01	0.05	12/07/06 5:15	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.25			meq/L	0.02	0.08	12/07/06 5:15	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	130		*	mg/Kg	20	50	12/08/06 2:39	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.094			meq/L	0.008	0.03	12/07/06 5:15	msh
Sodium Absorption Ratio	Calculation	0.49				0.03	0.15	12/21/06 10:28	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.36			meq/L	0.01	0.04	12/07/06 5:15	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.8		*	%	0.1	0.5	12/05/06 13:11	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.220		*	mmhos/cm	0.001	0.01	11/30/06 23:30	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	11/30/06 12:00	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.4		*	units	0.1	0.1	11/30/06 23:30	lwt/srs
Saturation Percent	USDA No. 60 (2)	61.70		*	%	0.01	0.1	11/30/06 23:30	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	97.0		*	% Passing	0.1	0.5	12/11/06 20:22	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	23.0		*	% Passing	0.1	0.5	11/25/06 22:22	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	91.7		*	%	0.1	0.5	11/28/06 22:07	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		38.8		*	%	0.1	0.5	12/10/06 0:00	srs
Sand		26.3		*	%	0.1	0.5	12/10/06 0:00	srs
Silt		35.0		*	%	0.1	0.5	12/10/06 0:00	srs
Texture Classification		SiCL		*				12/10/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-10 11-23"

ACZ Sample ID: ***L59733-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 12:47	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:28	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 18:05	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:00	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:28	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.9	B		mg/Kg	0.2	1	12/21/06 10:28	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.5	H	*	mg/Kg	0.2	1	12/02/06 18:30	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/02/06 18:30	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.083	H	*	%	0.002	0.01	11/18/06 20:56	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	7	H	*	mg/Kg	1	5	11/30/06 20:43	paulb

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-10 23-35"

ACZ Sample ID: ***L59733-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 16:50	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.81			meq/L	0.01	0.05	12/07/06 5:19	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.39			meq/L	0.02	0.08	12/07/06 5:19	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	130		*	mg/Kg	20	50	12/08/06 2:43	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.187			meq/L	0.008	0.03	12/07/06 5:19	msh
Sodium Absorption Ratio	Calculation	0.43				0.03	0.15	12/21/06 10:28	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.34			meq/L	0.01	0.04	12/07/06 5:19	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.7		*	%	0.1	0.5	12/05/06 13:34	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.250		*	mmhos/cm	0.001	0.01	12/01/06 0:51	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.0		*	%	0.1	0.5	11/30/06 12:16	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	12/01/06 0:51	lwt/srs
Saturation Percent	USDA No. 60 (2)	69.60		*	%	0.01	0.1	12/01/06 0:51	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	98.0		*	% Passing	0.1	0.5	12/11/06 21:37	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	18.9		*	% Passing	0.1	0.5	11/26/06 2:37	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	91.2		*	%	0.1	0.5	11/28/06 23:07	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		42.5		*	%	0.1	0.5	12/10/06 0:00	srs
Sand		22.5		*	%	0.1	0.5	12/10/06 0:00	srs
Silt		35.0		*	%	0.1	0.5	12/10/06 0:00	srs
Texture Classification		SIC		*				12/10/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-10 23-35"

ACZ Sample ID: ***L59733-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 13:08	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:31	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 18:17	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:06	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:31	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	2.0			mg/Kg	0.2	1	12/21/06 10:28	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.7	H	*	mg/Kg	0.2	1	12/02/06 18:31	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/02/06 18:31	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.056	H	*	%	0.002	0.01	11/18/06 20:57	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	8	H	*	mg/Kg	1	5	11/30/06 20:44	paulb

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-11 0-12"

ACZ Sample ID: ***L59733-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 16:58	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	2.98			meq/L	0.01	0.05	12/07/06 5:23	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.35			meq/L	0.02	0.08	12/07/06 5:23	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	230		*	mg/Kg	20	50	12/08/06 2:47	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.217			meq/L	0.008	0.03	12/07/06 5:23	msh
Sodium Absorption Ratio	Calculation	0.20				0.03	0.15	12/21/06 10:28	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.26			meq/L	0.01	0.04	12/07/06 5:23	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.6		*	%	0.1	0.5	12/05/06 13:57	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.420		*	mmhos/cm	0.001	0.01	12/01/06 2:12	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.1		*	%	0.1	0.5	11/30/06 12:32	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.6		*	units	0.1	0.1	12/01/06 2:12	lwt/srs
Saturation Percent	USDA No. 60 (2)	40.80		*	%	0.01	0.1	12/01/06 2:12	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	88.3		*	% Passing	0.1	0.5	12/11/06 22:53	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	57.9		*	% Passing	0.1	0.5	11/26/06 6:53	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	85.5		*	%	0.1	0.5	11/29/06 0:08	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		25.0		*	%	0.1	0.5	12/10/06 0:00	srs
Sand		42.5		*	%	0.1	0.5	12/10/06 0:00	srs
Silt		32.5		*	%	0.1	0.5	12/10/06 0:00	srs
Texture Classification		L		*				12/10/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-11 0-12"

ACZ Sample ID: ***L59733-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 13:29	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:34	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 18:28	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:12	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:34	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.8			mg/Kg	0.2	1	12/21/06 10:28	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.4	H	*	mg/Kg	0.2	1	12/02/06 18:33	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/02/06 18:33	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.076	H	*	%	0.002	0.01	11/18/06 20:59	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	15	H	*	mg/Kg	1	5	11/30/06 20:45	paulb

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-11 11-48"

ACZ Sample ID: ***L59733-13***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 17:07	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, soluble (Hot Water)	M6010B ICP	1.41		*	mg/Kg	0.05	0.3	12/08/06 6:17	gme
Calcium, soluble (Sat. Paste)	M6010B ICP	20.50			meq/L	0.01	0.05	12/07/06 5:27	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	2.88			meq/L	0.02	0.08	12/07/06 5:27	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	110		*	mg/Kg	20	50	12/08/06 2:51	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.109			meq/L	0.008	0.03	12/07/06 5:27	msh
Selenium, soluble (Hot Water)	SM3500-Se.C		U	*	mg/Kg	0.005	0.03	12/01/06 12:23	djt
Sodium Absorption Ratio	Calculation	0.06	B			0.03	0.15	12/21/06 10:28	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.23			meq/L	0.01	0.04	12/07/06 5:27	msh

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-11 11-48"

ACZ Sample ID: ***L59733-13***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 1.3	12			t CaCO3/Kt	1	5	12/21/06 10:28	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3	35			t CaCO3/Kt	1	5	12/21/06 10:28	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3	23			t CaCO3/Kt	1	5	12/21/06 10:28	calc
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	25.0		*	%	0.1	0.5	12/05/06 14:19	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	1.630		*	mmhos/cm	0.001	0.01	12/01/06 3:33	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	3.5		*	%	0.1	0.5	11/30/06 12:49	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.1		*	units	0.1	0.1	12/01/06 3:33	lwt/srs
Saturation Percent	USDA No. 60 (2)	53.20		*	%	0.01	0.1	12/01/06 3:33	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	93.1		*	% Passing	0.1	0.5	12/12/06 0:09	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	65.8		*	% Passing	0.1	0.5	11/26/06 11:09	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	86.4		*	%	0.1	0.5	11/29/06 1:09	lwt/srs
Sulfur Forms	M600/2-78-054 3.2.4								
Sulfur Organic Residual		0.22		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Pyritic Sulfide		0.07	B	*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Sulfate		0.10		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Sulfur Total		0.39		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Total Sulfur minus Sulfate		0.29		*	%	0.01	0.1	12/01/06 0:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	12/10/06 0:00	srs
Sand		62.5		*	%	0.1	0.5	12/10/06 0:00	srs
Silt		20.0		*	%	0.1	0.5	12/10/06 0:00	srs
Texture Classification		SL		*				12/10/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-11 11-48"

ACZ Sample ID: ***L59733-13***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 13:50	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:37	erf
Hot Water Extraction	ASA No. 9 M80-3, M25-9							11/28/06 16:46	jjr
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 18:40	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:18	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:37	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.7	B		mg/Kg	0.2	1	12/21/06 10:28	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.5	H	*	mg/Kg	0.2	1	12/02/06 18:34	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	12/02/06 18:34	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.240		*	%	0.007	0.03	11/18/06 22:44	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	2	BH	*	mg/Kg	1	5	11/30/06 20:47	paulb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-11 62-82"

ACZ Sample ID: ***L59733-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 17:15	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	12.80			meq/L	0.01	0.05	12/07/06 5:31	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	4.28			meq/L	0.02	0.08	12/07/06 5:31	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	140		*	mg/Kg	20	50	12/08/06 3:03	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.157			meq/L	0.008	0.03	12/07/06 5:31	msh
Sodium Absorption Ratio	Calculation	0.08	B			0.03	0.15	12/21/06 10:28	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.26			meq/L	0.01	0.04	12/07/06 5:31	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	3.6		*	%	0.1	0.5	12/05/06 14:42	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	1.330		*	mmhos/cm	0.001	0.01	12/01/06 4:54	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	5.3		*	%	0.1	0.5	11/30/06 13:05	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.6		*	units	0.1	0.1	12/01/06 4:54	lwt/srs
Saturation Percent	USDA No. 60 (2)	44.80		*	%	0.01	0.1	12/01/06 4:54	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	93.7		*	% Passing	0.1	0.5	12/12/06 1:25	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	32.8		*	% Passing	0.1	0.5	11/26/06 15:25	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	90.3		*	%	0.1	0.5	11/29/06 2:10	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	12/10/06 0:00	srs
Sand		51.3		*	%	0.1	0.5	12/10/06 0:00	srs
Silt		30.0		*	%	0.1	0.5	12/10/06 0:00	srs
Texture Classification		L		*				12/10/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-11 62-82"

ACZ Sample ID: ***L59733-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 14:10	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:40	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 18:51	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:24	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:40	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	0.6	B		mg/Kg	0.2	1	12/21/06 10:28	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.3	H	*	mg/Kg	0.2	1	12/02/06 18:35	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/02/06 18:35	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.153	H	*	%	0.004	0.02	11/18/06 22:45	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	9	H	*	mg/Kg	1	5	11/30/06 20:48	paulb

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 0-6"

ACZ Sample ID: ***L59733-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 17:24	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	2.11			meq/L	0.01	0.05	12/07/06 5:35	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.62			meq/L	0.02	0.08	12/07/06 5:35	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	440		*	mg/Kg	20	50	12/08/06 3:07	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	1.060			meq/L	0.008	0.03	12/07/06 5:35	msh
Sodium Absorption Ratio	Calculation	0.18				0.03	0.15	12/21/06 10:28	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.21			meq/L	0.01	0.04	12/07/06 5:35	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	3.2		*	%	0.1	0.5	12/05/06 15:05	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.420		*	mmhos/cm	0.001	0.01	12/01/06 6:15	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	11/30/06 13:21	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.8		*	units	0.1	0.1	12/01/06 6:15	lwt/srs
Saturation Percent	USDA No. 60 (2)	55.90		*	%	0.01	0.1	12/01/06 6:15	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	76.6		*	% Passing	0.1	0.5	12/12/06 2:40	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	91.0		*	% Passing	0.1	0.5	11/26/06 19:40	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	79.0		*	%	0.1	0.5	11/29/06 3:10	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	12/10/06 0:00	srs
Sand		50.0		*	%	0.1	0.5	12/10/06 0:00	srs
Silt		37.5		*	%	0.1	0.5	12/10/06 0:00	srs
Texture Classification		L		*				12/10/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 0-6"

ACZ Sample ID: ***L59733-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 14:31	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:44	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 19:02	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:30	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:44	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	2.6			mg/Kg	0.2	1	12/21/06 10:28	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.6	H	*	mg/Kg	0.2	1	12/02/06 18:40	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	12/02/06 18:40	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.246	H	*	%	0.009	0.04	11/18/06 22:46	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	22	H	*	mg/Kg	1	5	11/30/06 20:49	paulb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 6-14"

ACZ Sample ID: ***L59733-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 17:33	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.23			meq/L	0.01	0.05	12/07/06 5:39	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.41			meq/L	0.02	0.08	12/07/06 5:39	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	240		*	mg/Kg	20	50	12/08/06 3:11	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.376			meq/L	0.008	0.03	12/07/06 5:39	msh
Sodium Absorption Ratio	Calculation	0.30				0.03	0.15	12/21/06 10:28	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.28			meq/L	0.01	0.04	12/07/06 5:39	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.0		*	%	0.1	0.5	12/05/06 15:28	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.270		*	mmhos/cm	0.001	0.01	12/01/06 7:36	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	11/30/06 13:38	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.8		*	units	0.1	0.1	12/01/06 7:36	lwt/srs
Saturation Percent	USDA No. 60 (2)	42.70		*	%	0.01	0.1	12/01/06 7:36	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	77.3		*	% Passing	0.1	0.5	12/12/06 3:56	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	84.0		*	% Passing	0.1	0.5	11/26/06 23:56	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	84.8		*	%	0.1	0.5	11/29/06 4:11	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		13.8		*	%	0.1	0.5	12/11/06 0:00	srs
Sand		52.5		*	%	0.1	0.5	12/11/06 0:00	srs
Silt		33.8		*	%	0.1	0.5	12/11/06 0:00	srs
Texture Classification		L		*				12/11/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 6-14"

ACZ Sample ID: ***L59733-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 14:52	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:47	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 19:14	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:36	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:47	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	2.0			mg/Kg	0.2	1	12/21/06 10:28	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.7	H	*	mg/Kg	0.2	1	12/02/06 18:41	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/02/06 18:41	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.108	H	*	%	0.003	0.01	11/18/06 21:05	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	16	H	*	mg/Kg	1	5	11/30/06 20:50	paulb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 14-28"

ACZ Sample ID: ***L59733-17***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 17:59	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.82			meq/L	0.01	0.05	12/07/06 5:51	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.31			meq/L	0.02	0.08	12/07/06 5:51	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	170		*	mg/Kg	20	50	12/08/06 3:16	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.195			meq/L	0.008	0.03	12/07/06 5:51	msh
Sodium Absorption Ratio	Calculation	0.35				0.03	0.15	12/21/06 10:28	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.27			meq/L	0.01	0.04	12/07/06 5:51	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.7		*	%	0.1	0.5	12/05/06 15:51	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.210		*	mmhos/cm	0.001	0.01	12/01/06 8:57	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5		*	%	0.1	0.5	11/30/06 13:54	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/01/06 8:57	lwt/srs
Saturation Percent	USDA No. 60 (2)	36.50		*	%	0.01	0.1	12/01/06 8:57	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	81.2		*	% Passing	0.1	0.5	12/12/06 5:12	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	69.5		*	% Passing	0.1	0.5	11/27/06 4:12	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.7		*	%	0.1	0.5	11/29/06 5:12	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	12/11/06 0:00	srs
Sand		51.3		*	%	0.1	0.5	12/11/06 0:00	srs
Silt		36.3		*	%	0.1	0.5	12/11/06 0:00	srs
Texture Classification		L		*				12/11/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 14-28"

ACZ Sample ID: ***L59733-17***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 15:12	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:50	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 19:25	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:42	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:50	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.9			mg/Kg	0.2	1	12/21/06 10:28	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.6	H	*	mg/Kg	0.2	1	12/02/06 18:42	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/02/06 18:42	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.42	H	*	%	0.01	0.06	11/18/06 22:47	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	13	H	*	mg/Kg	1	5	11/30/06 21:06	paulb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 28-48"

ACZ Sample ID: ***L59733-18***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 18:07	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.15			meq/L	0.01	0.05	12/07/06 5:55	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.36			meq/L	0.02	0.08	12/07/06 5:55	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	170		*	mg/Kg	20	50	12/08/06 3:20	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.163			meq/L	0.008	0.03	12/07/06 5:55	msh
Sodium Absorption Ratio	Calculation	0.32				0.03	0.15	12/21/06 10:28	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.28			meq/L	0.01	0.04	12/07/06 5:55	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.4	B	*	%	0.1	0.5	12/05/06 16:14	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.250		*	mmhos/cm	0.001	0.01	12/01/06 10:18	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	11/30/06 14:10	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.1		*	units	0.1	0.1	12/01/06 10:18	lwt/srs
Saturation Percent	USDA No. 60 (2)	36.40		*	%	0.01	0.1	12/01/06 10:18	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	82.9		*	% Passing	0.1	0.5	12/12/06 6:28	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	67.4		*	% Passing	0.1	0.5	11/27/06 8:28	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.6		*	%	0.1	0.5	11/29/06 6:12	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	12/11/06 0:00	srs
Sand		53.8		*	%	0.1	0.5	12/11/06 0:00	srs
Silt		27.5		*	%	0.1	0.5	12/11/06 0:00	srs
Texture Classification		L		*				12/11/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 28-48"

ACZ Sample ID: ***L59733-18***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 15:33	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:53	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 19:37	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:48	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:53	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.8			mg/Kg	0.2	1	12/21/06 10:28	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.5	H	*	mg/Kg	0.2	1	12/02/06 18:44	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/02/06 18:44	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.047	H	*	%	0.002	0.009	11/18/06 21:07	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	11	H	*	mg/Kg	1	5	11/30/06 21:07	paulb

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 48-66"

ACZ Sample ID: ***L59733-19***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 18:16	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.63			meq/L	0.01	0.05	12/07/06 5:59	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.33			meq/L	0.02	0.08	12/07/06 5:59	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	140		*	mg/Kg	20	50	12/08/06 3:24	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.088			meq/L	0.008	0.03	12/07/06 5:59	msh
Sodium Absorption Ratio	Calculation	0.27				0.03	0.15	12/21/06 10:29	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.27			meq/L	0.01	0.04	12/07/06 5:59	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.2	B	*	%	0.1	0.5	12/05/06 16:37	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.300		*	mmhos/cm	0.001	0.01	12/01/06 11:39	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	2.6		*	%	0.1	0.5	11/30/06 14:27	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.7		*	units	0.1	0.1	12/01/06 11:39	lwt/srs
Saturation Percent	USDA No. 60 (2)	38.00		*	%	0.01	0.1	12/01/06 11:39	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	76.5		*	% Passing	0.1	0.5	12/12/06 7:44	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	84.4		*	% Passing	0.1	0.5	11/27/06 12:44	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	93.9		*	%	0.1	0.5	11/29/06 7:13	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	12/11/06 0:00	srs
Sand		56.3		*	%	0.1	0.5	12/11/06 0:00	srs
Silt		25.0		*	%	0.1	0.5	12/11/06 0:00	srs
Texture Classification		L		*				12/11/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: D-12 48-66"

ACZ Sample ID: ***L59733-19***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 15:54	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:56	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 19:48	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 17:54	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:56	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.9			mg/Kg	0.2	1	12/21/06 10:29	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.5	H	*	mg/Kg	0.2	1	12/02/06 18:45	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/02/06 18:45	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.034	H	*	%	0.002	0.008	11/18/06 21:09	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	11	H	*	mg/Kg	1	5	11/30/06 21:08	paulb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 0-10"

ACZ Sample ID: ***L59733-20***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 18:24	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.59			meq/L	0.01	0.05	12/07/06 22:18	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.45			meq/L	0.02	0.08	12/07/06 22:18	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	280		*	mg/Kg	20	50	12/08/06 3:28	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.522			meq/L	0.008	0.03	12/07/06 22:18	gme
Sodium Absorption Ratio	Calculation	0.19				0.03	0.15	12/21/06 10:29	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.20			meq/L	0.01	0.04	12/07/06 22:18	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.2		*	%	0.1	0.5	12/05/06 16:59	brg/srs
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.310		*	mmhos/cm	0.001	0.01	12/01/06 13:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5		*	%	0.1	0.5	11/30/06 14:43	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.6		*	units	0.1	0.1	12/01/06 13:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	46.80		*	%	0.01	0.1	12/01/06 13:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	75.8		*	% Passing	0.1	0.5	12/12/06 8:59	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	91.8		*	% Passing	0.1	0.5	11/27/06 16:59	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	86.0		*	%	0.1	0.5	11/29/06 8:14	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	12/11/06 0:00	srs
Sand		57.5		*	%	0.1	0.5	12/11/06 0:00	srs
Silt		30.0		*	%	0.1	0.5	12/11/06 0:00	srs
Texture Classification		L		*				12/11/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 0-10"

ACZ Sample ID: ***L59733-20***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							11/30/06 16:15	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/08/06 9:59	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							11/28/06 20:00	jjr/as
Saturated Paste Extraction	USDA No. 60 (2)							11/29/06 18:00	erf/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/28/06 11:59	lwt/srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.4			mg/Kg	0.2	1	12/21/06 10:29	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.7	H	*	mg/Kg	0.2	1	12/02/06 18:46	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.3	BH	*	mg/Kg	0.1	0.5	12/02/06 18:46	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.160	H	*	%	0.005	0.03	11/18/06 22:48	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	14	H	*	mg/Kg	1	5	11/30/06 21:09	paulb

** Please refer to Qualifier Reports for detail.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicated MDL
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.
X	Quality control sample is out of control.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

Carbon Resources ACZ Project ID: ***L59733***

Project ID:

Boron, soluble (Hot Water) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217803													
WG217803ICV	ICV	12/08/06 5:05	II061128-2	2		1.951	mg/L	97.6	90	110			
WG217803ICB	ICB	12/08/06 5:09				U	mg/L		-0.03	0.03			
WG217115PBS	PBS	12/08/06 5:25				U	mg/L		-0.15	0.15			
L59733-01AS	AS	12/08/06 5:37	II061207-3	2.5	.57	3.138	mg/L	102.7	75	125			
L59733-01ASD	ASD	12/08/06 5:41	II061207-3	2.5	.57	3.206	mg/L	105.4	75	125	2.14	20	
L59733-13DUP	DUP	12/08/06 6:21			1.41	1.5	mg/L				6.2	20	

Calcium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217718													
WG217718ICV	ICV	12/07/06 4:06	II061128-2	100		97.89	mg/L	97.9	90	110			
WG217718ICB	ICB	12/07/06 4:10				U	mg/L		-0.6	0.6			
L59733-04DUP	DUP	12/07/06 4:42			18.5	20.114	meq/L				8.4	20	
WG217767													
WG217767ICV	ICV	12/07/06 21:50	II061128-2	100		99.54	mg/L	99.5	90	110			
WG217767ICB	ICB	12/07/06 21:54				U	mg/L		-0.6	0.6			
L59733-04DUP	DUP	12/07/06 22:14			19.3	20.487	meq/L				6	20	

Carbon, total organic (TOC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217361													
WG217361PBS	PBS	12/05/06 9:00				U	%		-0.3	0.3			
L59733-01DUP	DUP	12/05/06 9:45			.3	.3	%				0	20	RA

Conductivity @25C M120.1 - Meter, w/ Saturated Paste Prep

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217371													
L59733-04DUP	DUP	11/30/06 15:24			1.61	1.67	mmhos/cn				3.7	20	

Magnesium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217718													
WG217718ICV	ICV	12/07/06 4:06	II061128-2	100		94.63	mg/L	94.6	90	110			
WG217718ICB	ICB	12/07/06 4:10				U	mg/L		-0.6	0.6			
L59733-04DUP	DUP	12/07/06 4:42			3.87	4.068	meq/L				5	20	
WG217767													
WG217767ICV	ICV	12/07/06 21:50	II061128-2	100		95.97	mg/L	96	90	110			
WG217767ICB	ICB	12/07/06 21:54				U	mg/L		-0.6	0.6			
L59733-04DUP	DUP	12/07/06 22:14			3.99	4.158	meq/L				4.1	20	

Neutralization Potential as CaCO3 M600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217349													
WG217349LCSS	LCSS	11/30/06 9:16	PCN20880	100		121.35	%						
L59733-20DUP	DUP	11/30/06 15:00			.5	.55	%				9.5	20	RA

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Inorganic QC Summary

Carbon Resources
Project ID:

ACZ Project ID: ***L59733***

Nitrate/Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217513													
WG217513ICV	ICV	12/02/06 18:06	WI060906-3	2.416		2.411	mg/L	99.8	90	110			
WG217513ICB	ICB	12/02/06 18:07				U	mg/L		-0.06	0.06			
WG217513LFB	LFB	12/02/06 18:11	WI060906-4	2		2.126	mg/L	106.3	90	110			
WG217253PBS	PBS	12/02/06 18:12				1.36	mg/Kg		-0.6	0.6			N1
L59733-01DUP	DUP	12/02/06 18:14			4.2	4.16	mg/Kg				1	20	
L59733-02AS	AS	12/02/06 18:17	WI060906-4	20	3.5	24.58	mg/Kg	105.4	75	125			

Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217513													
WG217513ICV	ICV	12/02/06 18:06	WI060906-3	.609		.661	mg/L	108.5	90	110			
WG217513ICB	ICB	12/02/06 18:07				U	mg/L		-0.03	0.03			
WG217513LFB	LFB	12/02/06 18:11	WI060906-4	1		1.061	mg/L	106.1	90	110			
WG217253PBS	PBS	12/02/06 18:12				U	mg/Kg		-0.3	0.3			N1
L59733-01DUP	DUP	12/02/06 18:14			.6	.66	mg/Kg				9.5	20	RA
L59733-02AS	AS	12/02/06 18:17	WI060906-4	10	.6	10.75	mg/Kg	101.5	75	125			

Nitrogen, total Kjeldahl M351.2 - TKN by Block Digester

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216825													
WG216639ICV	ICV	11/18/06 20:36	WI061027-1	4		3.88	mg/L	97	90	110			
WG216639ICB	ICB	11/18/06 20:37				U	mg/L		-0.3	0.3			
WG216639LFB1	LFB	11/18/06 20:40	WI061027-5	2.5		2.48	%	99.2	85	115			
L59733-01MS	MS	11/18/06 20:42	2XTKN	.05375	.046	.1107	%	120.4	75	125			
L59733-02DUP	DUP	11/18/06 20:44			.133	.1336	%				0.5	20	
WG216639PBS1	PBS	11/18/06 20:52				.0021	%		-0.006	0.006			
WG216639PBS2	PBS	11/18/06 21:11				.003	%		-0.006	0.006			
WG216639LFB2	LFB	11/18/06 21:12	WI061027-5	2.5		2.4	%	96	85	115			

Percent Clay ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217692													
L59733-01DUP	DUP	12/08/06 23:51			22.5	22.5	%				0	20	

Percent Sand ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217692													
L59733-01DUP	DUP	12/08/06 23:51			50	50	%				0	20	

Percent Silt ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217692													
L59733-01DUP	DUP	12/08/06 23:51			27.5	27.5	%				0	20	

Carbon Resources
Project ID:

ACZ Project ID: ***L59733***

pH, Saturated Paste USDA No. 60 (21A)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217371													
L59733-04DUP	DUP	11/30/06 15:24			7.1	7.05	units				0.7	20	

Phosphorus, extractable (AB-DTPA) M365.1 - Automated Ascorbic Acid

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217438													
WG217438ICV	ICV	11/30/06 18:55	SCN000224	.65228		.649	mg/L	99.5	90	110			
WG217438ICB	ICB	11/30/06 18:57				.013	mg/L		-0.03	0.03			
WG217441													
WG217441ICV	ICV	11/30/06 20:23	SCN000224	.65228		.681	mg/L	104.4	90	110			
WG217441ICB	ICB	11/30/06 20:25				U	mg/L		-0.03	0.03			
WG217441LFB	LFB	11/30/06 20:26	WI061125-2	.5		.51	mg/Kg	102	85	115			
WG217336PBS	PBS	11/30/06 20:28				5.6	mg/Kg		-3	3			N1
L59733-01DUP	DUP	11/30/06 20:30			13	16.7	mg/Kg				24.9	20	RD
L59733-02AS	AS	11/30/06 20:32	WI061125-2	50	20	67	mg/Kg	94	75	125			

Potassium, extractable (AB-DTPA) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217482													
WG217336PBS	PBS	12/06/06 12:45				U	mg/L		-60	60			
L59733-01DUP	DUP	12/06/06 12:52			200	200	mg/L				0	20	
L59733-02AS	AS	12/06/06 13:03	II061116-2	4973.4095	250	5501	mg/L	105.6	75	125			
L59733-02ASD	ASD	12/06/06 13:06	II061116-2	4973.4095	250	5822	mg/L	112	75	125	5.67	20	
WG217804													
WG217804ICV	ICV	12/08/06 1:19	II061128-2	20		20.17	mg/L	100.9	90	110			
WG217804ICB	ICB	12/08/06 1:23				.47	mg/L		-0.9	0.9			
WG217336PBS	PBS	12/08/06 1:39				U	mg/L		-60	60			
L59733-01DUP	DUP	12/08/06 1:47			170	190	mg/L				11.1	20	RA
L59733-03AS	AS	12/08/06 1:59	II061207-3	4975.507	170	5097	mg/L	99	75	125			
L59733-03ASD	ASD	12/08/06 2:03	II061207-3	4975.507	170	5109	mg/L	99.3	75	125	0.24	20	

Potassium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217718													
WG217718ICV	ICV	12/07/06 4:06	II061128-2	20		19.84	mg/L	99.2	90	110			
WG217718ICB	ICB	12/07/06 4:10				U	mg/L		-0.9	0.9			
L59733-04DUP	DUP	12/07/06 4:42			.174	.1807	meq/L				3.8	20	
WG217767													
WG217767ICV	ICV	12/07/06 21:50	II061128-2	20		20.19	mg/L	101	90	110			
WG217767ICB	ICB	12/07/06 21:54				U	mg/L		-0.9	0.9			
L59733-04DUP	DUP	12/07/06 22:14			.18	.1771	meq/L				1.6	20	

Saturation Percent USDA No. 60 (2)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217371													
L59733-04DUP	DUP	11/30/06 15:24			50.3	53.48	%				6.1	20	

Carbon Resources
Project ID:

ACZ Project ID: ***L59733***

Selenium, soluble (Hot Water) SM3500-Se.C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217424													
WG217424ICV	ICV	12/01/06 9:55	II061127-5	.025		.027	mg/L	108	90	110			
WG217424ICB	ICB	12/01/06 9:59				U	mg/L		-0.003	0.003			
WG217426													
WG217115PBS	PBS	12/01/06 11:39				U	mg/Kg		-0.015	0.015			
L59733-01AS	AS	12/01/06 11:46	II061113-3	.1	U	.1011	mg/Kg	101.1	85	115			
L59733-01ASD	ASD	12/01/06 11:50	II061113-3	.1	U	.1008	mg/Kg	100.8	85	115	0.3	20	
L59733-13DUP	DUP	12/01/06 12:27			U	U	mg/Kg				0	20	RA

Sodium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217718													
WG217718ICV	ICV	12/07/06 4:06	II061128-2	100		99.24	mg/L	99.2	90	110			
WG217718ICB	ICB	12/07/06 4:10				U	mg/L		-0.9	0.9			
L59733-04DUP	DUP	12/07/06 4:42			.25	.241	meq/L				3.6	20	
WG217767													
WG217767ICV	ICV	12/07/06 21:50	II061128-2	100		100.03	mg/L	100	90	110			
WG217767ICB	ICB	12/07/06 21:54				U	mg/L		-0.9	0.9			
L59733-04DUP	DUP	12/07/06 22:14			.25	.244	meq/L				2.4	20	

Solids, Percent CLPSOW390, PART F, D-98

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217212													
WG217212PBS	PBS	11/28/06 12:00				U	%		99.9	100.1			
L59733-20DUP	DUP	11/29/06 9:15			86	85.32	%				0.8	20	

Sulfur Organic Residual M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217420													
L59733-13DUP	DUP	12/01/06 17:00			.22	.22	%				0	20	

Sulfur Pyritic Sulfide M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217420													
L59733-13DUP	DUP	12/01/06 17:00			.07	.05	%				33.3	20	RA

Sulfur Sulfate M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217420													
L59733-13DUP	DUP	12/01/06 17:00			.1	.12	%				18.2	20	

Carbon Resources

ACZ Project ID: ***L59733***

Project ID:

Sulfur Total M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217420													
WG217420PBS	PBS	11/30/06 16:00				U	%		-0.03	0.03			
WG217420LCSS	LCSS	11/30/06 18:30	PCN25383	4.24		4.32	%		80	120			
L59733-13DUP	DUP	12/01/06 17:00			.39	.39	%				0	20	

Total Sulfur Minus Sulfate M600/2-78-054 3.2.4

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217420													
L59733-13DUP	DUP	12/01/06 17:00			.29	.27	%				7.1	20	

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2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-01	WG217803	Boron, soluble (Hot Water)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217482	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217426	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217420	Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-02	WG217803	Boron, soluble (Hot Water)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217482	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217426	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217420	Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-03	WG217803	Boron, soluble (Hot Water)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217426	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217420	Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-04	WG217803	Boron, soluble (Hot Water)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217426	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217420	Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-05	WG217803	Boron, soluble (Hot Water)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217426	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217420	Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-06	WG217803	Boron, soluble (Hot Water)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217426	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217420	Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-07	WG217803	Boron, soluble (Hot Water)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217426	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217420	Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-08	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
L59733-09	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-10	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
L59733-11	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-12	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-13	WG217803	Boron, soluble (Hot Water)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217426	Selenium, soluble (Hot Water)	SM3500-Se.C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217420	Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-14	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
L59733-15	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-16	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
L59733-17	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-18	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
L59733-19	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

Carbon Resources

ACZ Project ID: ***L59733***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59733-20	WG217804	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217361	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217349	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217513	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217441	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
			M365.1 - Automated Ascorbic Acid	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Selenium, soluble (Hot Water)	SM3500-Se.C

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
pH, Saturated Paste	USDA No. 60 (21A)
Saturation Percent	USDA No. 60 (2)
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2
Solids, Percent	CLPSOW390, PART F, D-98
Sulfur Forms	M600/2-78-054 3.2.4
Texture by Hydrometer	ASTM D 422 Hydrometer

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59733
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
BUCKET X 8		22.5	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59733
Date Received: 10/31/2006
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L59733-01	D-9A 115-145"									X		
L59733-02	D-9B 0-6"									X		
L59733-03	D-9B 6-12"									X		
L59733-04	D-9B 12-30"									X		
L59733-05	D-9B 30-52"									X		
L59733-06	D-9B 52-80"									X		
L59733-07	D-9B 80-102"									X		
L59733-08	D-10 0-5"									X		
L59733-09	D-10 5-11"									X		
L59733-10	D-10 11-23"									X		
L59733-11	D-10 23-35"									X		
L59733-12	D-11 0-12"									X		
L59733-13	D-11 11-48"									X		
L59733-14	D-11 62-82"									X		
L59733-15	D-12 0-6"									X		
L59733-16	D-12 6-14"									X		
L59733-17	D-12 14-28"									X		
L59733-18	D-12 28-48"									X		
L59733-19	D-12 48-66"									X		
L59733-20	2A-1 0-10"									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59733

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

LBC 10.26.06

Sue Webber

From: GHuntBBC@aol.com
Sent: Friday, October 27, 2006 12:52 PM
To: bches@scinternet.net; Sue Webber
Subject: Sue Weber Carbon Resources Soil Samples

FROM: **Geo-Hunt Consulting**
16577 Columbine Lane
Cedaredge, CO 81413
970-856-9477

TO: **Sue Webber, Project Manager**
ACZ Laboratories, Inc.
2773 Downhill Drive,
Steamboat Springs, Co 80487

RE: **TRANSMITTAL OF SOIL SAMPLES**

Dear Sue:
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

Very Fine Sand

analyst: as
date: 12-12-06

ACZ L#	Total sample wt. gms	% <2000um sieve	Wt. of sxs used for Texture gms	Wt. of sxs between 105um & 53um gm.	% VFS
L59733-01	472.47	81.5	40.0	9.3	**18.9**
L59733-02	398.08	82.3	40.0	7.3	**15.0**
L59733-03	421.36	88.2	40.0	8.8	**19.4**
L59733-04	612.70	47.2	40.0	3.1	**3.7**
L59733-05	303.22	72.1	40.0	1.6	**2.9**
L59733-06	461.95	82.7	40.0	10.4	**21.5**
L59733-07	376.62	82.7	40.0	9.8	**20.3**
L59733-08	378.34	81.6	40.0	15.6	**31.8**
L59733-09	452.80	47.4	40.0	7.5	**8.9**
L59733-10	685.40	23.0	40.0	5.2	**3.0**
L59733-11	562.02	18.9	40.0	4.3	**2.0**
L59733-12	469.62	57.9	40.0	8.1	**11.7**
L59733-13	513.03	65.8	40.0	4.2	**6.9**
L59733-14	503.22	32.8	40.0	7.7	**6.3**
L59733-15	269.96	91.0	40.0	10.3	**23.4**
L59733-16	228.31	84.0	40.0	10.8	**22.7**
L59733-17	401.90	69.5	40.0	10.8	**18.8**
L59733-18	323.45	67.4	40.0	10.2	**17.2**
L59733-19	369.49	84.4	40.0	11.2	**23.6**
L59733-20	252.39	91.8	40.0	10.6	**24.3**
dup L59733-01	472.47	81.5	40	9.0	**18.3**

(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture

(VFS of Texture) x (% <2000um) = % VFS

additional data from:

-sieve2000 WG217205

-sieve53 WG217644

-texture WG217692

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59734

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59734. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59734. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59734

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 20 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59734. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 10-24"

ACZ Sample ID: ***L59734-01***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 18:50	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.33		*	meq/L	0.01	0.05	12/07/06 1:57	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.51		*	meq/L	0.02	0.08	12/07/06 1:57	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	220		*	mg/Kg	20	50	12/10/06 2:54	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.337		*	meq/L	0.008	0.03	12/07/06 1:57	gme
Sodium Absorption Ratio	Calculation	0.37				0.03	0.15	12/21/06 10:41	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.36		*	meq/L	0.01	0.04	12/07/06 1:57	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.4	B	*	%	0.1	0.5	12/07/06 12:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.287		*	mmhos/cm	0.001	0.01	12/04/06 12:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5		*	%	0.1	0.5	12/05/06 9:50	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.7		*	units	0.1	0.1	12/04/06 12:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	34.60		*	%	0.01	0.1	12/04/06 12:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	84.6		*	% Passing	0.1	0.5	12/13/06 8:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	72.0		*	% Passing	0.1	0.5	11/28/06 8:00	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.6		*	%	0.1	0.5	11/28/06 13:57	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		20.0		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Sand		50.0		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Silt		30.0		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Texture Classification		L		*				12/12/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 10-24"

ACZ Sample ID: ***L59734-01***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/04/06 18:08	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:00	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 11:14	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:00	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:00	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	7.4			mg/Kg	0.2	1	12/21/06 10:41	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	8.0	H	*	mg/Kg	0.2	1	12/08/06 21:42	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/08/06 21:42	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.066	H	*	%	0.007	0.04	11/18/06 22:50	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	39	H	*	mg/Kg	1	5	12/09/06 17:26	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 24-44"

ACZ Sample ID: ***L59734-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 19:07	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.26		*	meq/L	0.01	0.05	12/07/06 2:01	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.25		*	meq/L	0.02	0.08	12/07/06 2:01	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	120		*	mg/Kg	20	50	12/10/06 3:02	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.061		*	meq/L	0.008	0.03	12/07/06 2:01	gme
Sodium Absorption Ratio	Calculation	0.20				0.03	0.15	12/21/06 10:42	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.18		*	meq/L	0.01	0.04	12/07/06 2:01	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.4	B	*	%	0.1	0.5	12/07/06 15:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.190		*	mmhos/cm	0.001	0.01	12/04/06 14:15	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	8.1		*	%	0.1	0.5	12/11/06 9:00	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	12/04/06 14:15	lwt/srs
Saturation Percent	USDA No. 60 (2)	44.30		*	%	0.01	0.1	12/04/06 14:15	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	86.1		*	% Passing	0.1	0.5	12/13/06 9:21	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	83.9		*	% Passing	0.1	0.5	11/28/06 9:44	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.2		*	%	0.1	0.5	11/28/06 14:55	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		27.5		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Sand		35.0		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Silt		37.5		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Texture Classification		CL		*				12/12/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 24-44"

ACZ Sample ID: ***L59734-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/04/06 20:25	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:03	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 11:42	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:03	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:06	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	34			mg/Kg	1	5	12/21/06 10:42	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	35	H	*	mg/Kg	1	5	12/08/06 22:29	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 21:45	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.048	H	*	%	0.002	0.01	11/18/06 21:15	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	17	H	*	mg/Kg	1	5	12/09/06 17:29	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 44-65"

ACZ Sample ID: ***L59734-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 19:42	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.37		*	meq/L	0.01	0.05	12/07/06 2:05	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.29		*	meq/L	0.02	0.08	12/07/06 2:05	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	90		*	mg/Kg	20	50	12/10/06 3:14	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.084		*	meq/L	0.008	0.03	12/07/06 2:05	gme
Sodium Absorption Ratio	Calculation	0.39				0.03	0.15	12/21/06 10:42	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.36		*	meq/L	0.01	0.04	12/07/06 2:05	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.2	B	*	%	0.1	0.5	12/07/06 16:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.237		*	mmhos/cm	0.001	0.01	12/04/06 16:30	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	12.2		*	%	0.1	0.5	12/12/06 2:20	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.7		*	units	0.1	0.1	12/04/06 16:30	lwt/srs
Saturation Percent	USDA No. 60 (2)	40.60		*	%	0.01	0.1	12/04/06 16:30	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	87.7		*	% Passing	0.1	0.5	12/13/06 10:42	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	90.6		*	% Passing	0.1	0.5	11/28/06 11:28	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	95.0		*	%	0.1	0.5	11/28/06 15:53	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		26.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Sand		42.5		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Silt		31.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Texture Classification		L		*				12/12/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 44-65"

ACZ Sample ID: ***L59734-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/04/06 21:34	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:06	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 11:57	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:06	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:12	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	7.6			mg/Kg	0.2	1	12/21/06 10:42	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	8.4	H	*	mg/Kg	0.2	1	12/08/06 21:47	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	12/08/06 21:47	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.024	H	*	%	0.002	0.01	11/18/06 22:29	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	8	H	*	mg/Kg	1	5	12/09/06 17:30	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 65-80"

ACZ Sample ID: ***L59734-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 19:51	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.51		*	meq/L	0.01	0.05	12/07/06 2:09	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.34		*	meq/L	0.02	0.08	12/07/06 2:09	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	60		*	mg/Kg	20	50	12/10/06 3:30	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.075		*	meq/L	0.008	0.03	12/07/06 2:09	gme
Sodium Absorption Ratio	Calculation	0.41				0.03	0.15	12/21/06 10:42	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.40		*	meq/L	0.01	0.04	12/07/06 2:09	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.2	B	*	%	0.1	0.5	12/07/06 17:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.241		*	mmhos/cm	0.001	0.01	12/04/06 18:45	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	14.8		*	%	0.1	0.5	12/12/06 11:00	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.8		*	units	0.1	0.1	12/04/06 18:45	lwt/srs
Saturation Percent	USDA No. 60 (2)	34.30		*	%	0.01	0.1	12/04/06 18:45	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	86.5		*	% Passing	0.1	0.5	12/13/06 12:03	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	90.1		*	% Passing	0.1	0.5	11/28/06 13:12	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	95.1		*	%	0.1	0.5	11/28/06 16:51	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		20.0		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Sand		55.0		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Silt		25.0		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Texture Classification		L		*				12/12/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-1 65-80"

ACZ Sample ID: ***L59734-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/04/06 22:42	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:09	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 12:11	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:09	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:18	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	6.4			mg/Kg	0.2	1	12/21/06 10:42	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	7.1	H	*	mg/Kg	0.2	1	12/08/06 21:49	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 21:49	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.028	H	*	%	0.002	0.01	11/18/06 22:31	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	9	H	*	mg/Kg	1	5	12/09/06 17:32	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-2 0-5"

ACZ Sample ID: ***L59734-05***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 19:59	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.47		*	meq/L	0.01	0.05	12/07/06 2:13	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.46		*	meq/L	0.02	0.08	12/07/06 2:13	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	290		*	mg/Kg	20	50	12/10/06 3:34	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.491		*	meq/L	0.008	0.03	12/07/06 2:13	gme
Sodium Absorption Ratio	Calculation	0.33				0.03	0.15	12/21/06 10:42	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.33		*	meq/L	0.01	0.04	12/07/06 2:13	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.8		*	%	0.1	0.5	12/07/06 19:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.305		*	mmhos/cm	0.001	0.01	12/04/06 21:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.8		*	%	0.1	0.5	12/05/06 10:41	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/04/06 21:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	44.30		*	%	0.01	0.1	12/04/06 21:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	80.5		*	% Passing	0.1	0.5	12/13/06 13:25	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	88.9		*	% Passing	0.1	0.5	11/28/06 14:56	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	87.3		*	%	0.1	0.5	11/28/06 17:49	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Sand		47.5		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Silt		36.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Texture Classification		L		*				12/12/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-2 0-5"

ACZ Sample ID: ***L59734-05***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/04/06 23:51	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:12	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 12:25	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:12	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:25	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	5.2			mg/Kg	0.2	1	12/21/06 10:42	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	6.0	H	*	mg/Kg	0.2	1	12/08/06 21:50	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	12/08/06 21:50	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.072	H	*	%	0.002	0.01	11/18/06 22:32	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	17	H	*	mg/Kg	1	5	12/09/06 17:33	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-2 5-14"

ACZ Sample ID: ***L59734-06***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 20:08	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.49		*	meq/L	0.01	0.05	12/07/06 2:17	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.44		*	meq/L	0.02	0.08	12/07/06 2:17	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	450		*	mg/Kg	20	50	12/10/06 3:38	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.906		*	meq/L	0.008	0.03	12/07/06 2:17	gme
Sodium Absorption Ratio	Calculation	0.33				0.03	0.15	12/21/06 10:42	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.33		*	meq/L	0.01	0.04	12/07/06 2:17	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.4		*	%	0.1	0.5	12/07/06 20:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.320		*	mmhos/cm	0.001	0.01	12/04/06 23:15	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	12/05/06 11:06	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/04/06 23:15	lwt/srs
Saturation Percent	USDA No. 60 (2)	45.20		*	%	0.01	0.1	12/04/06 23:15	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	78.0		*	% Passing	0.1	0.5	12/13/06 14:46	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	88.5		*	% Passing	0.1	0.5	11/28/06 16:41	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	86.3		*	%	0.1	0.5	11/28/06 18:47	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		15.0		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Sand		48.8		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Silt		36.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Texture Classification		L		*				12/12/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-2 5-14"

ACZ Sample ID: ***L59734-06***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 0:59	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:15	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 12:39	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:15	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:31	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	7.0			mg/Kg	0.2	1	12/21/06 10:42	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	7.8	H	*	mg/Kg	0.2	1	12/08/06 21:51	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	12/08/06 21:51	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.22	H	*	%	0.05	0.2	12/14/06 15:13	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	27	H	*	mg/Kg	1	5	12/09/06 17:34	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-2 14-25"

ACZ Sample ID: ***L59734-07***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 20:16	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.65		*	meq/L	0.01	0.05	12/07/06 2:21	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.23		*	meq/L	0.02	0.08	12/07/06 2:21	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	210		*	mg/Kg	20	50	12/10/06 3:42	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.195		*	meq/L	0.008	0.03	12/07/06 2:21	gme
Sodium Absorption Ratio	Calculation	0.43				0.03	0.15	12/21/06 10:42	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.29		*	meq/L	0.01	0.04	12/07/06 2:21	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.5		*	%	0.1	0.5	12/07/06 21:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.155		*	mmhos/cm	0.001	0.01	12/05/06 1:30	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5		*	%	0.1	0.5	12/05/06 11:31	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.9		*	units	0.1	0.1	12/05/06 1:30	lwt/srs
Saturation Percent	USDA No. 60 (2)	32.30		*	%	0.01	0.1	12/05/06 1:30	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	87.0		*	% Passing	0.1	0.5	12/13/06 16:07	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	64.5		*	% Passing	0.1	0.5	11/28/06 18:25	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	96.3		*	%	0.1	0.5	11/28/06 19:44	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Sand		35.0		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Silt		46.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Texture Classification		SiL		*				12/12/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-2 14-25"

ACZ Sample ID: ***L59734-07***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 2:08	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:18	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 12:54	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:18	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:37	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	47.0			mg/Kg	0.4	2	12/21/06 10:42	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	47.7	H	*	mg/Kg	0.4	2	12/08/06 22:32	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 21:56	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.043	H	*	%	0.002	0.01	11/18/06 22:34	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	17	H	*	mg/Kg	1	5	12/09/06 17:37	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-2 25-38"

ACZ Sample ID: ***L59734-08***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 20:25	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.47		*	meq/L	0.01	0.05	12/07/06 2:34	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.23		*	meq/L	0.02	0.08	12/07/06 2:34	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	160		*	mg/Kg	20	50	12/10/06 3:46	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.124		*	meq/L	0.008	0.03	12/07/06 2:34	gme
Sodium Absorption Ratio	Calculation	0.37				0.03	0.15	12/21/06 10:42	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.22		*	meq/L	0.01	0.04	12/07/06 2:34	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.2	B	*	%	0.1	0.5	12/07/06 23:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.121		*	mmhos/cm	0.001	0.01	12/05/06 3:45	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	12/05/06 11:56	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.9		*	units	0.1	0.1	12/05/06 3:45	lwt/srs
Saturation Percent	USDA No. 60 (2)	37.80		*	%	0.01	0.1	12/05/06 3:45	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	84.4		*	% Passing	0.1	0.5	12/13/06 17:29	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	70.7		*	% Passing	0.1	0.5	11/28/06 20:09	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.1		*	%	0.1	0.5	11/28/06 20:42	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		26.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Sand		37.5		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Silt		36.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Texture Classification		SiL		*				12/12/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-2 25-38"

ACZ Sample ID: ***L59734-08***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 3:17	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:22	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 13:08	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:21	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:44	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	41.8			mg/Kg	0.4	2	12/21/06 10:42	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	42.5	H	*	mg/Kg	0.4	2	12/08/06 22:33	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 21:57	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.045	H	*	%	0.005	0.02	11/18/06 22:52	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	10	H	*	mg/Kg	1	5	12/09/06 17:38	pjb

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-3 0-9"

ACZ Sample ID: ***L59734-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 20:34	jf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.90		*	meq/L	0.01	0.05	12/07/06 2:38	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.28		*	meq/L	0.02	0.08	12/07/06 2:38	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	320		*	mg/Kg	20	50	12/10/06 3:50	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.535		*	meq/L	0.008	0.03	12/07/06 2:38	gme
Sodium Absorption Ratio	Calculation	0.23				0.03	0.15	12/21/06 10:42	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.18		*	meq/L	0.01	0.04	12/07/06 2:38	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.7		*	%	0.1	0.5	12/08/06 0:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.200		*	mmhos/cm	0.001	0.01	12/05/06 6:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	12/05/06 12:22	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.7		*	units	0.1	0.1	12/05/06 6:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	45.50		*	%	0.01	0.1	12/05/06 6:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	72.8		*	% Passing	0.1	0.5	12/13/06 18:50	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	86.8		*	% Passing	0.1	0.5	11/28/06 21:53	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	87.7		*	%	0.1	0.5	11/28/06 21:40	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		11.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Sand		56.3		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Silt		32.5		*	%	0.1	0.5	12/12/06 0:00	lwt/srs
Texture Classification		L		*				12/12/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-3 0-9"

ACZ Sample ID: ***L59734-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 4:25	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:25	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 13:22	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:24	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:50	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	9.7			mg/Kg	0.2	1	12/21/06 10:42	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	9.7	H	*	mg/Kg	0.2	1	12/08/06 21:58	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	12/13/06 19:25	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.074	H	*	%	0.002	0.01	11/18/06 22:36	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	14	H	*	mg/Kg	1	5	12/09/06 17:39	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-3 9-19"

ACZ Sample ID: ***L59734-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							11/15/06 20:42	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.47		*	meq/L	0.01	0.05	12/07/06 2:42	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.23		*	meq/L	0.02	0.08	12/07/06 2:42	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	240		*	mg/Kg	20	50	12/10/06 3:54	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.205		*	meq/L	0.008	0.03	12/07/06 2:42	gme
Sodium Absorption Ratio	Calculation	0.33				0.03	0.15	12/21/06 10:42	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.20		*	meq/L	0.01	0.04	12/07/06 2:42	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.7		*	%	0.1	0.5	12/08/06 1:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.137		*	mmhos/cm	0.001	0.01	12/05/06 8:15	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5	B	*	%	0.1	0.5	12/05/06 12:47	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.8		*	units	0.1	0.1	12/05/06 8:15	lwt/srs
Saturation Percent	USDA No. 60 (2)	33.60		*	%	0.01	0.1	12/05/06 8:15	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	82.1		*	% Passing	0.1	0.5	12/13/06 20:11	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	80.7		*	% Passing	0.1	0.5	11/28/06 23:37	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.5		*	%	0.1	0.5	11/28/06 22:38	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		21.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		45.0		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		33.8		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		L		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-3 9-19"

ACZ Sample ID: ***L59734-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 5:34	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:28	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 13:37	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:27	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 10:56	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	5.1			mg/Kg	0.2	1	12/21/06 10:42	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	5.8	H	*	mg/Kg	0.2	1	12/08/06 22:00	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:00	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.139	H	*	%	0.005	0.02	11/18/06 22:55	pjb
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	9	H	*	mg/Kg	1	5	12/09/06 17:40	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-3 19-36"

ACZ Sample ID: ***L59734-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 16:09	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.54		*	meq/L	0.01	0.05	12/07/06 2:46	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.19		*	meq/L	0.02	0.08	12/07/06 2:46	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	110		*	mg/Kg	20	50	12/10/06 3:58	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.111		*	meq/L	0.008	0.03	12/07/06 2:46	gme
Sodium Absorption Ratio	Calculation	0.41				0.03	0.15	12/21/06 10:43	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.25		*	meq/L	0.01	0.04	12/07/06 2:46	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.5		*	%	0.1	0.5	12/08/06 3:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.139		*	mmhos/cm	0.001	0.01	12/05/06 10:30	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5		*	%	0.1	0.5	12/05/06 13:12	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.7		*	units	0.1	0.1	12/05/06 10:30	lwt/srs
Saturation Percent	USDA No. 60 (2)	32.00		*	%	0.01	0.1	12/05/06 10:30	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	80.6		*	% Passing	0.1	0.5	12/13/06 21:33	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	75.3		*	% Passing	0.1	0.5	11/29/06 1:22	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.7		*	%	0.1	0.5	11/28/06 23:36	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		22.5		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		47.5		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		30.0		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		L		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

Carbon Resources
Project ID:
Sample ID: 2A-3 19-36"

ACZ Sample ID: ***L59734-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 6:42	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:31	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 13:51	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:30	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 11:03	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.1			mg/Kg	0.2	1	12/21/06 10:43	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.8	H	*	mg/Kg	0.2	1	12/08/06 22:01	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:01	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.010	H	*	%	0.002	0.008	12/04/06 13:33	jlf
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	9	H	*	mg/Kg	1	5	12/09/06 17:42	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-3 36-52"

ACZ Sample ID: ***L59734-12***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 17:04	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.08		*	meq/L	0.01	0.05	12/07/06 2:50	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.31		*	meq/L	0.02	0.08	12/07/06 2:50	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	130		*	mg/Kg	20	50	12/10/06 4:02	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.073		*	meq/L	0.008	0.03	12/07/06 2:50	gme
Sodium Absorption Ratio	Calculation	0.33				0.03	0.15	12/21/06 10:43	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.28		*	meq/L	0.01	0.04	12/07/06 2:50	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.5		*	%	0.1	0.5	12/08/06 4:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.192		*	mmhos/cm	0.001	0.01	12/05/06 12:45	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.8		*	%	0.1	0.5	12/05/06 13:37	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.2		*	units	0.1	0.1	12/05/06 12:45	lwt/srs
Saturation Percent	USDA No. 60 (2)	42.60		*	%	0.01	0.1	12/05/06 12:45	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.0		*	% Passing	0.1	0.5	12/13/06 22:54	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	61.3		*	% Passing	0.1	0.5	11/29/06 3:06	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	93.5		*	%	0.1	0.5	11/29/06 0:34	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		28.8		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		31.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		40.0		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		SiL		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-3 36-52"

ACZ Sample ID: ***L59734-12***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 7:51	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:34	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 14:05	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:33	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 11:09	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	11.1			mg/Kg	0.2	1	12/21/06 10:43	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	11.8	H	*	mg/Kg	0.2	1	12/08/06 22:02	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:02	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.042	H	*	%	0.002	0.01	12/04/06 13:35	jlf
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	33	H	*	mg/Kg	1	5	12/09/06 17:43	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-5 0-6"

ACZ Sample ID: ***L59734-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 17:58	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.87		*	meq/L	0.01	0.05	12/07/06 2:54	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.52		*	meq/L	0.02	0.08	12/07/06 2:54	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	340		*	mg/Kg	20	50	12/10/06 4:14	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.675		*	meq/L	0.008	0.03	12/07/06 2:54	gme
Sodium Absorption Ratio	Calculation	0.38				0.03	0.15	12/21/06 10:43	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.42		*	meq/L	0.01	0.04	12/07/06 2:54	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.8		*	%	0.1	0.5	12/08/06 5:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.362		*	mmhos/cm	0.001	0.01	12/05/06 15:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.8		*	%	0.1	0.5	12/05/06 14:03	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.8		*	units	0.1	0.1	12/05/06 15:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	44.70		*	%	0.01	0.1	12/05/06 15:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	80.6		*	% Passing	0.1	0.5	12/14/06 0:15	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	80.4		*	% Passing	0.1	0.5	11/29/06 4:50	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	87.1		*	%	0.1	0.5	11/29/06 1:32	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		46.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		37.5		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		L		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-5 0-6"

ACZ Sample ID: ***L59734-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 8:59	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:37	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 14:19	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:36	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 11:15	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	11.4			mg/Kg	0.2	1	12/21/06 10:43	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	11.4	H	*	mg/Kg	0.2	1	12/08/06 22:03	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction		UH	*	mg/Kg	0.1	0.5	12/13/06 19:27	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.184	H	*	%	0.007	0.04	12/14/06 15:14	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	25	H	*	mg/Kg	1	5	12/09/06 17:44	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-5 6-12"

ACZ Sample ID: ***L59734-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 18:26	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	2.15		*	meq/L	0.01	0.05	12/07/06 2:58	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.42		*	meq/L	0.02	0.08	12/07/06 2:58	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	350		*	mg/Kg	20	50	12/10/06 4:17	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.543		*	meq/L	0.008	0.03	12/07/06 2:58	gme
Sodium Absorption Ratio	Calculation	0.33				0.03	0.15	12/21/06 10:43	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.38		*	meq/L	0.01	0.04	12/07/06 2:58	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.4		*	%	0.1	0.5	12/08/06 7:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.358		*	mmhos/cm	0.001	0.01	12/05/06 17:15	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	12/05/06 14:28	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/05/06 17:15	lwt/srs
Saturation Percent	USDA No. 60 (2)	39.60		*	%	0.01	0.1	12/05/06 17:15	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	87.5		*	% Passing	0.1	0.5	12/14/06 1:37	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	60.5		*	% Passing	0.1	0.5	11/29/06 6:34	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	89.0		*	%	0.1	0.5	11/29/06 2:29	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		21.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		46.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		32.5		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		L		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-5 6-12"

ACZ Sample ID: ***L59734-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 10:08	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:40	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 14:34	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:39	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 11:22	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	6.5			mg/Kg	0.2	1	12/21/06 10:43	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	7.1	H	*	mg/Kg	0.2	1	12/08/06 22:05	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/08/06 22:05	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.108	H	*	%	0.002	0.01	12/04/06 13:38	jlf
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	14	H	*	mg/Kg	1	5	12/09/06 17:45	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-5 12-24"

ACZ Sample ID: ***L59734-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 18:53	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.37		*	meq/L	0.01	0.05	12/07/06 3:02	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.24		*	meq/L	0.02	0.08	12/07/06 3:02	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	240		*	mg/Kg	20	50	12/10/06 4:21	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.256		*	meq/L	0.008	0.03	12/07/06 3:02	gme
Sodium Absorption Ratio	Calculation	0.38				0.03	0.15	12/21/06 10:43	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.21		*	meq/L	0.01	0.04	12/07/06 3:02	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.5		*	%	0.1	0.5	12/08/06 8:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.107		*	mmhos/cm	0.001	0.01	12/05/06 19:30	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5	B	*	%	0.1	0.5	12/05/06 14:53	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/05/06 19:30	lwt/srs
Saturation Percent	USDA No. 60 (2)	39.20		*	%	0.01	0.1	12/05/06 19:30	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	92.8		*	% Passing	0.1	0.5	12/14/06 2:58	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	45.0		*	% Passing	0.1	0.5	11/29/06 8:19	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	91.7		*	%	0.1	0.5	11/29/06 3:27	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		31.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		28.8		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		40.0		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		SiCL		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-5 12-24"

ACZ Sample ID: ***L59734-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 11:17	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:44	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 14:48	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:42	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 11:28	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.2			mg/Kg	0.2	1	12/21/06 10:43	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.9	H	*	mg/Kg	0.2	1	12/08/06 22:06	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:06	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.062	H	*	%	0.002	0.009	12/04/06 13:40	jlf
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	7	H	*	mg/Kg	1	5	12/09/06 17:46	pjb

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-5 24-48"

ACZ Sample ID: ***L59734-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 19:21	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.24		*	meq/L	0.01	0.05	12/07/06 3:06	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.31		*	meq/L	0.02	0.08	12/07/06 3:06	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	240		*	mg/Kg	20	50	12/10/06 4:25	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.252		*	meq/L	0.008	0.03	12/07/06 3:06	gme
Sodium Absorption Ratio	Calculation	0.42				0.03	0.15	12/21/06 10:43	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.22		*	meq/L	0.01	0.04	12/07/06 3:06	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.4	B	*	%	0.1	0.5	12/08/06 9:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.092		*	mmhos/cm	0.001	0.01	12/05/06 21:45	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	12/05/06 15:19	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/05/06 21:45	lwt/srs
Saturation Percent	USDA No. 60 (2)	47.30		*	%	0.01	0.1	12/05/06 21:45	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	95.2		*	% Passing	0.1	0.5	12/14/06 4:19	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	39.3		*	% Passing	0.1	0.5	11/29/06 10:03	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	90.7		*	%	0.1	0.5	11/29/06 4:25	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		40.0		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		22.5		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		37.5		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		SiC/SiCL		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-5 24-48"

ACZ Sample ID: ***L59734-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 12:25	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:47	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 15:02	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:45	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 11:34	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	7.0			mg/Kg	0.2	1	12/21/06 10:43	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	7.7	H	*	mg/Kg	0.2	1	12/08/06 22:07	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:07	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.049	H	*	%	0.001	0.006	12/04/06 13:41	jlf
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	8	H	*	mg/Kg	1	5	12/09/06 17:47	pjb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 0-6"

ACZ Sample ID: ***L59734-17***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 20:43	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.14		*	meq/L	0.01	0.05	12/07/06 3:10	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.43		*	meq/L	0.02	0.08	12/07/06 3:10	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	410		*	mg/Kg	20	50	12/10/06 4:29	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.748		*	meq/L	0.008	0.03	12/07/06 3:10	gme
Sodium Absorption Ratio	Calculation	0.16				0.03	0.15	12/21/06 10:43	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.15		*	meq/L	0.01	0.04	12/07/06 3:10	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.2		*	%	0.1	0.5	12/08/06 11:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.231		*	mmhos/cm	0.001	0.01	12/06/06 0:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	12/05/06 15:44	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/06/06 0:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	40.90		*	%	0.01	0.1	12/06/06 0:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	80.3		*	% Passing	0.1	0.5	12/14/06 5:41	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	91.3		*	% Passing	0.1	0.5	11/29/06 11:47	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	84.3		*	%	0.1	0.5	11/29/06 5:23	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		15.0		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		47.5		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		37.5		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		L		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 0-6"

ACZ Sample ID: ***L59734-17***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 13:34	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:50	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 15:17	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:48	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 11:41	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	7.2			mg/Kg	0.2	1	12/21/06 10:43	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	7.9	H	*	mg/Kg	0.2	1	12/08/06 22:12	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:12	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.159	H	*	%	0.007	0.03	12/14/06 15:15	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	24	H	*	mg/Kg	1	5	12/09/06 17:50	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 6-12"

ACZ Sample ID: ***L59734-18***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 21:10	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.84		*	meq/L	0.01	0.05	12/07/06 3:22	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.31		*	meq/L	0.02	0.08	12/07/06 3:22	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	410		*	mg/Kg	20	50	12/10/06 4:33	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.515		*	meq/L	0.008	0.03	12/07/06 3:22	gme
Sodium Absorption Ratio	Calculation	0.21				0.03	0.15	12/21/06 10:44	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.16		*	meq/L	0.01	0.04	12/07/06 3:22	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.3		*	%	0.1	0.5	12/08/06 12:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.189		*	mmhos/cm	0.001	0.01	12/06/06 2:15	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	12/05/06 16:09	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/06/06 2:15	lwt/srs
Saturation Percent	USDA No. 60 (2)	38.80		*	%	0.01	0.1	12/06/06 2:15	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	80.8		*	% Passing	0.1	0.5	12/14/06 7:02	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	83.6		*	% Passing	0.1	0.5	11/29/06 13:31	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	90.4		*	%	0.1	0.5	11/29/06 6:21	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		50.0		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		33.8		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		L		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 6-12"

ACZ Sample ID: ***L59734-18***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 14:42	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:53	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 15:31	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:51	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 11:47	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	5.3			mg/Kg	0.2	1	12/21/06 10:44	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	6.0	H	*	mg/Kg	0.2	1	12/08/06 22:13	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:13	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.134	H	*	%	0.007	0.04	12/14/06 15:16	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	22	H	*	mg/Kg	1	5	12/09/06 17:52	pjb

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 12-24"

ACZ Sample ID: ***L59734-19***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 21:37	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.96		*	meq/L	0.01	0.05	12/07/06 3:26	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.31		*	meq/L	0.02	0.08	12/07/06 3:26	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	160		*	mg/Kg	20	50	12/10/06 4:37	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.101		*	meq/L	0.008	0.03	12/07/06 3:26	gme
Sodium Absorption Ratio	Calculation	0.43				0.03	0.15	12/21/06 10:44	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.35		*	meq/L	0.01	0.04	12/07/06 3:26	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.0		*	%	0.1	0.5	12/08/06 13:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.180		*	mmhos/cm	0.001	0.01	12/06/06 4:30	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	12/05/06 16:34	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.2		*	units	0.1	0.1	12/06/06 4:30	lwt/srs
Saturation Percent	USDA No. 60 (2)	39.20		*	%	0.01	0.1	12/06/06 4:30	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	82.0		*	% Passing	0.1	0.5	12/14/06 8:23	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	86.8		*	% Passing	0.1	0.5	11/29/06 15:15	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	96.0		*	%	0.1	0.5	11/29/06 7:19	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		45.0		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		38.8		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		L		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 12-24"

ACZ Sample ID: ***L59734-19***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 15:51	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:56	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 15:45	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:54	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 11:53	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.5			mg/Kg	0.2	1	12/21/06 10:44	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.1	H	*	mg/Kg	0.2	1	12/08/06 22:14	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/08/06 22:14	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.10	H	*	%	0.02	0.09	12/14/06 15:17	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	19	H	*	mg/Kg	1	5	12/09/06 17:53	pjb

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 24-40"

ACZ Sample ID: ***L59734-20***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/01/06 22:05	jlf/pjb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.27		*	meq/L	0.01	0.05	12/07/06 3:30	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.44		*	meq/L	0.02	0.08	12/07/06 3:30	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	230		*	mg/Kg	20	50	12/10/06 4:41	gme
Potassium, soluble (Sat. Paste)	M6010B ICP	0.235		*	meq/L	0.008	0.03	12/07/06 3:30	gme
Sodium Absorption Ratio	Calculation	0.42				0.03	0.15	12/21/06 10:44	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.39		*	meq/L	0.01	0.04	12/07/06 3:30	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.0		*	%	0.1	0.5	12/08/06 15:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.216		*	mmhos/cm	0.001	0.01	12/06/06 6:45	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.7		*	%	0.1	0.5	12/05/06 17:00	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/06/06 6:45	lwt/srs
Saturation Percent	USDA No. 60 (2)	42.80		*	%	0.01	0.1	12/06/06 6:45	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	84.4		*	% Passing	0.1	0.5	12/14/06 9:45	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	79.3		*	% Passing	0.1	0.5	11/29/06 17:00	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	93.6		*	%	0.1	0.5	11/29/06 8:17	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Sand		45.0		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Silt		38.8		*	%	0.1	0.5	12/13/06 0:00	lwt/srs
Texture Classification		L		*				12/13/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 24-40"

ACZ Sample ID: ***L59734-20***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 16:59	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:59	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/07/06 15:59	rje/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/04/06 12:57	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							11/30/06 12:00	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	6.1			mg/Kg	0.2	1	12/21/06 10:44	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	6.8	H	*	mg/Kg	0.2	1	12/08/06 22:16	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:16	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.111	H	*	%	0.006	0.03	12/14/06 15:18	jag
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	23	H	*	mg/Kg	1	5	12/09/06 17:54	pjb

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicated MDL
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.
X	Quality control sample is out of control.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

Carbon Resources

ACZ Project ID: ***L59734***

Project ID:

Calcium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217640													
WG217640ICV	ICV	12/07/06 1:37	II061128-2	100		98.25	mg/L	98.3	90	110			
WG217640ICB	ICB	12/07/06 1:41				U	mg/L		-0.6	0.6			
L59734-20DUP	DUP	12/07/06 3:34			1.27	1.796	meq/L				34.3	20	RC

Carbon, total organic (TOC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217769													
WG217769PBS	PBS	12/07/06 11:00				U	%		-0.3	0.3			
L59734-01DUP	DUP	12/07/06 13:40			.4	.4	%				0	20	RA

Conductivity @25C M120.1 - Meter, w/ Saturated Paste Prep

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217538													
L59734-20DUP	DUP	12/06/06 9:00			.216	.3	mhos/cm				32.6	20	RC

Magnesium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217640													
WG217640ICV	ICV	12/07/06 1:37	II061128-2	100		94.93	mg/L	94.9	90	110			
WG217640ICB	ICB	12/07/06 1:41				U	mg/L		-0.6	0.6			
L59734-20DUP	DUP	12/07/06 3:34			.44	.574	meq/L				26.4	20	RC

Neutralization Potential as CaCO3 M600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217580													
WG217580LCSS	LCSS	12/05/06 9:25	PCN20880	100		100.16	%						
L59734-01DUP	DUP	12/05/06 10:15			.5	.55	%				9.5	20	RA
WG217923													
L59734-02DUP	DUP	12/11/06 17:40			8.1	7.98	%				1.5	20	
WG217923LCSS	LCSS	12/13/06 4:20	PCN20880	100		111.72	%						
WG217923PBS	PBS	12/13/06 13:00				U	%		-0.1	0.1			

Carbon Resources
Project ID:

ACZ Project ID: ***L59734***

Nitrate/Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217892													
WG217892ICV	ICV	12/08/06 19:33	WI061207-1	2.416		2.249	mg/L	93.1	90	110			
WG217892ICB	ICB	12/08/06 19:34				U	mg/L		-0.06	0.06			
WG217895													
WG217895ICV	ICV	12/08/06 21:37	WI061207-1	2.416		2.3	mg/L	95.2	90	110			
WG217895ICB	ICB	12/08/06 21:39				U	mg/L		-0.06	0.06			
WG217895LFB1	LFB	12/08/06 21:40	WI060906-4	2		2.028	mg/Kg	101.4	85	115			
WG217693PBS	PBS	12/08/06 21:41				1.73	mg/Kg		-0.6	0.6			N1
L59734-01DUP	DUP	12/08/06 21:44			8	8	mg/Kg				0	20	
WG217895LFB2	LFB	12/08/06 22:18	WI060906-4	2		2.067	mg/Kg	103.4	85	115			
L59736-01DUP	DUP	12/08/06 22:21			4.8	4.89	mg/Kg				1.9	20	
L59736-02AS	AS	12/08/06 22:23	WI060906-4	20	4.9	24.57	mg/Kg	98.4	75	125			
L59734-02AS	AS	12/08/06 22:30	WI060906-4	100	35	138.7	mg/Kg	103.7	75	125			

Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217892													
WG217892ICV	ICV	12/08/06 19:33	WI061207-1	.609		.618	mg/L	101.5	90	110			
WG217892ICB	ICB	12/08/06 19:34				U	mg/L		-0.03	0.03			
WG217895													
WG217895ICV	ICV	12/08/06 21:37	WI061207-1	.609		.622	mg/L	102.1	90	110			
WG217895ICB	ICB	12/08/06 21:39				U	mg/L		-0.03	0.03			
WG217895LFB1	LFB	12/08/06 21:40	WI060906-4	1		.996	mg/Kg	99.6	85	115			
L59734-01DUP	DUP	12/08/06 21:44			.6	.66	mg/Kg				9.5	20	RA
L59734-02AS	AS	12/08/06 21:46	WI060906-4	10	.7	10.46	mg/Kg	97.6	75	125			
WG217895LFB2	LFB	12/08/06 22:18	WI060906-4	1		1.017	mg/Kg	101.7	85	115			
L59736-01DUP	DUP	12/08/06 22:21			.7	.7	mg/Kg				0	20	RA
L59736-02AS	AS	12/08/06 22:23	WI060906-4	10	.5	9.53	mg/Kg	90.3	75	125			
WG218122													
WG218122ICV	ICV	12/13/06 19:17	WI061207-1	.609		.595	mg/L	97.7	90	110			
WG218122ICB	ICB	12/13/06 19:19				U	mg/L		-0.03	0.03			
WG218122LFB	LFB	12/13/06 19:20	WI060906-4	1		.986	mg/Kg	98.6	85	115			
WG217693PBS	PBS	12/13/06 19:21				.52	mg/Kg		-0.3	0.3			N1
L59734-01DUP	DUP	12/13/06 19:24			.7	.62	mg/Kg				12.1	20	RA
L59734-09AS	AS	12/13/06 19:26	WI060906-4	10	U	9.44	mg/Kg	94.4	75	125			

Carbon Resources
Project ID:

ACZ Project ID: ***L59734***

Nitrogen, total Kjeldahl M351.2 - TKN by Block Digester

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216825													
WG216639ICV	ICV	11/18/06 20:36	WI061027-1	4		3.88	mg/L	97	90	110			
WG216639ICB	ICB	11/18/06 20:37				U	mg/L		-0.3	0.3			
WG216639LFB1	LFB	11/18/06 20:40	WI061027-5	2.5		2.48	%	99.2	85	115			
WG216639PBS1	PBS	11/18/06 20:52				.0021	%		-0.006	0.006			
WG216639PBS2	PBS	11/18/06 21:11				.003	%		-0.006	0.006			
WG216639LFB2	LFB	11/18/06 21:12	WI061027-5	2.5		2.4	%	96	85	115			
L59734-02DUP	DUP	11/18/06 22:28			.048	.048	%				0	20	
L59734-01MS	MS	11/18/06 22:51	5XPTSTKN	.035	.066	.1579	%	262.6	75	125			M1
WG217529													
WG217529ICV1	ICV	12/04/06 12:17	WI061129-2	4		3.79	mg/L	94.8	90	110			
WG217469ICB	ICB	12/04/06 12:18				U	mg/L		-0.3	0.3			
WG217529ICV2	ICV	12/04/06 13:11	WI061129-2	4		3.75	mg/L	93.8	90	110			
WG217529ICB1	ICB	12/04/06 13:12				U	mg/L		-0.3	0.3			
WG217539													
WG217470ICB	ICB	12/04/06 13:29				U	mg/L		-0.3	0.3			
WG217470PBS	PBS	12/04/06 13:31				.0031	%		-0.006	0.006			
WG217470LFB	LFB	12/04/06 13:32	WI061129-6	2.5		2.2	%	88	85	115			
L59734-11MS	MS	12/04/06 13:34	WI061129-6	.0375	.01	.03	%	53.3	75	125			M2
L59734-12DUP	DUP	12/04/06 13:36			.042	.0527	%				22.6	20	RD
WG218152													
WG218152ICV1	ICV	12/14/06 15:10	WI061129-2	4		3.93	mg/L	98.3	90	110			
WG218073ICB	ICB	12/14/06 15:12				U	mg/L		-0.3	0.3			
WG218073LFB	LFB	12/14/06 15:20	WI061129-6	2.5		2.66	%	106.4	85	115			
L60098-01DUP	DUP	12/14/06 15:29			6.7	6.97	%				4	20	

Percent Clay ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217996													
L59734-01DUP	DUP	12/12/06 11:02			20	20	%				0	20	

Percent Sand ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217996													
L59734-01DUP	DUP	12/12/06 11:02			50	51.3	%				2.6	20	

Percent Silt ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217996													
L59734-01DUP	DUP	12/12/06 11:02			30	28.8	%				4.1	20	

pH, Saturated Paste USDA No. 60 (21A)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217538													
L59734-20DUP	DUP	12/06/06 9:00			7	7.04	units				0.6	20	

Carbon Resources
Project ID:

ACZ Project ID: ***L59734***

Phosphorus, extractable (AB-DTPA) M365.1 - Automated Ascorbic Acid

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217910													
WG217910ICV	ICV	12/09/06 17:21	SCN000224	.65228		.605	mg/L	92.8	90	110			
WG217910ICB	ICB	12/09/06 17:23				U	mg/L		-0.03	0.03			
WG217910LFB	LFB	12/09/06 17:24	WI061125-2	.5		.495	mg/Kg	99	85	115			
WG217564PBS	PBS	12/09/06 17:25				3.5	mg/Kg		-3	3			N1
L59734-01AS	AS	12/09/06 17:27	WI061125-2	50	39	63.2	mg/Kg	48.4	75	125			M2
L59734-01DUP	DUP	12/09/06 17:28			39	37.8	mg/Kg				3.1	20	

Potassium, extractable (AB-DTPA) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217909													
WG217909ICV	ICV	12/10/06 2:30	II061128-2	20		20.37	mg/L	101.9	90	110			
WG217909ICB	ICB	12/10/06 2:34				U	mg/L		-0.9	0.9			
WG217564PBS	PBS	12/10/06 2:50				U	mg/L		-60	60			
L59734-01DUP	DUP	12/10/06 2:58			220	210	mg/L				4.7	20	
L59734-02AS	AS	12/10/06 3:06	II061207-3	4975.507	120	4953	mg/L	97.1	75	125			
L59734-02ASD	ASD	12/10/06 3:10	II061207-3	4975.507	120	5270	mg/L	103.5	75	125	6.2	20	

Potassium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217640													
WG217640ICV	ICV	12/07/06 1:37	II061128-2	20		20.15	mg/L	100.8	90	110			
WG217640ICB	ICB	12/07/06 1:41				U	mg/L		-0.9	0.9			
L59734-20DUP	DUP	12/07/06 3:34			.235	.2939	meq/L				22.3	20	RC

Saturation Percent USDA No. 60 (2)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217538													
L59734-20DUP	DUP	12/06/06 9:00			42.8	41.17	%				3.9	20	

Sodium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217640													
WG217640ICV	ICV	12/07/06 1:37	II061128-2	100		99.19	mg/L	99.2	90	110			
WG217640ICB	ICB	12/07/06 1:41				U	mg/L		-0.9	0.9			
L59734-20DUP	DUP	12/07/06 3:34			.39	.52	meq/L				28.5	20	RC

Solids, Percent CLPSOW390, PART F, D-98

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217225													
WG217225PBS	PBS	11/28/06 13:00				U	%		99.9	100.1			
L59734-20DUP	DUP	11/29/06 9:14			93.6	92.95	%				0.7	20	

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-01	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-02	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-03	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-04	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-05	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-06	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218152	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-07	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-08	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-09	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG218122	Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-10	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG216825	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-11	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217539	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-12	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217539	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-13	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG218122	Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218152	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-14	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217539	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-15	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217539	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-16	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217539	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
			M351.2 - TKN by Block Digester	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M351.2 - TKN by Block Digester	RD	For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-17	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218152	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-18	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218152	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-19	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218152	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59734***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59734-20	WG217640	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217909	Potassium, extractable (AB-DTPA)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG217640	Potassium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217769	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217538	Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217580	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG218152	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217910	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
pH, Saturated Paste	USDA No. 60 (21A)
Saturation Percent	USDA No. 60 (2)
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2
Solids, Percent	CLPSOW390, PART F, D-98
Texture by Hydrometer	ASTM D 422 Hydrometer

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59734
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
BUCKET X 8		22.5	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59734
Date Received: 10/31/2006
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L59734-01	2A-1 10-24"									X		
L59734-02	2A-1 24-44"									X		
L59734-03	2A-1 44-65"									X		
L59734-04	2A-1 65-80"									X		
L59734-05	2A-2 0-5"									X		
L59734-06	2A-2 5-14"									X		
L59734-07	2A-2 14-25"									X		
L59734-08	2A-2 25-38"									X		
L59734-09	2A-3 0-9"									X		
L59734-10	2A-3 9-19"									X		
L59734-11	2A-3 19-36"									X		
L59734-12	2A-3 36-52"									X		
L59734-13	2A-5 0-6"									X		
L59734-14	2A-5 6-12"									X		
L59734-15	2A-5 12-24"									X		
L59734-16	2A-5 24-48"									X		
L59734-17	2A-6 0-6"									X		
L59734-18	2A-6 6-12"									X		
L59734-19	2A-6 12-24"									X		
L59734-20	2A-6 24-40"									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59734

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

10.26.06

Sue Webber

From: GHuntBBC@aol.com
Sent: Friday, October 27, 2006 12:52 PM
To: bches@scinternet.net; Sue Webber
Subject: Sue Weber Carbon Resources Soil Samples

FROM: **Geo-Hunt Consulting**
16577 Columbine Lane
Cedaredge, CO 81413
970-856-9477

TO: **Sue Webber, Project Manager**
ACZ Laboratories, Inc.
2773 Downhill Drive,
Steamboat Springs, Co 80487

RE: **TRANSMITTAL OF SOIL SAMPLES**

Dear Sue:
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

10/31/2006

Very Fine Sand

analyst: as
date: 12-19-06

ACZ L#	Total sample wt. gms	% <2000um sieve	Wt. of sxs used for Texture gms	Wt. of sxs between 105um & 53um gm.	% VFS
L59734-01	579.28	72.0	40.0	8.6	**15.5**
L59734-02	520.45	83.9	40.0	6.7	**14.1**
L59734-03	542.08	90.6	40.0	5.4	**12.2**
L59734-04	454.40	90.1	40.0	6.0	**13.5**
L59734-05	453.77	88.9	40.0	8.8	**19.6**
L59734-06	416.31	88.5	40.0	9.9	**21.9**
L59734-07	540.48	64.5	40.0	8.1	**13.1**
L59734-08	587.54	70.7	40.0	8.8	**15.6**
L59734-09	529.95	86.8	40.0	12.5	**27.1**
L59734-10	554.14	80.7	40.0	8.9	**18.0**
L59734-11	556.67	75.3	40.0	10.3	**19.4**
L59734-12	536.72	61.3	40.0	5.9	**9.0**
L59734-13	382.20	80.4	40.0	9.6	**19.3**
L59734-14	527.81	60.5	40.0	8.3	**12.6**
L59734-15	545.67	45.0	40.0	6.4	**7.2**
L59734-16	467.60	39.3	40.0	4.9	**4.8**
L59734-17	327.47	91.3	40.0	8.6	**19.6**
L59734-18	470.16	83.6	40.0	9.2	**19.2**
L59734-19	555.68	86.8	40.0	8.3	**18.0**
L59734-20	586.68	79.3	40.0	7.8	**15.5**
dup L59734-01	579.28	72.0	40.0	8.8	**15.8**

(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture

(VFS of Texture) x (% <2000um) = % VFS

additional data from:

-sieve2000 WG217375

-sieve53 WG217376

-texture WG217996

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59735

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59735. Please reference this number in all future inquiries.

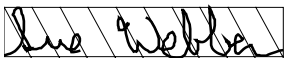
All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59735. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.



21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59735

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 20 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59735. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 40-60"

ACZ Sample ID: ***L59735-01***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 0:06	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.54			meq/L	0.01	0.05	12/07/06 23:10	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.73			meq/L	0.02	0.08	12/07/06 23:10	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	190		*	mg/Kg	20	50	12/12/06 6:55	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.391			meq/L	0.008	0.03	12/07/06 23:10	gme
Sodium Absorption Ratio	Calculation	1.39				0.03	0.15	12/21/06 10:59	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	1.48		*	meq/L	0.01	0.04	12/07/06 23:10	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.5		*	%	0.1	0.5	12/07/06 12:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.512		*	mmhos/cm	0.001	0.01	12/06/06 17:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.4		*	%	0.1	0.5	12/08/06 10:28	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.9		*	units	0.1	0.1	12/06/06 17:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	31.60		*	%	0.01	0.1	12/06/06 17:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	85.2		*	% Passing	0.1	0.5	12/14/06 10:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	85.2		*	% Passing	0.1	0.5	11/30/06 8:00	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.9		*	%	0.1	0.5	12/06/06 17:51	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		25.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		50.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		25.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 40-60"

ACZ Sample ID: ***L59735-01***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 14:08	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:00	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 9:17	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:00	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 9:00	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.9			mg/Kg	0.2	1	12/21/06 10:59	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.9	H	*	mg/Kg	0.2	1	12/08/06 20:46	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	1.0	H	*	mg/Kg	0.1	0.5	12/08/06 20:46	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.043	H	*	%	0.001	0.006	12/08/06 17:19	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	31	H	*	mg/Kg	1	5	12/09/06 18:05	pjb

Carbon Resources
Project ID:
Sample ID: 2A-6 60-80"

ACZ Sample ID: ***L59735-02***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 0:36	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.99			meq/L	0.01	0.05	12/07/06 23:14	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.64			meq/L	0.02	0.08	12/07/06 23:14	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	180		*	mg/Kg	20	50	12/12/06 7:03	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.291			meq/L	0.008	0.03	12/07/06 23:14	gme
Sodium Absorption Ratio	Calculation	1.09				0.03	0.15	12/21/06 10:59	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.98		*	meq/L	0.01	0.04	12/07/06 23:14	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.4	B	*	%	0.1	0.5	12/07/06 15:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.352		*	mmhos/cm	0.001	0.01	12/06/06 17:54	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.0		*	%	0.1	0.5	12/08/06 10:42	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.9		*	units	0.1	0.1	12/06/06 17:54	lwt/srs
Saturation Percent	USDA No. 60 (2)	32.90		*	%	0.01	0.1	12/06/06 17:54	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	86.5		*	% Passing	0.1	0.5	12/14/06 15:06	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	76.5		*	% Passing	0.1	0.5	11/30/06 9:44	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	93.4		*	%	0.1	0.5	12/06/06 19:34	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		25.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		47.5		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		27.5		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-6 60-80"

ACZ Sample ID: ***L59735-02***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 14:25	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:03	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 9:51	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:03	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 9:09	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.6			mg/Kg	0.2	1	12/21/06 10:59	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.4	H	*	mg/Kg	0.2	1	12/08/06 20:49	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	12/08/06 20:49	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.031	H	*	%	0.002	0.008	12/08/06 17:20	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	28	H	*	mg/Kg	1	5	12/09/06 18:07	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-7 0-7"

ACZ Sample ID: ***L59735-03***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 1:06	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.24			meq/L	0.01	0.05	12/07/06 23:18	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.45			meq/L	0.02	0.08	12/07/06 23:18	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	320		*	mg/Kg	20	50	12/12/06 7:25	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.744			meq/L	0.008	0.03	12/07/06 23:18	gme
Sodium Absorption Ratio	Calculation	0.55				0.03	0.15	12/21/06 10:59	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.51		*	meq/L	0.01	0.04	12/07/06 23:18	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.2		*	%	0.1	0.5	12/07/06 16:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.350		*	mmhos/cm	0.001	0.01	12/06/06 18:48	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	12/08/06 10:57	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.7		*	units	0.1	0.1	12/06/06 18:48	lwt/srs
Saturation Percent	USDA No. 60 (2)	47.80		*	%	0.01	0.1	12/06/06 18:48	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	75.8		*	% Passing	0.1	0.5	12/14/06 20:12	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	87.6		*	% Passing	0.1	0.5	11/30/06 11:28	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	86.4		*	%	0.1	0.5	12/06/06 20:25	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		20.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		55.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		25.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-7 0-7"

ACZ Sample ID: ***L59735-03***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 14:34	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:06	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 10:08	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:06	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 9:18	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.6			mg/Kg	0.2	1	12/21/06 10:59	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	5.1	H	*	mg/Kg	0.2	1	12/08/06 20:50	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.5	H	*	mg/Kg	0.1	0.5	12/08/06 20:50	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.146	H	*	%	0.009	0.05	12/08/06 18:07	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	17	H	*	mg/Kg	1	5	12/09/06 18:09	pjb

Carbon Resources
Project ID:
Sample ID: 2A-7 7-20"

ACZ Sample ID: ***L59735-04***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 1:36	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.45			meq/L	0.01	0.05	12/07/06 23:22	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.49			meq/L	0.02	0.08	12/07/06 23:22	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	260		*	mg/Kg	20	50	12/12/06 7:28	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.596			meq/L	0.008	0.03	12/07/06 23:22	gme
Sodium Absorption Ratio	Calculation	0.43				0.03	0.15	12/21/06 11:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.43		*	meq/L	0.01	0.04	12/07/06 23:22	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.6		*	%	0.1	0.5	12/07/06 17:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.400		*	mmhos/cm	0.001	0.01	12/06/06 19:42	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5	B	*	%	0.1	0.5	12/08/06 11:11	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.8		*	units	0.1	0.1	12/06/06 19:42	lwt/srs
Saturation Percent	USDA No. 60 (2)	37.40		*	%	0.01	0.1	12/06/06 19:42	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	77.4		*	% Passing	0.1	0.5	12/15/06 1:18	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	86.9		*	% Passing	0.1	0.5	11/30/06 13:12	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	91.8		*	%	0.1	0.5	12/06/06 21:17	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		22.5		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		51.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		26.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-7 7-20"

ACZ Sample ID: ***L59735-04***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 14:42	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:09	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 10:25	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:09	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 9:28	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.8			mg/Kg	0.2	1	12/21/06 11:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.5	H	*	mg/Kg	0.2	1	12/08/06 20:52	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 20:52	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.056	H	*	%	0.001	0.006	12/08/06 17:22	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	17	H	*	mg/Kg	1	5	12/09/06 18:10	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-7 20-38"

ACZ Sample ID: ***L59735-05***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 2:05	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.06			meq/L	0.01	0.05	12/07/06 23:26	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.41			meq/L	0.02	0.08	12/07/06 23:26	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	170		*	mg/Kg	20	50	12/12/06 7:32	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.298			meq/L	0.008	0.03	12/07/06 23:26	gme
Sodium Absorption Ratio	Calculation	0.43				0.03	0.15	12/21/06 11:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.37		*	meq/L	0.01	0.04	12/07/06 23:26	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.3	B	*	%	0.1	0.5	12/07/06 19:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.281		*	mmhos/cm	0.001	0.01	12/06/06 20:36	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5	B	*	%	0.1	0.5	12/08/06 11:25	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.8		*	units	0.1	0.1	12/06/06 20:36	lwt/srs
Saturation Percent	USDA No. 60 (2)	34.20		*	%	0.01	0.1	12/06/06 20:36	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	79.5		*	% Passing	0.1	0.5	12/15/06 6:25	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	79.4		*	% Passing	0.1	0.5	11/30/06 14:56	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	93.1		*	%	0.1	0.5	12/06/06 22:08	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		23.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		50.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		26.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2A-7 20-38"

ACZ Sample ID: ***L59735-05***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 14:51	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:12	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 10:42	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:12	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 9:37	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	1.9			mg/Kg	0.2	1	12/21/06 11:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	2.7	H	*	mg/Kg	0.2	1	12/08/06 20:53	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	12/08/06 20:53	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.043	H	*	%	0.001	0.006	12/08/06 17:23	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	14	H	*	mg/Kg	1	5	12/09/06 18:12	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2B-1 0-9"

ACZ Sample ID: ***L59735-06***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 2:35	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.11			meq/L	0.01	0.05	12/07/06 23:30	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.42			meq/L	0.02	0.08	12/07/06 23:30	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	310		*	mg/Kg	20	50	12/12/06 7:36	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.752			meq/L	0.008	0.03	12/07/06 23:30	gme
Sodium Absorption Ratio	Calculation	0.18				0.03	0.15	12/21/06 11:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.16		*	meq/L	0.01	0.04	12/07/06 23:30	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.3		*	%	0.1	0.5	12/07/06 20:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.298		*	mmhos/cm	0.001	0.01	12/06/06 21:30	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	12/08/06 11:39	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.7		*	units	0.1	0.1	12/06/06 21:30	lwt/srs
Saturation Percent	USDA No. 60 (2)	49.70		*	%	0.01	0.1	12/06/06 21:30	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	78.8		*	% Passing	0.1	0.5	12/15/06 11:31	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	84.9		*	% Passing	0.1	0.5	11/30/06 16:41	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	82.1		*	%	0.1	0.5	12/06/06 23:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		20.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		58.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		21.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2B-1 0-9"

ACZ Sample ID: ***L59735-06***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 14:59	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:15	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 11:00	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:15	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 9:47	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	7.9			mg/Kg	0.2	1	12/21/06 11:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	8.5	H	*	mg/Kg	0.2	1	12/08/06 20:54	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/08/06 20:54	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.173	H	*	%	0.006	0.03	12/08/06 18:11	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	17	H	*	mg/Kg	1	5	12/09/06 18:13	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2B-1 9-19"

ACZ Sample ID: ***L59735-07***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 3:05	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.67			meq/L	0.01	0.05	12/07/06 23:34	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.22			meq/L	0.02	0.08	12/07/06 23:34	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	150		*	mg/Kg	20	50	12/12/06 7:39	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.107			meq/L	0.008	0.03	12/07/06 23:34	gme
Sodium Absorption Ratio	Calculation	0.37				0.03	0.15	12/21/06 11:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.25		*	meq/L	0.01	0.04	12/07/06 23:34	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.5		*	%	0.1	0.5	12/07/06 21:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.151		*	mmhos/cm	0.001	0.01	12/06/06 22:24	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.9		*	%	0.1	0.5	12/08/06 11:54	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.7		*	units	0.1	0.1	12/06/06 22:24	lwt/srs
Saturation Percent	USDA No. 60 (2)	41.00		*	%	0.01	0.1	12/06/06 22:24	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	91.3		*	% Passing	0.1	0.5	12/15/06 16:37	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	39.9		*	% Passing	0.1	0.5	11/30/06 18:25	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.1		*	%	0.1	0.5	12/06/06 23:51	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		33.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		31.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		35.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		SiCL		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2B-1 9-19"

ACZ Sample ID: ***L59735-07***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 15:08	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:18	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 11:17	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:18	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 9:56	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.2			mg/Kg	0.2	1	12/21/06 11:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.1	H	*	mg/Kg	0.2	1	12/08/06 20:59	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	H	*	mg/Kg	0.1	0.5	12/08/06 20:59	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.064	H	*	%	0.001	0.007	12/08/06 17:26	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	5	BH	*	mg/Kg	1	5	12/09/06 18:16	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2B-1 19-33"

ACZ Sample ID: ***L59735-08***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 3:35	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.42			meq/L	0.01	0.05	12/07/06 23:46	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.35			meq/L	0.02	0.08	12/07/06 23:46	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	120		*	mg/Kg	20	50	12/12/06 7:43	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.081			meq/L	0.008	0.03	12/07/06 23:46	gme
Sodium Absorption Ratio	Calculation	0.44				0.03	0.15	12/21/06 11:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.42		*	meq/L	0.01	0.04	12/07/06 23:46	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.5		*	%	0.1	0.5	12/07/06 23:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.293		*	mmhos/cm	0.001	0.01	12/06/06 23:18	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.0		*	%	0.1	0.5	12/08/06 12:08	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.1		*	units	0.1	0.1	12/06/06 23:18	lwt/srs
Saturation Percent	USDA No. 60 (2)	51.60		*	%	0.01	0.1	12/06/06 23:18	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	90.5		*	% Passing	0.1	0.5	12/15/06 21:44	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	79.6		*	% Passing	0.1	0.5	11/30/06 20:09	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	93.1		*	%	0.1	0.5	12/07/06 0:42	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		43.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		16.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		40.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		SiCL		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2B-1 19-33"

ACZ Sample ID: ***L59735-08***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 15:17	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:22	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 11:34	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:21	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 10:06	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.2			mg/Kg	0.2	1	12/21/06 11:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	5.1	H	*	mg/Kg	0.2	1	12/08/06 21:00	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	H	*	mg/Kg	0.1	0.5	12/08/06 21:00	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.071	H	*	%	0.002	0.008	12/08/06 17:27	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	6	H	*	mg/Kg	1	5	12/09/06 18:17	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2B-1 33-51"

ACZ Sample ID: ***L59735-09***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 4:05	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	2.52			meq/L	0.01	0.05	12/07/06 23:50	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.58			meq/L	0.02	0.08	12/07/06 23:50	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	70		*	mg/Kg	20	50	12/12/06 7:46	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.061			meq/L	0.008	0.03	12/07/06 23:50	gme
Sodium Absorption Ratio	Calculation	0.24				0.03	0.15	12/21/06 11:01	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.31		*	meq/L	0.01	0.04	12/07/06 23:50	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.3	B	*	%	0.1	0.5	12/08/06 0:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.416		*	mmhos/cm	0.001	0.01	12/07/06 0:12	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	6.1		*	%	0.1	0.5	12/12/06 19:40	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.6		*	units	0.1	0.1	12/07/06 0:12	lwt/srs
Saturation Percent	USDA No. 60 (2)	43.40		*	%	0.01	0.1	12/07/06 0:12	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	84.3		*	% Passing	0.1	0.5	12/16/06 2:50	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	88.3		*	% Passing	0.1	0.5	11/30/06 21:53	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	95.9		*	%	0.1	0.5	12/07/06 1:34	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		33.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		30.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		36.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		SiCL		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 2B-1 33-51"

ACZ Sample ID: ***L59735-09***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 15:25	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:25	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 11:51	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:24	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 10:15	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.4			mg/Kg	0.2	1	12/21/06 11:01	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	5.3	H	*	mg/Kg	0.2	1	12/08/06 21:01	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	H	*	mg/Kg	0.1	0.5	12/08/06 21:01	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.037	H	*	%	0.001	0.006	12/08/06 17:28	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	3	BH	*	mg/Kg	1	5	12/09/06 18:18	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 0-6"

ACZ Sample ID: ***L59735-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 5:34	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.15			meq/L	0.01	0.05	12/07/06 23:54	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.78			meq/L	0.02	0.08	12/07/06 23:54	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	430		*	mg/Kg	20	50	12/12/06 7:50	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	1.190			meq/L	0.008	0.03	12/07/06 23:54	gme
Sodium Absorption Ratio	Calculation	0.07	B			0.03	0.15	12/21/06 11:01	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.11		*	meq/L	0.01	0.04	12/07/06 23:54	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	2.6		*	%	0.1	0.5	12/08/06 1:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.544		*	mmhos/cm	0.001	0.01	12/07/06 1:06	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.8		*	%	0.1	0.5	12/08/06 12:22	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.8		*	units	0.1	0.1	12/07/06 1:06	lwt/srs
Saturation Percent	USDA No. 60 (2)	59.20		*	%	0.01	0.1	12/07/06 1:06	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	79.4		*	% Passing	0.1	0.5	12/16/06 7:56	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	92.5		*	% Passing	0.1	0.5	11/30/06 23:37	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	76.9		*	%	0.1	0.5	12/07/06 2:25	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		20.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		36.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		43.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		SiL		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 0-6"

ACZ Sample ID: ***L59735-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 15:34	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:28	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 12:08	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:27	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 10:25	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	5.4			mg/Kg	0.2	1	12/21/06 11:01	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	6.1	H	*	mg/Kg	0.2	1	12/08/06 21:03	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 21:03	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.269	H	*	%	0.008	0.04	12/08/06 18:12	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	32	H	*	mg/Kg	1	5	12/09/06 18:19	pjb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 6-17"

ACZ Sample ID: ***L59735-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 6:04	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.11			meq/L	0.01	0.05	12/07/06 23:58	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.36			meq/L	0.02	0.08	12/07/06 23:58	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	210		*	mg/Kg	20	50	12/12/06 7:54	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.362			meq/L	0.008	0.03	12/07/06 23:58	gme
Sodium Absorption Ratio	Calculation	0.11	B			0.03	0.15	12/21/06 11:01	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.10		*	meq/L	0.01	0.04	12/07/06 23:58	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.6		*	%	0.1	0.5	12/08/06 3:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.251		*	mmhos/cm	0.001	0.01	12/07/06 2:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.3	B	*	%	0.1	0.5	12/08/06 12:37	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.5		*	units	0.1	0.1	12/07/06 2:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	45.80		*	%	0.01	0.1	12/07/06 2:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	77.0		*	% Passing	0.1	0.5	12/16/06 13:03	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	92.6		*	% Passing	0.1	0.5	12/01/06 1:22	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	97.0		*	%	0.1	0.5	12/07/06 3:17	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		36.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		45.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		SiL		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 6-17"

ACZ Sample ID: ***L59735-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 15:42	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:31	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 12:25	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:30	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 10:34	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.2			mg/Kg	0.2	1	12/21/06 11:01	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.9	H	*	mg/Kg	0.2	1	12/08/06 21:04	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 21:04	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.053	H	*	%	0.001	0.007	12/08/06 17:32	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	27	H	*	mg/Kg	1	5	12/09/06 18:20	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 17-28"

ACZ Sample ID: ***L59735-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 6:33	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.55			meq/L	0.01	0.05	12/08/06 0:02	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.27			meq/L	0.02	0.08	12/08/06 0:02	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	190		*	mg/Kg	20	50	12/12/06 7:57	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.249			meq/L	0.008	0.03	12/08/06 0:02	gme
Sodium Absorption Ratio	Calculation	0.15				0.03	0.15	12/21/06 11:01	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.10		*	meq/L	0.01	0.04	12/08/06 0:02	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.4	B	*	%	0.1	0.5	12/08/06 4:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.161		*	mmhos/cm	0.001	0.01	12/07/06 2:54	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.3	B	*	%	0.1	0.5	12/08/06 12:51	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.4		*	units	0.1	0.1	12/07/06 2:54	lwt/srs
Saturation Percent	USDA No. 60 (2)	39.50		*	%	0.01	0.1	12/07/06 2:54	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	79.4		*	% Passing	0.1	0.5	12/16/06 18:09	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	86.2		*	% Passing	0.1	0.5	12/01/06 3:06	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	96.1		*	%	0.1	0.5	12/07/06 4:08	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		22.5		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		40.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		37.5		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 17-28"

ACZ Sample ID: ***L59735-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 15:51	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:34	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 12:42	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:33	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 10:44	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.9			mg/Kg	0.2	1	12/21/06 11:01	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.5	H	*	mg/Kg	0.2	1	12/08/06 21:05	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/08/06 21:05	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.036	H	*	%	0.001	0.006	12/08/06 17:33	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	19	H	*	mg/Kg	1	5	12/09/06 18:22	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 28-60"

ACZ Sample ID: ***L59735-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 7:03	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.89			meq/L	0.01	0.05	12/08/06 0:06	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.24			meq/L	0.02	0.08	12/08/06 0:06	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	130			mg/Kg	20	50	12/12/06 13:47	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.069			meq/L	0.008	0.03	12/08/06 0:06	gme
Sodium Absorption Ratio	Calculation	0.51				0.03	0.15	12/21/06 11:01	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.39		*	meq/L	0.01	0.04	12/08/06 0:06	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.2	B	*	%	0.1	0.5	12/08/06 5:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.217		*	mmhos/cm	0.001	0.01	12/07/06 3:48	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.5	B	*	%	0.1	0.5	12/08/06 13:05	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.7		*	units	0.1	0.1	12/07/06 3:48	lwt/srs
Saturation Percent	USDA No. 60 (2)	40.90		*	%	0.01	0.1	12/07/06 3:48	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	80.9		*	% Passing	0.1	0.5	12/16/06 23:15	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	82.0		*	% Passing	0.1	0.5	12/01/06 4:50	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	92.4		*	%	0.1	0.5	12/07/06 5:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		28.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		36.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		35.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		CL		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 28-60"

ACZ Sample ID: ***L59735-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 15:59	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:37	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 13:00	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:36	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 10:53	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.5			mg/Kg	0.2	1	12/21/06 11:01	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	5.2	H	*	mg/Kg	0.2	1	12/08/06 21:06	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 21:06	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.0272	H	*	%	0.0007	0.004	12/08/06 17:34	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	25	H	*	mg/Kg	1	5	12/09/06 18:23	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 60-100"

ACZ Sample ID: ***L59735-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 8:33	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.96			meq/L	0.01	0.05	12/08/06 0:11	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.23			meq/L	0.02	0.08	12/08/06 0:11	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	90			mg/Kg	20	50	12/12/06 13:57	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.068			meq/L	0.008	0.03	12/08/06 0:11	gme
Sodium Absorption Ratio	Calculation	0.76				0.03	0.15	12/21/06 11:01	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.59		*	meq/L	0.01	0.04	12/08/06 0:11	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.2	B	*	%	0.1	0.5	12/08/06 7:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.265		*	mmhos/cm	0.001	0.01	12/07/06 4:42	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	12/08/06 13:19	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.0		*	units	0.1	0.1	12/07/06 4:42	lwt/srs
Saturation Percent	USDA No. 60 (2)	42.20		*	%	0.01	0.1	12/07/06 4:42	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	81.6		*	% Passing	0.1	0.5	12/17/06 4:22	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	76.9		*	% Passing	0.1	0.5	12/01/06 6:34	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	88.6		*	%	0.1	0.5	12/07/06 5:51	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		26.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		43.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		30.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-1 60-100"

ACZ Sample ID: ***L59735-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 16:08	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:40	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 13:17	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:39	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 11:03	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.1			mg/Kg	0.2	1	12/21/06 11:01	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	3.9	H	*	mg/Kg	0.2	1	12/08/06 21:07	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.8	H	*	mg/Kg	0.1	0.5	12/08/06 21:07	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.019	H	*	%	0.001	0.006	12/08/06 17:38	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	22	H	*	mg/Kg	1	5	12/09/06 18:24	pjb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 15-25"

ACZ Sample ID: ***L59735-15***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 9:32	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.73			meq/L	0.01	0.05	12/08/06 0:15	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.25			meq/L	0.02	0.08	12/08/06 0:15	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	150			mg/Kg	20	50	12/12/06 14:01	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.189			meq/L	0.008	0.03	12/08/06 0:15	gme
Sodium Absorption Ratio	Calculation	0.17				0.03	0.15	12/21/06 11:01	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.24		*	meq/L	0.01	0.04	12/08/06 0:15	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	2.0		*	%	0.1	0.5	12/08/06 8:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.476		*	mmhos/cm	0.001	0.01	12/07/06 5:36	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	1.0		*	%	0.1	0.5	12/08/06 13:34	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.2		*	units	0.1	0.1	12/07/06 5:36	lwt/srs
Saturation Percent	USDA No. 60 (2)	47.30		*	%	0.01	0.1	12/07/06 5:36	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	81.7		*	% Passing	0.1	0.5	12/17/06 9:28	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	82.8		*	% Passing	0.1	0.5	12/01/06 8:19	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	88.0		*	%	0.1	0.5	12/07/06 6:42	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		48.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		32.5		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 15-25"

ACZ Sample ID: ***L59735-15***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 16:17	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:44	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 13:34	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:42	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 11:12	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.1			mg/Kg	0.2	1	12/21/06 11:01	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	5.0	H	*	mg/Kg	0.2	1	12/08/06 21:09	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	H	*	mg/Kg	0.1	0.5	12/08/06 21:09	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.19	H	*	%	0.01	0.05	12/08/06 18:13	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	10	H	*	mg/Kg	1	5	12/09/06 18:44	pjb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 25-40"

ACZ Sample ID: ***L59735-16***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 11:31	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	4.30			meq/L	0.01	0.05	12/08/06 0:19	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.38			meq/L	0.02	0.08	12/08/06 0:19	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	130			mg/Kg	20	50	12/12/06 14:04	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.135			meq/L	0.008	0.03	12/08/06 0:19	gme
Sodium Absorption Ratio	Calculation	0.14	B			0.03	0.15	12/21/06 11:02	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.22		*	meq/L	0.01	0.04	12/08/06 0:19	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.3		*	%	0.1	0.5	12/08/06 9:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.524		*	mmhos/cm	0.001	0.01	12/07/06 6:30	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.8		*	%	0.1	0.5	12/08/06 13:48	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.3		*	units	0.1	0.1	12/07/06 6:30	lwt/srs
Saturation Percent	USDA No. 60 (2)	47.70		*	%	0.01	0.1	12/07/06 6:30	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	81.8		*	% Passing	0.1	0.5	12/17/06 14:34	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	79.6		*	% Passing	0.1	0.5	12/01/06 10:03	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	95.6		*	%	0.1	0.5	12/07/06 7:34	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		45.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		38.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 25-40"

ACZ Sample ID: ***L59735-16***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 16:25	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:47	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 13:51	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:45	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 11:22	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.6			mg/Kg	0.2	1	12/21/06 11:02	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	5.3	H	*	mg/Kg	0.2	1	12/08/06 21:10	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 21:10	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.138	H	*	%	0.006	0.03	12/08/06 18:15	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	23	H	*	mg/Kg	1	5	12/09/06 18:45	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 40-60"

ACZ Sample ID: ***L59735-17***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 12:01	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	5.92			meq/L	0.01	0.05	12/08/06 0:23	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.79			meq/L	0.02	0.08	12/08/06 0:23	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	200			mg/Kg	20	50	12/12/06 14:08	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.323			meq/L	0.008	0.03	12/08/06 0:23	gme
Sodium Absorption Ratio	Calculation	0.15				0.03	0.15	12/21/06 11:02	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.29		*	meq/L	0.01	0.04	12/08/06 0:23	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.9		*	%	0.1	0.5	12/08/06 11:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.764		*	mmhos/cm	0.001	0.01	12/07/06 7:24	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	12/08/06 14:02	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	12/07/06 7:24	lwt/srs
Saturation Percent	USDA No. 60 (2)	44.30		*	%	0.01	0.1	12/07/06 7:24	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	81.0		*	% Passing	0.1	0.5	12/17/06 19:41	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	84.7		*	% Passing	0.1	0.5	12/01/06 11:47	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	96.1		*	%	0.1	0.5	12/07/06 8:25	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		42.5		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		38.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 40-60"

ACZ Sample ID: ***L59735-17***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 16:34	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:50	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 14:08	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:48	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 11:31	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.0			mg/Kg	0.2	1	12/21/06 11:02	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.9	H	*	mg/Kg	0.2	1	12/08/06 21:15	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	H	*	mg/Kg	0.1	0.5	12/08/06 21:15	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.093	H	*	%	0.007	0.03	12/08/06 18:16	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	33	H	*	mg/Kg	1	5	12/09/06 18:30	pjb

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 60-75"

ACZ Sample ID: ***L59735-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 12:31	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.26			meq/L	0.01	0.05	12/08/06 0:39	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.35			meq/L	0.02	0.08	12/08/06 0:39	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	160			mg/Kg	20	50	12/12/06 14:11	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.153			meq/L	0.008	0.03	12/08/06 0:39	gme
Sodium Absorption Ratio	Calculation	0.16				0.03	0.15	12/21/06 11:02	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.22		*	meq/L	0.01	0.04	12/08/06 0:39	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1.0		*	%	0.1	0.5	12/08/06 12:20	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.450		*	mmhos/cm	0.001	0.01	12/07/06 9:12	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.8		*	%	0.1	0.5	12/08/06 14:17	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.5		*	units	0.1	0.1	12/07/06 9:12	lwt/srs
Saturation Percent	USDA No. 60 (2)	40.90		*	%	0.01	0.1	12/07/06 9:12	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	83.9		*	% Passing	0.1	0.5	12/18/06 0:47	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	74.0		*	% Passing	0.1	0.5	12/01/06 13:31	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	96.0		*	%	0.1	0.5	12/07/06 9:17	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		18.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		46.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		35.0		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 60-75"

ACZ Sample ID: ***L59735-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 16:42	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:53	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 14:25	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:54	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 11:40	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	3.5			mg/Kg	0.2	1	12/21/06 11:02	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.4	H	*	mg/Kg	0.2	1	12/08/06 21:16	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.9	H	*	mg/Kg	0.1	0.5	12/08/06 21:16	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.091	H	*	%	0.006	0.03	12/08/06 18:17	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	34	H	*	mg/Kg	1	5	12/09/06 18:31	pjb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 75-90"

ACZ Sample ID: ***L59735-19***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 13:01	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	11.40			meq/L	0.01	0.05	12/08/06 0:43	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	1.19			meq/L	0.02	0.08	12/08/06 0:43	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	250			mg/Kg	20	50	12/12/06 14:15	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.620			meq/L	0.008	0.03	12/08/06 0:43	gme
Sodium Absorption Ratio	Calculation	0.13	B			0.03	0.15	12/21/06 11:02	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.33		*	meq/L	0.01	0.04	12/08/06 0:43	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.9		*	%	0.1	0.5	12/08/06 13:40	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	1.250		*	mmhos/cm	0.001	0.01	12/07/06 10:06	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.8		*	%	0.1	0.5	12/08/06 14:31	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	7.4		*	units	0.1	0.1	12/07/06 10:06	lwt/srs
Saturation Percent	USDA No. 60 (2)	55.80		*	%	0.01	0.1	12/07/06 10:06	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	83.6		*	% Passing	0.1	0.5	12/18/06 5:53	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	76.0		*	% Passing	0.1	0.5	12/01/06 15:15	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	94.7		*	%	0.1	0.5	12/07/06 10:08	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		43.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		38.8		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1A-2 75-90"

ACZ Sample ID: ***L59735-19***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 16:51	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:56	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 14:43	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:57	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 11:50	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	2.9			mg/Kg	0.2	1	12/21/06 11:02	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	3.5	H	*	mg/Kg	0.2	1	12/08/06 21:17	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.6	H	*	mg/Kg	0.1	0.5	12/08/06 21:17	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.077	H	*	%	0.002	0.01	12/08/06 18:19	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	56	H	*	mg/Kg	1	5	12/09/06 18:32	pjb

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1B1 0-7"

ACZ Sample ID: ***L59735-20***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 13:30	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	3.71			meq/L	0.01	0.05	12/08/06 0:47	gme
Magnesium, soluble (Sat. Paste)	M6010B ICP	1.06			meq/L	0.02	0.08	12/08/06 0:47	gme
Potassium, extractable (AB-DTPA)	M6010B ICP	520			mg/Kg	20	50	12/12/06 14:18	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	1.690			meq/L	0.008	0.03	12/08/06 0:47	gme
Sodium Absorption Ratio	Calculation	0.11	B			0.03	0.15	12/21/06 11:02	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.17		*	meq/L	0.01	0.04	12/08/06 0:47	gme

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	3.1		*	%	0.1	0.5	12/08/06 15:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.675		*	mmhos/cm	0.001	0.01	12/07/06 11:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.9		*	%	0.1	0.5	12/08/06 14:45	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.9		*	units	0.1	0.1	12/07/06 11:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	64.40		*	%	0.01	0.1	12/07/06 11:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	83.7		*	% Passing	0.1	0.5	12/18/06 11:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	79.8		*	% Passing	0.1	0.5	12/01/06 17:00	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	75.8		*	%	0.1	0.5	12/07/06 11:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		16.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Sand		41.3		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Silt		42.5		*	%	0.1	0.5	12/14/06 0:00	lwt/srs
Texture Classification		L/SiL		*				12/14/06 0:00	lwt/srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1B1 0-7"

ACZ Sample ID: ***L59735-20***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 16:59	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/09/06 9:59	erf
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 15:00	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 18:00	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/01/06 11:59	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	5.0			mg/Kg	0.2	1	12/21/06 11:02	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	5.7	H	*	mg/Kg	0.2	1	12/08/06 21:18	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 21:18	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.219	H	*	%	0.007	0.03	12/08/06 18:20	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	47	H	*	mg/Kg	1	5	12/09/06 18:33	pjb

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicated MDL
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.
X	Quality control sample is out of control.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

Carbon Resources
Project ID:

ACZ Project ID: ***L59735***

Calcium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217820													
WG217820ICV	ICV	12/07/06 22:50	II061128-2	100		97.91	mg/L	97.9	90	110			
WG217820ICB	ICB	12/07/06 22:54				U	mg/L		-0.6	0.6			
L59735-17DUP	DUP	12/08/06 0:35			5.92	5.914	meq/L				0.1	20	

Carbon, total organic (TOC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217771													
WG217771PBS	PBS	12/07/06 11:00				U	%		-0.3	0.3			
L59735-01DUP	DUP	12/07/06 13:40			.5	.5	%				0	20	RA

Conductivity @25C M120.1 - Meter, w/ Saturated Paste Prep

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217643													
L59735-17DUP	DUP	12/07/06 8:18			.764	.785	mhos/cm				2.7	20	

Magnesium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217820													
WG217820ICV	ICV	12/07/06 22:50	II061128-2	100		94.23	mg/L	94.2	90	110			
WG217820ICB	ICB	12/07/06 22:54				U	mg/L		-0.6	0.6			
L59735-17DUP	DUP	12/08/06 0:35			.79	.794	meq/L				0.6	20	

Neutralization Potential as CaCO3 M600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217874													
WG217874LCSS	LCSS	12/08/06 10:14	PCN20880	100		111.48	%						
L59735-20DUP	DUP	12/08/06 14:59			.9	.89	%				1.1	20	RA
WG217923													
L59734-02DUP	DUP	12/11/06 17:40			8.1	7.98	%				1.5	20	
WG217923LCSS	LCSS	12/13/06 4:20	PCN20880	100		111.72	%						
WG217923PBS	PBS	12/13/06 13:00				U	%		-0.1	0.1			

Nitrate/Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217892													
WG217892ICV	ICV	12/08/06 19:33	WI061207-1	2.416		2.249	mg/L	93.1	90	110			
WG217892ICB	ICB	12/08/06 19:34				U	mg/L		-0.06	0.06			
WG217893													
WG217893ICV	ICV	12/08/06 20:41	WI061207-1	2.416		2.308	mg/L	95.5	90	110			
WG217893ICB	ICB	12/08/06 20:42				U	mg/L		-0.06	0.06			
WG217893LFB	LFB	12/08/06 20:43	WI060906-4	2		2.015	mg/Kg	100.8	85	115			
WG217795PBS	PBS	12/08/06 20:44				1.21	mg/Kg		-0.6	0.6			N1
L59735-01AS	AS	12/08/06 20:47	WI060906-4	20	4.9	23.96	mg/Kg	95.3	75	125			
L59735-01DUP	DUP	12/08/06 20:48			4.9	4.78	mg/Kg				2.5	20	

Carbon Resources
Project ID:

ACZ Project ID: ***L59735***

Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217892													
WG217892ICV	ICV	12/08/06 19:33	WI061207-1	.609		.618	mg/L	101.5	90	110			
WG217892ICB	ICB	12/08/06 19:34				U	mg/L		-0.03	0.03			
WG217893													
WG217893ICV	ICV	12/08/06 20:41	WI061207-1	.609		.625	mg/L	102.6	90	110			
WG217893ICB	ICB	12/08/06 20:42				U	mg/L		-0.03	0.03			
WG217893LFB	LFB	12/08/06 20:43	WI060906-4	1		.99	mg/Kg	99	85	115			
WG217795PBS	PBS	12/08/06 20:44				.42	mg/Kg		-0.3	0.3			N1
L59735-01AS	AS	12/08/06 20:47	WI060906-4	10	1	9.71	mg/Kg	87.1	75	125			
L59735-01DUP	DUP	12/08/06 20:48			1	1.02	mg/Kg				2	20	

Nitrogen, total Kjeldahl M351.2 - TKN by Block Digester

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217861													
WG217691ICV	ICV	12/08/06 17:01	WI061129-2	4		3.92	mg/L	98	90	110			
WG217691ICB	ICB	12/08/06 17:02				U	mg/L		-0.3	0.3			
WG217691PBS2	PBS	12/08/06 17:36				U	%		-0.003	0.003			
WG217691LFB2	LFB	12/08/06 17:37	WI061129-6	2.5		2.47	%	98.8	85	115			
L59735-14MS	MS	12/08/06 17:39	WI061129-6	.0325	.019	.0476	%	88	75	125			
WG217691PBS1	PBS	12/08/06 17:53				U	%		-0.003	0.003			
WG217691LFB1	LFB	12/08/06 17:54	WI061129-6	2.5		2.54	%	101.6	85	115			
L59735-15DUP	DUP	12/08/06 18:14			.19	.232	%				19.9	20	
L59732-11DUP	DUP	12/08/06 18:24			.153	.1393	%				9.4	20	
L59732-12MS	MS	12/08/06 18:26	5XPTSTKN	.0345	.054	.095	%	118.8	75	125			

Percent Clay ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG218128													
L59735-01DUP	DUP	12/14/06 9:45			25	25	%				0	20	

Percent Sand ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG218128													
L59735-01DUP	DUP	12/14/06 9:45			50	47.5	%				5.1	20	

Percent Silt ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG218128													
L59735-01DUP	DUP	12/14/06 9:45			25	27.5	%				9.5	20	

pH, Saturated Paste USDA No. 60 (21A)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217643													
L59735-17DUP	DUP	12/07/06 8:18			7.5	7.43	units				0.9	20	

Carbon Resources
Project ID:

ACZ Project ID: ***L59735***

Phosphorus, extractable (AB-DTPA) M365.1 - Automated Ascorbic Acid

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217910													
WG217910ICV	ICV	12/09/06 17:21	SCN000224	.65228		.605	mg/L	92.8	90	110			
WG217910ICB	ICB	12/09/06 17:23				U	mg/L		-0.03	0.03			
WG217911													
WG217911ICV	ICV	12/09/06 17:59	SCN000224	.65228		.607	mg/L	93.1	90	110			
WG217911ICB	ICB	12/09/06 18:01				.013	mg/L		-0.03	0.03			
WG217911LFB1	LFB	12/09/06 18:03	WI061125-2	.5		.535	mg/Kg	107	85	115			
WG217618PBS	PBS	12/09/06 18:04				4.1	mg/Kg		-3	3			N1
L59735-01DUP	DUP	12/09/06 18:06			31	31	mg/Kg				0	20	
L59735-02AS	AS	12/09/06 18:08	WI061125-2	50	28	80.3	mg/Kg	104.6	75	125			
WG217911LFB2	LFB	12/09/06 18:35	WI061125-2	.5		.538	mg/Kg	107.6	85	115			
L59736-01DUP	DUP	12/09/06 18:37			34	33.7	mg/Kg				0.9	20	
L59736-02AS	AS	12/09/06 18:40	WI061125-2	50	25	70.5	mg/Kg	91	75	125			

Potassium, extractable (AB-DTPA) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217957													
WG217957ICV	ICV	12/12/06 6:34	II061209-1	20		20.73	mg/L	103.7	90	110			
WG217957ICB	ICB	12/12/06 6:37				U	mg/L		-0.9	0.9			
WG217618PBS	PBS	12/12/06 6:52				U	mg/L		-60	60			
L59735-01DUP	DUP	12/12/06 6:59			190	210	mg/L				10	20	RA
L59735-02AS	AS	12/12/06 7:10	II061207-3	4975.507	180	4954	mg/L	96	75	125			
L59735-02ASD	ASD	12/12/06 7:14	II061207-3	4975.507	180	4927	mg/L	95.4	75	125	0.55	20	
WG218015													
WG218015ICV	ICV	12/12/06 13:09	II061209-1	20		19.26	mg/L	96.3	90	110			
WG218015ICB	ICB	12/12/06 13:12				U	mg/L		-0.9	0.9			
WG217618PBS	PBS	12/12/06 13:26				U	mg/L		-60	60			
L59735-01AS	AS	12/12/06 13:37	II061207-3	4975.507	200	4548	mg/L	87.4	75	125			
L59735-01ASD	ASD	12/12/06 13:40	II061207-3	4975.507	200	4518	mg/L	86.8	75	125	0.66	20	
L59735-01DUP	DUP	12/12/06 13:44			200	210	mg/L				4.9	20	

Potassium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217820													
WG217820ICV	ICV	12/07/06 22:50	II061128-2	20		20.01	mg/L	100.1	90	110			
WG217820ICB	ICB	12/07/06 22:54				U	mg/L		-0.9	0.9			
L59735-17DUP	DUP	12/08/06 0:35			.323	.3425	meq/L				5.9	20	

Saturation Percent USDA No. 60 (2)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217643													
L59735-17DUP	DUP	12/07/06 8:18			44.3	60.91	%				31.6	20	RC

Carbon Resources

Project ID:

ACZ Project ID: ***L59735***

Sodium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217820													
WG217820ICV	ICV	12/07/06 22:50	II061128-2	100		99.47	mg/L	99.5	90	110			
WG217820ICB	ICB	12/07/06 22:54				U	mg/L		-0.9	0.9			
L59735-17DUP	DUP	12/08/06 0:35			.29	.384	meq/L				27.9	20	RC

Solids, Percent CLPSOW390, PART F, D-98

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217731													
WG217731PBS	PBS	12/06/06 17:00				U	%		99.9	100.1			
L59735-01DUP	DUP	12/06/06 18:42			94.9	95.1	%				0.2	20	

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-01	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-02	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-03	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-04	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-05	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-06	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-07	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-08	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-09	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-10	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-11	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-12	WG217957	Potassium, extractable (AB-DTPA)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-13	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-14	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-15	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-16	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-17	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-18	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59735***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59735-19	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59735-20	WG217820	Sodium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217771	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217874	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217643	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217893	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
pH, Saturated Paste	USDA No. 60 (21A)
Saturation Percent	USDA No. 60 (2)
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2
Solids, Percent	CLPSOW390, PART F, D-98
Texture by Hydrometer	ASTM D 422 Hydrometer

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59735
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
BUCKET X 8		22.5	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Carbon Resources

ACZ Project ID: L59735
Date Received: 10/31/2006
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L59735-01	2A-6 40-60"									X		
L59735-02	2A-6 60-80"									X		
L59735-03	2A-7 0-7"									X		
L59735-04	2A-7 7-20"									X		
L59735-05	2A-7 20-38"									X		
L59735-06	2B-1 0-9"									X		
L59735-07	2B-1 9-19"									X		
L59735-08	2B-1 19-33"									X		
L59735-09	2B-1 33-51"									X		
L59735-10	1A-1 0-6"									X		
L59735-11	1A-1 6-17"									X		
L59735-12	1A-1 17-28"									X		
L59735-13	1A-1 28-60"									X		
L59735-14	1A-1 60-100"									X		
L59735-15	1A-2 15-25"									X		
L59735-16	1A-2 25-40"									X		
L59735-17	1A-2 40-60"									X		
L59735-18	1A-2 60-75"									X		
L59735-19	1A-2 75-90"									X		
L59735-20	1B1 0-7"									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59735

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

LZG 10.26.06

Sue Webber

From: GHuntBBC@aol.com
Sent: Friday, October 27, 2006 12:52 PM
To: bches@scinternet.net; Sue Webber
Subject: Sue Weber Carbon Resources Soil Samples

FROM: **Geo-Hunt Consulting**
16577 Columbine Lane
Cedaredge, CO 81413
970-856-9477

TO: **Sue Webber, Project Manager**
ACZ Laboratories, Inc.
2773 Downhill Drive,
Steamboat Springs, Co 80487

RE: **TRANSMITTAL OF SOIL SAMPLES**

Dear Sue:
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

10/31/2006

Very Fine Sand

analyst: as
date: 12-19-06

ACZ L#	Total sample wt. gms	% <2000um sieve	Wt. of sxs used for Texture gms	Wt. of sxs between 105um & 53um gm.	% VFS
L59735-01	475.81	85.2	40.0	7.0	**14.9**
L59735-02	510.97	76.5	40.0	7.1	**13.6**
L59735-03	295.07	87.6	40.0	11.1	**24.3**
L59735-04	309.41	86.9	40.0	10.4	**22.6**
L59735-05	335.77	79.4	40.0	10.3	**20.4**
L59735-06	242.34	84.9	40.0	10.0	**21.2**
L59735-07	367.57	39.9	40.0	8.7	**8.7**
L59735-08	373.47	79.6	40.0	4.8	**9.6**
L59735-09	310.37	88.3	40.0	7.1	**15.7**
L59735-10	245.80	92.5	40.0	8.9	**20.6**
L59735-11	321.50	92.6	40.0	9.9	**22.9**
L59735-12	393.30	86.2	40.0	9.6	**20.7**
L59735-13	517.90	82.0	40.0	9.3	**19.1**
L59735-14	489.14	76.9	40.0	9.6	**18.5**
L59735-15	330.12	82.8	40.0	8.8	**18.2**
L59735-16	331.02	79.6	40.0	9.1	**18.1**
L59735-17	515.54	84.7	40.0	9.0	**19.1**
L59735-18	389.72	74.0	40.0	8.7	**16.1**
L59735-19	324.28	76.0	40.0	8.6	**16.3**
L5973-20	275.01	79.8	40.0	8.2	**16.4**
dup L59735-01	475.81	85.2	40.0	6.8	**14.5**

(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture

(VFS of Texture) x (% <2000um) = % VFS

additional data from:

-sieve2000 WG217377

-sieve53 WG217379

-texture WG218128

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59736

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59736. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59736. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59736

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 3 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59736. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1B1 7-15"

ACZ Sample ID: ***L59736-01***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 14:00	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	1.81		*	meq/L	0.01	0.05	12/11/06 15:22	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.46		*	meq/L	0.02	0.08	12/11/06 15:22	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	310			mg/Kg	30	100	12/14/06 12:56	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.819			meq/L	0.008	0.03	12/11/06 15:22	msh
Sodium Absorption Ratio	Calculation	0.57				0.03	0.15	12/21/06 0:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.61			meq/L	0.01	0.04	12/11/06 15:22	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.8		*	%	0.1	0.5	12/07/06 18:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.481		*	mmhos/cm	0.001	0.01	12/06/06 17:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.6		*	%	0.1	0.5	12/08/06 11:24	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.6		*	units	0.1	0.1	12/06/06 17:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	130		*	%	0.01	0.1	12/06/06 17:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	83.3		*	% Passing	0.1	0.5	12/18/06 11:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	79.9		*	% Passing	0.1	0.5	12/04/06 8:00	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	91.7		*	%	0.1	0.5	12/06/06 21:30	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		17.5		*	%	0.1	0.5	12/15/06 0:00	srs
Sand		42.5		*	%	0.1	0.5	12/15/06 0:00	srs
Silt		40.0		*	%	0.1	0.5	12/15/06 0:00	srs
Texture Classification		L		*				12/15/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1B1 7-15"

ACZ Sample ID: ***L59736-01***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 14:45	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/10/06 17:00	erf/srs
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 10:30	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:00	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/04/06 9:00	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.1			mg/Kg	0.2	1	12/21/06 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.8	H	*	mg/Kg	0.2	1	12/08/06 22:19	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:19	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.067	H	*	%	0.002	0.008	12/08/06 17:50	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	34	H	*	mg/Kg	1	5	12/09/06 18:36	pjb

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1B1 15-28"

ACZ Sample ID: ***L59736-02***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 14:30	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.71		*	meq/L	0.01	0.05	12/11/06 15:25	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.21		*	meq/L	0.02	0.08	12/11/06 15:25	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	180			mg/Kg	30	100	12/14/06 13:13	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.380			meq/L	0.008	0.03	12/11/06 15:25	msh
Sodium Absorption Ratio	Calculation	1.25				0.03	0.15	12/21/06 0:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.85			meq/L	0.01	0.04	12/11/06 15:25	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.4	B	*	%	0.1	0.5	12/08/06 8:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.329		*	mmhos/cm	0.001	0.01	12/06/06 23:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.4	B	*	%	0.1	0.5	12/08/06 12:36	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.3		*	units	0.1	0.1	12/06/06 23:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	86.70		*	%	0.01	0.1	12/06/06 23:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	82.3		*	% Passing	0.1	0.5	12/18/06 11:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	79.3		*	% Passing	0.1	0.5	12/04/06 10:00	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	96.8		*	%	0.1	0.5	12/07/06 6:30	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	12/15/06 0:00	srs
Sand		42.5		*	%	0.1	0.5	12/15/06 0:00	srs
Silt		45.0		*	%	0.1	0.5	12/15/06 0:00	srs
Texture Classification		SiL		*				12/15/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1B1 15-28"

ACZ Sample ID: ***L59736-02***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 16:15	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/10/06 17:15	erf/srs
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 13:30	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:20	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/04/06 9:30	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.4			mg/Kg	0.2	1	12/21/06 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.9	H	*	mg/Kg	0.2	1	12/08/06 22:22	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.5	H	*	mg/Kg	0.1	0.5	12/08/06 22:22	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.074	H	*	%	0.002	0.009	12/08/06 17:51	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	25	H	*	mg/Kg	1	5	12/09/06 18:39	pjb

** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1B1 28-60"

ACZ Sample ID: ***L59736-03***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							12/07/06 15:00	nps

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, soluble (Sat. Paste)	M6010B ICP	0.68		*	meq/L	0.01	0.05	12/11/06 15:29	msh
Magnesium, soluble (Sat. Paste)	M6010B ICP	0.21		*	meq/L	0.02	0.08	12/11/06 15:29	msh
Potassium, extractable (AB-DTPA)	M6010B ICP	90	B		mg/Kg	30	100	12/14/06 13:23	msh
Potassium, soluble (Sat. Paste)	M6010B ICP	0.232			meq/L	0.008	0.03	12/11/06 15:29	msh
Sodium Absorption Ratio	Calculation	0.89				0.03	0.15	12/21/06 0:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	0.60			meq/L	0.01	0.04	12/11/06 15:29	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.1	B	*	%	0.1	0.5	12/08/06 15:00	brg
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep	0.287		*	mmhos/cm	0.001	0.01	12/07/06 5:00	lwt/srs
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	0.3	B	*	%	0.1	0.5	12/08/06 13:48	lwt/srs
pH, Saturated Paste	USDA No. 60 (21A)	6.3		*	units	0.1	0.1	12/07/06 5:00	lwt/srs
Saturation Percent	USDA No. 60 (2)	29.90		*	%	0.01	0.1	12/07/06 5:00	lwt/srs
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2	81.7		*	% Passing	0.1	0.5	12/18/06 11:00	rje/srs
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2	82.4		*	% Passing	0.1	0.5	12/04/06 12:00	as/rje
Solids, Percent	CLPSOW390, PART F, D-98	97.3		*	%	0.1	0.5	12/07/06 11:00	lwt/srs
Texture by Hydrometer	ASTM D 422 Hydrometer								
Clay		12.5		*	%	0.1	0.5	12/15/06 0:00	srs
Sand		57.5		*	%	0.1	0.5	12/15/06 0:00	srs
Silt		30.0		*	%	0.1	0.5	12/15/06 0:00	srs
Texture Classification		L		*				12/15/06 0:00	srs
Very Fine Sand	ASA No.9, 15-4.2.2	see attachments							N/A

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Carbon Resources
Project ID:
Sample ID: 1B1 28-60"

ACZ Sample ID: ***L59736-03***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
AB-DPTA Extraction	ASA No.9, 3-5.2.3							12/05/06 17:00	brg
Air Dry at 34 Degrees C	USDA No. 1, 1972							11/10/06 17:30	erf/srs
Potassium Chloride Extraction	ASA No. 9 33-3.2.2							12/08/06 15:00	lwt/srs
Saturated Paste Extraction	USDA No. 60 (2)							12/05/06 17:40	lwt/srs
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2							12/04/06 10:00	srs

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrate as N, extractable (KCL)	Calculation: NO3NO2 minus NO2	4.1			mg/Kg	0.2	1	12/21/06 0:00	calc
Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	4.8	H	*	mg/Kg	0.2	1	12/08/06 22:28	pjb
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	0.7	H	*	mg/Kg	0.1	0.5	12/08/06 22:28	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.015	H	*	%	0.001	0.007	12/08/06 17:52	nps
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	18	H	*	mg/Kg	1	5	12/09/06 18:43	pjb

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicated MDL
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.
X	Quality control sample is out of control.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

Carbon Resources

ACZ Project ID: ***L59736***

Project ID:

Calcium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217956													
WG217956ICV	ICV	12/11/06 15:04	II061209-1	100		98.81	mg/L	98.8	90	110			
WG217956ICB	ICB	12/11/06 15:08				U	mg/L		-0.6	0.6			
L59736-03DUP	DUP	12/11/06 15:33			.68	.833	meq/L				20.2	20	RC

Carbon, total organic (TOC) ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217772													
WG217772PBS	PBS	12/07/06 11:00				U	%		-0.3	0.3			
L59736-01DUP	DUP	12/08/06 1:00			.8	.8	%				0	20	RA

Conductivity @25C M120.1 - Meter, w/ Saturated Paste Prep

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217647													
L59736-03DUP	DUP	12/07/06 11:00			.287	.306	mmhos/cm				6.4	20	

Magnesium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217956													
WG217956ICV	ICV	12/11/06 15:04	II061209-1	100		96.18	mg/L	96.2	90	110			
WG217956ICB	ICB	12/11/06 15:08				U	mg/L		-0.6	0.6			
L59736-03DUP	DUP	12/11/06 15:33			.21	.263	meq/L				22.3	20	RC

Neutralization Potential as CaCO3 M600/2-78-054 3.2.3

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217866													
WG217866LCSS	LCSS	12/08/06 10:12	PCN20880	100		119.6	%						
L59736-03DUP	DUP	12/08/06 15:00			.3	.29	%				3.4	20	RA

Nitrate/Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217892													
WG217892ICV	ICV	12/08/06 19:33	WI061207-1	2.416		2.249	mg/L	93.1	90	110			
WG217892ICB	ICB	12/08/06 19:34				U	mg/L		-0.06	0.06			
WG217895													
WG217895ICV	ICV	12/08/06 21:37	WI061207-1	2.416		2.3	mg/L	95.2	90	110			
WG217895ICB	ICB	12/08/06 21:39				U	mg/L		-0.06	0.06			
WG217895LFB1	LFB	12/08/06 21:40	WI060906-4	2		2.028	mg/Kg	101.4	85	115			
WG217830PBS	PBS	12/08/06 22:17				2.34	mg/Kg		-0.6	0.6			N1
WG217895LFB2	LFB	12/08/06 22:18	WI060906-4	2		2.067	mg/Kg	103.4	85	115			
L59736-01DUP	DUP	12/08/06 22:21			4.8	4.89	mg/Kg				1.9	20	
L59736-02AS	AS	12/08/06 22:23	WI060906-4	20	4.9	24.57	mg/Kg	98.4	75	125			

Carbon Resources
Project ID:

ACZ Project ID: ***L59736***

Nitrite as N, extractable (KCL) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217892													
WG217892ICV	ICV	12/08/06 19:33	WI061207-1	.609		.618	mg/L	101.5	90	110			
WG217892ICB	ICB	12/08/06 19:34				U	mg/L		-0.03	0.03			
WG217895													
WG217895ICV	ICV	12/08/06 21:37	WI061207-1	.609		.622	mg/L	102.1	90	110			
WG217895ICB	ICB	12/08/06 21:39				U	mg/L		-0.03	0.03			
WG217895LFB1	LFB	12/08/06 21:40	WI060906-4	1		.996	mg/Kg	99.6	85	115			
WG217895LFB2	LFB	12/08/06 22:18	WI060906-4	1		1.017	mg/Kg	101.7	85	115			
L59736-01DUP	DUP	12/08/06 22:21			.7	.7	mg/Kg				0	20	RA
L59736-02AS	AS	12/08/06 22:23	WI060906-4	10	.5	9.53	mg/Kg	90.3	75	125			

Nitrogen, total Kjeldahl M351.2 - TKN by Block Digester

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217861													
WG217691ICV	ICV	12/08/06 17:01	WI061129-2	4		3.92	mg/L	98	90	110			
WG217691ICB	ICB	12/08/06 17:02				U	mg/L		-0.3	0.3			
WG217691PBS2	PBS	12/08/06 17:36				U	%		-0.003	0.003			
WG217691LFB2	LFB	12/08/06 17:37	WI061129-6	2.5		2.47	%	98.8	85	115			
L59735-14MS	MS	12/08/06 17:39	WI061129-6	.0325	.019	.0476	%	88	75	125			
WG217691PBS1	PBS	12/08/06 17:53				U	%		-0.003	0.003			
WG217691LFB1	LFB	12/08/06 17:54	WI061129-6	2.5		2.54	%	101.6	85	115			
L59735-15DUP	DUP	12/08/06 18:14			.19	.232	%				19.9	20	
L59732-12MS	MS	12/08/06 18:26	5XPTSTKN	.0345	.054	.095	%	118.8	75	125			

Percent Clay ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG218198													
L59736-01DUP	DUP	12/15/06 13:10			17.5	16.3	%				7.1	20	

Percent Sand ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG218198													
L59736-01DUP	DUP	12/15/06 13:10			42.5	42.5	%				0	20	

Percent Silt ASTM D 422 Hydrometer

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG218198													
L59736-01DUP	DUP	12/15/06 13:10			40	41.3	%				3.2	20	

pH, Saturated Paste USDA No. 60 (21A)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217647													
L59736-03DUP	DUP	12/07/06 11:00			6.3	6.5	units				3.1	20	

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Carbon Resources
Project ID:

ACZ Project ID: ***L59736***

Phosphorus, extractable (AB-DTPA) M365.1 - Automated Ascorbic Acid

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217910													
WG217910ICV	ICV	12/09/06 17:21	SCN000224	.65228		.605	mg/L	92.8	90	110			
WG217910ICB	ICB	12/09/06 17:23				U	mg/L		-0.03	0.03			
WG217911													
WG217911ICV	ICV	12/09/06 17:59	SCN000224	.65228		.607	mg/L	93.1	90	110			
WG217911ICB	ICB	12/09/06 18:01				.013	mg/L		-0.03	0.03			
WG217911LFB1	LFB	12/09/06 18:03	WI061125-2	.5		.535	mg/Kg	107	85	115			
WG217619PBS	PBS	12/09/06 18:34				3.8	mg/Kg		-3	3			N1
WG217911LFB2	LFB	12/09/06 18:35	WI061125-2	.5		.538	mg/Kg	107.6	85	115			
L59736-01DUP	DUP	12/09/06 18:37			34	33.7	mg/Kg				0.9	20	
L59736-02AS	AS	12/09/06 18:40	WI061125-2	50	25	70.5	mg/Kg	91	75	125			

Potassium, extractable (AB-DTPA) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG218071													
WG218071ICV	ICV	12/14/06 12:35	II061209-1	20		20.09	mg/L	100.5	90	110			
WG218071ICB	ICB	12/14/06 12:38				U	mg/L		-0.9	0.9			
WG217619PBS	PBS	12/14/06 12:52				U	mg/L		-90	90			
L59736-01AS	AS	12/14/06 13:03	II061207-3	9951.014	310	10756	mg/L	105	75	125			
L59736-01ASD	ASD	12/14/06 13:06	II061207-3	9951.014	310	10328	mg/L	100.7	75	125	4.06	20	
L59736-01DUP	DUP	12/14/06 13:09			310	330	mg/L				6.3	20	

Potassium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217956													
WG217956ICV	ICV	12/11/06 15:04	II061209-1	20		20.2	mg/L	101	90	110			
WG217956ICB	ICB	12/11/06 15:08				U	mg/L		-0.9	0.9			
L59736-03DUP	DUP	12/11/06 15:33			.232	.2186	meq/L				6	20	

Saturation Percent USDA No. 60 (2)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217647													
L59736-03DUP	DUP	12/07/06 11:00			29.9	41.47	%				32.4	20	RC

Sodium, soluble (Sat. Paste) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217956													
WG217956ICV	ICV	12/11/06 15:04	II061209-1	100		100.3	mg/L	100.3	90	110			
WG217956ICB	ICB	12/11/06 15:08				U	mg/L		-0.9	0.9			
L59736-03DUP	DUP	12/11/06 15:33			.6	.535	meq/L				11.5	20	

Solids, Percent CLPSOW390, PART F, D-98

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217732													
WG217732PBS	PBS	12/06/06 17:00				U	%		99.9	100.1			
L59736-01DUP	DUP	12/07/06 2:00			91.7	92.26	%				0.6	20	

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2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59736***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59736-01	WG217956	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217772	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217866	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217647	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.
L59736-02	WG217956	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217772	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217866	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217647	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

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Inorganic Extended Qualifier Report

Carbon Resources

ACZ Project ID: ***L59736***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L59736-03	WG217956	Calcium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Magnesium, soluble (Sat. Paste)	M6010B ICP	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217772	Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217866	Neutralization Potential as CaCO3	M600/2-78-054 3.2.3	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217647	Saturation Percent	USDA No. 60 (2)	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG217895	Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
		Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M353.2 - Automated Cadmium Reduction	N1	See Case Narrative.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG217861	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	H1	Sample analysis performed past holding time.
	WG217911	Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid	HD	No pre-extraction hold time is specified in the method. Post-extraction hold time was met.
			M365.1 - Automated Ascorbic Acid	N1	See Case Narrative.

Carbon Resources

ACZ Project ID: ***L59736***

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	M120.1 - Meter, w/ Saturated Paste Prep
Neutralization Potential as CaCO3	M600/2-78-054 3.2.3
pH, Saturated Paste	USDA No. 60 (21A)
Saturation Percent	USDA No. 60 (2)
Sieve- 53 um (270 mesh)	ASA No.9, 15-4.2.2
Sieve- 2000 um (2.0 mm)	ASA No.9, 15-4.2.2
Solids, Percent	CLPSOW390, PART F, D-98
Texture by Hydrometer	ASTM D 422 Hydrometer

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Nitrate/Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrite as N, extractable (KCL)	M353.2 - Automated Cadmium Reduction
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester
Phosphorus, extractable (AB-DTPA)	M365.1 - Automated Ascorbic Acid

ACZ Laboratories, Inc.
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Sample Receipt

Carbon Resources

ACZ Project ID: L59736
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
BUCKET X 8		22.5	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
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Sample Receipt

Carbon Resources

ACZ Project ID: L59736
Date Received: 10/31/2006
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L59736-01	1B1 7-15"									X		☐
L59736-02	1B1 15-28"									X		☐
L59736-03	1B1 28-60"									X		☐

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59736

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

VBC 10.26.06

Sue Webber

From: GHuntBBC@aol.com
Sent: Friday, October 27, 2006 12:52 PM
To: bches@scinternet.net; Sue Webber
Subject: Sue Weber Carbon Resources Soil Samples

FROM: **Geo-Hunt Consulting**
16577 Columbine Lane
Cedaredge, CO 81413
970-856-9477

TO: **Sue Webber, Project Manager**
ACZ Laboratories, Inc.
2773 Downhill Drive,
Steamboat Springs, Co 80487

RE: **TRANSMITTAL OF SOIL SAMPLES**

Dear Sue:
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

Very Fine Sand

analyst: as
date: 12-19-06

ACZ L#	Total sample wt. gms	% <2000um sieve	Wt. of sxs used for Texture gms	Wt. of sxs between 105um & 53um gm.	% VFS
L59736-01	363.84	79.9	40.0	8.3	**16.6**
L59736-02	362.18	79.3	40.0	8.9	**17.6**
L59736-03	386.22	82.4	40.0	8.9	**18.3**

(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture

(VFS of Texture) x (% <2000um) = % VFS

additional data from:

-sieve2000 WG217378

-sieve53 WG217380

-texture WG218198

Exhibit 7

Vegetation Information

VEGETATION OF THE KINNEY NO. 2 MINE SITE

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
Springville, Utah 84663
(801) 489-6937

Patrick D. Collins, Ph.D.

for

CARBON RESOURCES
16577 Columbine Lane
Cedaredge, CO 81413

September 2007

TABLE OF CONTENTS

INTRODUCTION 1

METHODS 2

- Sample Areas 2
- Sample Design and Transect/Quadrat Placement 3
- Cover and Composition 3
- Woody Species Density 3
- Sample Size & Adequacy 4
- Statistical Analyses 4
- Photographs 4
- Threatened & Endangered Plant Species 5
- Raw Data 5

RESULTS 5

- Previously Disturbed Areas 5
- Proposed Disturbed Sagebrush/Grass Community 6
- Sagebrush/Grass Reference Area 7
- Threatened & Endangered Plant Species Survey 7

SUMMARY & DISCUSSION 15

COLOR PHOTOGRAPHS OF THE SAMPLE AREAS 19

INTRODUCTION

The old Kinney No. 2 mine area, an historical coal mining site, has been proposed to be the location for new mining activities. The site is located in Carbon County, Utah just northeast of the town of Scofield. Elevation of the permit area ranges from approximately 7,700 to 8,600 ft above sea level, with most of the surface facilities proposed in the lower elevations of that range.

Most of the vegetation proposed to be disturbed by the new mining activities have already been disturbed by the previous mining operations mentioned above. However, a sagebrush/grass community that has not been disturbed previously could also be impacted by the new mine.

The purpose of this document is to report the findings from quantitative sampling the plant communities that could be impacted by the proposed new mining activities. The communities that may be affected are: 1) the previously disturbed (presently rabbitbrush/grass) community, and 2) a native sagebrush/grass community. Additionally, a reference area to be used for future revegetation success standards has also been chosen and sampled for this study. A vegetation map showing the plant communities within and adjacent to the permit area has been prepared and included in the Mining & Reclamation Plan (MRP) for the new Kinney No. 2 Mine site (Map 5, Regional Vegetation). This map also shows the sample areas where the quantitative data were collected to compile this report.

METHODS

Methodologies used for this study were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were taken in the plant communities that have been proposed for disturbance area along with a reference area chosen to represent them at the time of final reclamation and revegetation. These datasets were recorded August 8-9, 2007.

Sample Areas

GPS coordinates within the sample areas are provided below.

GPS COORDINATES FOR THE VEGETATION SAMPLE AREAS OF THE KINNEY NO. 2 MINE (August 2007; UTM NAD 27)

Community Name	Zone	Easting	Northing	Notes
Rabbitbrush/Grass	12	0486865 0486783	4397843 4397713	a) Area was previously disturbed by mining, b) was a sagebrush/grass community prior to disturbance, c) coordinates represent centers of transect lines.
Sagebrush/Grass	12	0486953 0486920	4397681 4397737	a) Proposed disturbed native undisturbed community, b) coordinates represent centers of transect lines.
Reference Area	12	0487053	4397766	a) Native, undisturbed community sagebrush/grass community, b) coordinates represent center of transect line.

Sampling Design and Transect/Quadrat Placement

Transect lines for vegetation sampling were placed randomly within the boundaries of the proposed disturbed and reference areas. The transect placement technique was employed with the goal to adequately sample a representative subset of the entire site as a whole. Once the transects were established, quadrat locations for sampling were chosen using random numbers from the transect lines with the objective to record data without preconceived bias.

Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition, cover by species, and relative frequencies were also assessed from the quadrats. Additional information recorded on the raw data sheets were: estimated precipitation, slope, exposure, grazing use, animal disturbance and other appropriate notes. Plant nomenclature follows "A Utah Flora" (Welsh et al., 2003).

Woody Species Density

Density of woody plant species for the proposed disturbed and reference areas was estimated using the point-quarter method. In this method, random points were placed on the sample sites and measured into four quarters. The distances to the nearest woody plant species were then recorded in each quarter. The average point-to-individual distance was equal to the square root

of the mean area per individual. The number of individuals per acre was the end results of the calculations.

Sample Size & Adequacy

Sampling adequacy for cover and density was attempted by using the formula given below.

$$nMIN = \frac{t^2 s^2}{(dx)^2}$$

where,

nMIN	= minimum adequate sample
t	= appropriate confidence t-value
s	= standard deviation
x	= sample mean
d	= desired change from mean

Statistical Analyses

Student's t-tests were employed to compare the total living cover and total woody species density of the proposed disturbed sites with the reference area.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been

included in this report.

Threatened & Endangered Plant Species

Prior to the field work, a list of those plant species that could be in the area and have been identified by agencies as rare, sensitive, threatened or endangered was prepared. Habitats were surveyed for these species at the mine site prior to and during the sample period.

Raw Data

The raw data have been summarized on spreadsheets and are available upon request.

RESULTS

Previously Disturbed Areas

Most of the plant communities in the permit area that have been proposed for disturbance by the new mining operations were impacted previously by other activities, most of which were a result of the historical mining mentioned above. A very small proportion of these disturbances were within aspen communities, but most were within sagebrush/grass communities.

The “previously disturbed area”, one area that has been proposed for new disturbance by the

proposed mine, was quantitatively sampled by placing sample quadrats over the entire area [see *Map 5, Regional Vegetation (included in the MRP) and Color Photographs of the Sample Areas (included in this report*]. The dominant plant species in the previously disturbed area were those one would expect in a plant community that has been impacted and not reclaimed, including the shrub, rubber rabbitbrush (*Chrysothamnus nauseosus*), and grasses such as Western wheatgrass (*Elymus smithii*) and Kentucky bluegrass (*Poa pratensis*). Prior to disturbance, the community was once primarily a sagebrush/grass community. There were also several forb species present in the sample quadrats, each of which comprised less than 2 percent of the living cover. Examples of these forbs were native species such as hoary aster (*Machaeranthera canescens*), silky lupine (*Lupinus sericeus*), Engelmann's daisy *(Erigeron engelmannii*) and other "weedy", exotic species such as houndstongue (*Cynoglossum officinale*), and dandelion (*Taraxacum officinale*). A list of all plant species present in the sample quadrats placed in the previously disturbed area is shown on Table 1.

The total living cover of the community was estimated at 39.50% (Table 2-A). Composition of the cover was comprised of 44.73% shrubs, 34.09% grasses and 21.18% forbs (Table 2-B). Woody species density measurements were also recorded. The total number per acre was only 210 individuals, most of which were rubber rabbitbrush (Table 3).

<u>Proposed Disturbed Sagebrush/Grass</u>

The major plant community that has *not* been previously disturbed, but may also be impacted by

the proposed new mining activities, is a sagebrush/grass community [see *Map 5, Regional Vegetation (included in the MRP) and Color Photographs of the Sample Areas (included in this report*]. The two dominant plant species in the community by a wide margin were: the shrub, Vasey sagebrush (*Artemisia tridentata* var. *vaseyana*) and the grass, bluestem wheatgrass (*Elymus spicatus*). The next most common shrub was viscid rabbitbrush (*Chrysothamnus viscidiflorus*), and the next most common grass was Kentucky bluegrass. There were also several native forb species present in the sample quadrats, the most common of which was Watson's penstemon (*Penstemon watsonii*). For a complete listing of the plants present in the quadrats including all cover and frequency values, refer to Table 4.

The total living cover of the sagebrush/grass community was estimated 63.83% (Table 5-A). In the living cover, 55.42% of it was comprised of shrubs, 34.98% grasses and 9.60% forbs (Table 5-B). Woody species density was estimated 7,573 plants per acre (Table 6) with the three most common shrubs as Vasey sagebrush, viscid rabbitbrush and snowberry (*Symphoricarpos oreophilus*).

Sagebrush/Grass Reference Area

Another native sagebrush/grass community that will remain undisturbed was chosen in the immediate area to represent future standards for revegetation success [see *Map 5, Regional Vegetation (included in the MRP) and Color Photographs of the Sample Areas (included in this report*]. This community was sampled so that it could be compared statistically at this time with

the sagebrush/grass community proposed for disturbance to make sure it would be an appropriate area to be used for future revegetation success standards.

Very much like the proposed disturbed sagebrush/grass community it was chosen to represent and be compared with, the most common shrubs here were Vasey sagebrush and viscid rabbitbrush; the most common grasses were bluebunch wheatgrass and Kentucky bluegrass. Forbs species were also similar to the community proposed for disturbance (Table 7).

The total living cover for the reference area was 60.83% (Table 8-A). The composition of the cover by lifeform was represented by 61.42% shrubs, 28.15% grasses and 10.43% forbs (Table 8-B). The total woody species density for the community was 7,595 plants per acre with the same species for dominants as the area proposed for disturbance (Table 9).

Threatened & Endangered Plant Species Survey

No rare, threatened, endangered, endemic or otherwise sensitive plant species were found in the areas proposed for new disturbance.

Table 1: Kinney No. 2 Mine. Living Cover and Frequency by Plant Species (2007).

Community: Rabbitbrush/Grass (Previously Disturbed)	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY			
Populus tremuloides	1.50	7.76	4.00
UNDERSTORY			
SHRUBS			
Amelanchier utahensis	0.10	0.70	2.00
Artemisia tridentata	4.30	6.40	38.00
Chrysothamnus nauseosus	11.46	15.95	60.00
Mahonia repens	0.10	0.70	2.00
Purshia tridentata	0.50	2.50	4.00
Rosa woodsii	0.10	0.70	2.00
Symphoricarpos oreophilus	2.20	6.57	14.00
FORBS			
Cynoglossum officinale	0.10	0.70	2.00
Erigeron engelmannii	1.10	3.36	10.00
Geranium richardsonii	0.10	0.70	2.00
Grindelia squarrosa	0.60	2.15	8.00
Ipomopsis aggregata	0.20	1.40	2.00
Lupinus sericeus	1.30	3.85	12.00
Machaeranthera canescens	1.50	3.20	20.00
Melilotus officinalis	0.40	1.36	8.00
Polygonum aviculare	0.40	2.80	2.00
Taraxacum officinale	0.60	2.15	8.00
GRASSES			
Agropyron cristatum	0.40	2.20	4.00
Bromus tectorum	0.80	3.79	6.00
Elymus smithii	7.34	10.01	50.00
Elymus spicatus	0.20	1.40	2.00
Hordeum jubatum	0.10	0.70	2.00
Poa pratensis	4.10	8.58	24.00

Table 2: Kinney No. 2 Mine. Total Cover and Composition (2007).

Community: Rabbitbrush/Grass (Previously Disturbed)		
A. TOTAL COVER	Mean Percent	Standard Deviation
Overstory (O)	1.50	7.76
Understory (U)	38.00	18.17
Litter	14.20	13.01
Bareground	25.40	19.69
Rock	22.40	16.77
O+ U	39.50	20.16
B. % COMPOSITION		
% COMPOSITION		
Shrubs	44.73	34.28
Forbs	21.18	29.68
Grasses	34.09	28.51

Table 3: Kinney No. 2 Mine. Total Cover and Composition (2007).

Community: Rabbitbrush/Grass (Previously Disturbed)	
SPECIES	**Individuals Per Acre**
Amelanchier utahensis	
Artemisia tridentata	63.92
Cercocarpus oreophilus	1.05
Chrysothamnus nauseosus	116.31
Chrysothamnus viscidiflorus	1.05
Populus tremuloides	4.19
Purshia tridentata	5.24
Rosa woodsii	1.05
Symphoricarpos oreophilus	16.76
TOTAL	**209.56**

Table 4: Kinney No. 2 Mine. Living Cover and Frequency by Plant Species (2007).

Community: Sagebrush/Grass (Proposed Disturbed)	Mean Percent	Standard Deviation	Percent Frequency
SHRUBS			
Amelanchier utahensis	1.33	4.07	10.00
Artemisia tridentata var. vaseyana	18.50	12.59	93.33
Chrysothamnus viscidiflorus	7.50	8.24	56.67
Mahonia repens	0.17	0.90	3.33
Purshia tridentata	2.33	5.28	23.33
Symphoricarpos oreophilus	5.83	6.59	56.67
FORBS			
Astragalus sp.	0.33	1.80	3.33
Cirsium sp.	0.33	1.25	6.67
Eriogonum sp.	1.17	2.79	16.67
Hedysarum boreale	1.17	2.48	20.00
Lupinus sericeus	0.83	4.49	3.33
Machaeranthera canescens	0.17	0.90	3.33
Penstemon watsonii	2.00	3.56	26.67
GRASSES			
Elymus spicatus	13.17	13.63	70.00
Poa pratensis	0.50	2.69	3.33
Poa secunda	8.17	8.90	60.00
Stipa comata	0.33	1.80	3.33

Table 5: Kinney No. 2 Mine. Total Cover and Composition (2007).

Community: Sagebrush/Grass (Proposed Disturbed)	Mean Percent	Standard Deviation
A. TOTAL COVER		
Total Living Cover	63.83	6.41
Litter	15.73	9.82
Bareground	10.07	7.37
Rock	10.37	10.63
B. % COMPOSITION		
Shrubs	55.42	18.54
Forbs	9.60	11.07
Grasses	34.98	18.45

Table 6: Kinney No. 2 Mine. Total Cover and Composition (2007).

Community: Sagebrush/Grass (Proposed Disturbed)	
SPECIES	**Individuals Per Acre**
Amelanchier utahensis	63.11
Artemisia tridentata var. vaseyana	3912.62
Chrysothamnus nauseosus	63.11
Chrysothamnus viscidiflorus	1640.78
Purshia tridentata	378.64
Symphoricarpos oreophilus	1514.56
TOTAL	**7572.81**

Table 7: Kinney No. 2 Mine. Living Cover and Frequency by Plant Species (2007).

Community: Sagebrush/Grass (Reference Area)			
TREES & SHRUBS	Mean Percent	Standard Deviation	Percent Frequency
Artemisia tridentata var. vaseyana	26.33	10.72	100.00
Chrysothamnus nauseosus	1.17	4.78	6.67
Chrysothamnus viscidiflorus	6.50	6.21	60.00
Purshia tridentata	0.83	3.67	6.67
Symphoricarpos oreophilus	3.00	6.14	26.67
FORBS			
Castilleja sp.	0.17	0.90	3.33
Eriogonum sp.	1.67	3.50	23.33
Hedysarum boreale	1.50	2.93	23.33
Lupinus sericeus	1.00	3.27	10.00
Penstemon watsonii	2.00	2.45	40.00
GRASSES			
Elymus salinus	0.33	1.25	6.67
Elymus spicatus	9.33	7.04	73.33
Poa pratensis	0.33	1.25	6.67
Pos secunda	6.67	7.89	56.67

Table 8: Kinney No. 2 Mine. Total Cover and Composition (2007).

Community: Sagebrush/Grass (Reference Area)		
A. TOTAL COVER	Mean Percent	Standard Deviation
Total Living Cover	60.83	7.75
Litter	11.50	6.08
Bareground	16.80	9.11
Rock	10.87	7.82
B. % COMPOSITION		
Shrubs	61.42	14.19
Forbs	10.43	9.79
Grasses	28.15	12.56

Table 9: Kinney No. 2 Mine. Total Cover and Composition (2007).

Community: Sagebrush/Grass (Reference Area)	
SPECIES	**Individuals Per Acre**
Amelanchier utahensis	126.58
Artemisia tridentata var. vaseyana	4999.96
Chrysothamnus nauseosus	126.58
Chrysothamnus viscidiflorus	1455.68
Juniperus scopulorum	63.29
Purshia tridentata	63.29
Symphoricarpos oreophilus	759.49
TOTAL	**7594.88**

SUMMARY & DISCUSSION

Statistical comparisons of the total living cover and woody species density values were made between the areas proposed for disturbance by mining activities and the reference area chosen to represent future revegetation success standards. When the total living cover of the previously disturbed rabbitbrush/grass community (also proposed for new disturbance) was compared to the sagebrush/grass reference area, results suggested the reference area had significantly more cover (Figure 1-A). Similarly, when woody species density of these two areas were compared, results again suggested there was a significant difference with a greater density value for the reference area (Figure 2-A).

FIGURE 1. A statistical comparison (Student's t-tests) of the **total living cover** between the proposed disturbed (previously disturbed and undisturbed) and reference areas.

	$\bar{x}$	s	n	t	df	SL
A. Rabbitbrush/Grass						
Previously Disturbed:	39.50	20.16	50			
Reference Area:	60.83	7.75	30			
t-test				-5.543	78	p<0.001
B. Sagebrush/Grass						
Proposed Disturbed:	63.83	6.41	30			
Reference Area:	60.83	7.75	30			
t-test				1.634	58	N.S.

$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
p = probability
SL= Significance Level

Next, the total living cover value of the proposed disturbed (currently undisturbed) sagebrush/grass community was compared with the reference area – the differences were non-significant (Figure 1-B). The woody species densities of these two communities were also non-significant (Figure 2-B).

As described above, much of the area has been previously disturbed by earlier mining and other activities. Although the quantitative data of the previously disturbed rabbitbrush/grass community was compared to the reference area at this time, future success standards may be different. State regulations (R645-301-356.250) indicates that "*areas previously disturbed by mining that were not reclaimed to the requirements of R645-200 through R645-203 and R645-301 through R645-302 and that are*

FIGURE 2. A statistical comparison (Student's t-tests) of the **woody species density** between the proposed disturbed (previously disturbed and undisturbed) reference areas.

	$\bar{x}$	s	n	t	df	SL
A. Rabbitbrush/Grass						
Previously Disturbed:	209.56	1138.85	50			
Reference Area:	7594.88	2309.39	30			
t-test				-19.119	78	p<0.001
B. Sagebrush/Grass						
Proposed Disturbed:	7572.81	2575.81	30			
Reference Area:	7594.88	2309.39	30			
t-test				-0.035	58	N.S.

$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
SL= Significance Level

remined or otherwise redisturbed by coal mining and reclamation operations, at a minimum, the vegetative ground cover will be not less than the ground cover existing before redisturbance and will be adequate to control erosion". To address this issue, a discussion about reclamation and revegetation standards should be provided in the Mining & Reclamation Plan for the Kinney No. 2 Mine.

For those areas that will be disturbed by the proposed new mining activities that have *not* been previously impacted such as the sagebrush/grass community described in this report, the state regulations (R645-301.353) require that the final established plant communities: 1) *be diverse, effective, and permanent,* 2) *be comprised of species native to the area, or of introduced species where desirable and necessary to achieve the approved postmining land use and approved by the Division,* 3) *be at least equal in extent of cover to the natural vegetation of the area,* 4) *be capable of stabilizing the soil surface from erosion,* 5) *be compatible with the approved postmining land use,* 6) *have the same seasonal characteristics of growth as the original vegetation,* 7) *be capable of self-regeneration and plant succession, and* 8) *be compatible with the plant and animal species of the area.*

Small and comparatively inconsequential stands of aspen trees presently exist in the previously disturbed areas. Sample quadrats were also placed in these stands of trees. Because of the relative small area that these stands comprise, and because they too were disturbed previously and will be subject to the rules described above for areas previously impacted and not reclaimed, data for these aspen stands have been included with the other previously disturbed community

dataset. Accordingly, this dataset will represent the previously disturbed area as a whole, rather than attempting to separate or subdivide it.

The reference area chosen and compared statistically to the proposed disturbed (currently undisturbed) sagebrush/grass community should provide a community with adequate standards to achieve the required characteristics described above for the reclaimed areas at time of final reclamation and revegetation of the Kinney No. 2 Mine.

COLOR PHOTOGRAPHS OF THE SAMPLE AREAS

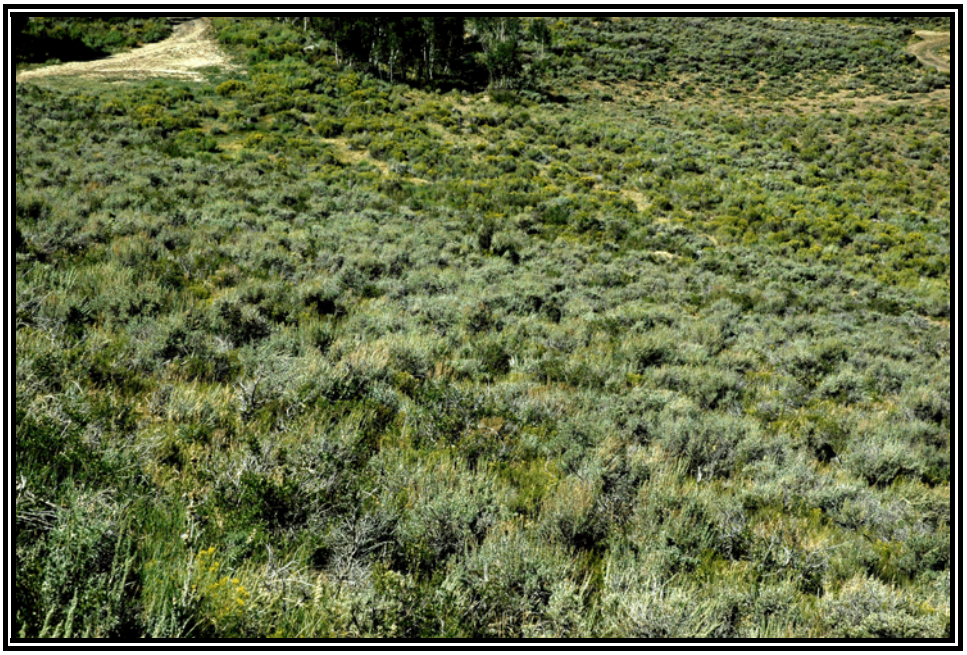


Photo 1: Sagebrush/Grass (Proposed Disturbed)

Photo 2: Sagebrush/Grass (Proposed Disturbed)

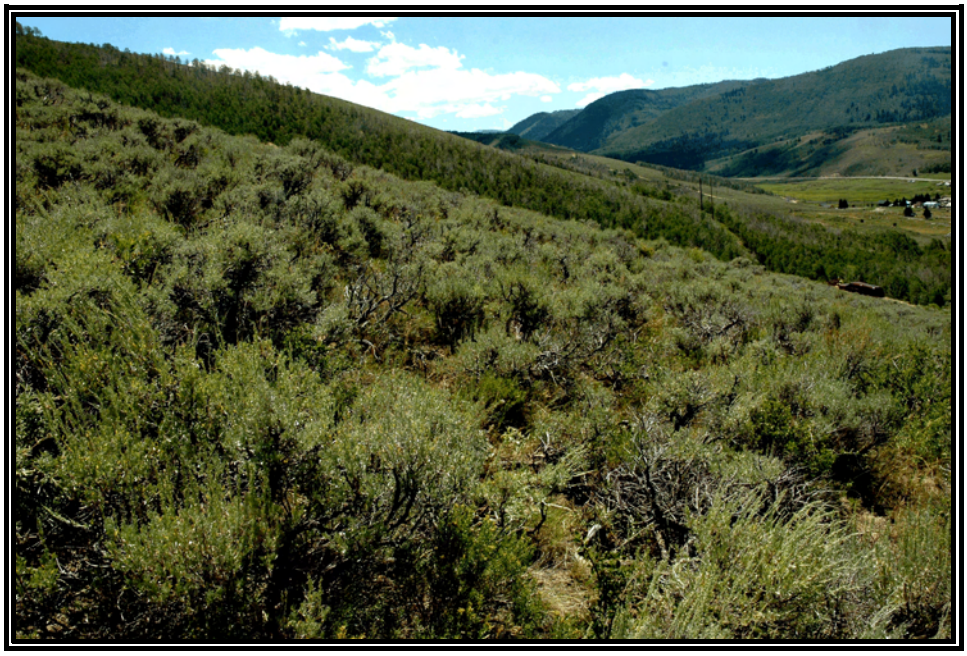


Photo 3: Sagebrush/Grass (Reference Area)

Photo 4: Sagebrush/Grass (Reference Area)

Photo 5: Rabbitbrush/Grass (Previously Disturbed)

Photo 6: Rabbitbrush/Grass (Previously Disturbed)

Photo 7: Rabbitbrush/Grass (Previously Disturbed)

Photo 8: Rabbitbrush/Grass (Previously Disturbed)

PLEASANT VALLEY

U.P. Canyon

Eagles Canyon

Mud Creek

SCOFIELD TOWN

SCOFIELD RESERVOIR

RIPARIAN

PASTURELAND

SAGEBRUSH/GRASS

ASPEN

S/G

A

SAMPLE AREA: PREVIOUSLY DISTURBED RABBITBRUSH/GRASS

SAMPLE AREA: PROPOSED DISTURBED AREA SAGEBRUSH/GRASS

SAMPLE AREA: SAGEBRUSH/GRASS REFERENCE AREA

PERMIT BOUNDARY

Old UP # 1 Portals

Old UP # 2 Portals

Old UP # 3 Portals

Old ? Portal

Old Columbine Portal (Lower Seam) AKA Jones Mine

Old Kinney Portals AKA Columbine # 1

Old Kinney Portal

Old Blue Seal Portal

Columbine Slope Portals (AKA Kinney Mine ?)

32

33

29

28

4

5

96

LEGEND

PRE - MINING DISTURBED AREA

PRE - MINING ROADS

KINNEY NO. 2 MINE DISTURBANCE FOOTPRINT

N

0 500 1000 1500 ft

SCALE
Contour Interval 20 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 5,000 ft, using a Combined Factor (CF) of 1.004 7927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Carbon Resources LLC

KINNEY NO. 2 MINE
FIGURE 1
REGIONAL & SITE
VEGETATION MAP

DRAWN BY: P.C., B.G.	DATE: 11/07
APPROVED BY: G.H.	DATE:

MC NEERGENIC, INC.
330 East 400 South, Suite 6
Springville, Utah 84663
(801) 489-6837

DWG. NAME:

Exhibit 8

Fish and Wildlife Information

JON M. HUNTSMAN, JR.
Governor
GARY R. HERBERT
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of Wildlife Resources
JAMES F. KARPOWITZ
Division Director

August 13, 2007

Ben Grimes
Hansen, Allen & Luce Engineers
23 S. Carbon Avenue, Suite 21
Price, Utah 84501

Subject: Species of Concern Near the Proposed Coal Mine in Carbon County

Dear Ben Grimes:

I am writing in response to your email dated August 9, 2007 regarding information on species of special concern proximal to the proposed coal mine in Carbon County, Utah (Sections 26-35 of Township 12 South, Range 7 East, and Sections 2-6 of Township 13 South, Range 7 East, SLB&M).

The Utah Division of Wildlife Resources (UDWR) has records of occurrence for sandhill crane and bald eagle within the project area noted above. In addition, in the vicinity there are records of occurrence for northern flying squirrel and northern river otter.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the southeastern region, Chris Wood, at (435) 636-0279 if you have any questions.

Please contact our office at (801) 538-4759 if you require further assistance.

Sincerely,

Sarah Lindsey

Sarah Lindsey
Information Manager
Utah Natural Heritage Program

cc: Chris Wood, SERO

1594 W. North Temple, Suite 2110, PO Box 146301, Salt Lake City, UT 84114-6301
telephone (801) 538-4700 • facsimile (801) 538-4709 • TTY (801) 538-7458 • *www.wildlife.utah.gov*

UTAH DNR WILDLIFE RESOURCES

Ben Grimes

From: "Ben Grimes" <halengpr@emerytelcom.net>
To: "Sarah Lindsey" <sarahlindsey@utah.gov>
Sent: Monday, August 13, 2007 12:21 PM
Subject: Re: Information Request

Thank you for the letter.

As I indicated in my first email, I need a (complete) list of mammals, birds, amphibians, snakes and fish that occur in the area, not just species of special interest. I have to provide these lists in the permit application to the Utah Division of Oil, Gas and Mining. Chris Wood told me you would be to provide me with this information.

If you have any questions please call me at (435) 650-7075.

Thank You,
Ben Grimes

----- Original Message -----
From: "Sarah Lindsey" <sarahlindsey@utah.gov>
To: "Ben Grimes" <halengpr@emerytelcom.net>
Cc: "Chris Wood" <CHRISWOOD@utah.gov>
Sent: Monday, August 13, 2007 10:29 AM
Subject: Re: Information Request

Mr. Grimes,

Attached is a letter in response to your request. Please contact me if you have any questions.

Sincerely,
Sarah Lindsey

Utah Natural Heritage Program
Division of Wildlife Resources
1594 West North Temple
Salt Lake City, UT 84114-6301
(801) 538-4759

>>> "Ben Grimes" <halengpr@emerytelcom.net> 8/9/2007 4:12 PM >>>
I am working on a permit application for a new coal mine in Carbon County and I need to include the following:

1. Species lists for mammals, birds, amphibians, snakes, and fish
2. Threatened and Endangered species

The attached PDF shows the area I need information for --- the large area

inside the biggest black box.

If you have any questions please call me at (435) 650-7075.

Thank you,
Ben Grimes, Office Manager
HANSEN, ALLEN & LUCE ENGINEERS
PRICE, UAH

No virus found in this incoming message.
Checked by AVG Free Edition.
Version: 7.5.476 / Virus Database: 269.11.17/951 - Release Date: 8/13/2007
10:15 AM

Ben Grimes

From: "Lenora Sullivan" <lenorasullivan@utah.gov>
To: <halengpr@emerytelcom.net>
Cc: "Chris Colt" <CHRISCOLT@utah.gov>
Sent: Monday, March 20, 2006 10:12 AM
Subject: Re: T&E Species Request

Dear Mr.Grimes:

I am writing in response to your email dated March 9, 2006 for information regarding species of special concern proximal to a coal mine project located in Carbon County, Utah [T012S 007E S27-29, 32-34; T013S 007E S3-5 SLB&M].

The Utah Division of Wildlife Resources (UDWR) does not have records of occurrence for any threatened, endangered, or sensitive species within the project boundaries. However, in the vicinity of the project, there are recent records of occurrence for winter roosting habitat for bald eagle, a federally-listed threatened bird, which is included on the Utah Sensitive Species List.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the southeastern region, Chris Colt, at (435) 636-0279 if you have any questions.

Please contact our office at (801) 538-4759 if you require further assistance.

Sincerely,

Lenora B. Sullivan
Information Manager
Utah Natural Heritage Program

cc: Chris Colt, SERO

>>> <halengpr@emerytelcom.net> 03/09/2006 1:36 PM >>>
We are working on a coal mine permit application with the Utah Div of Oil, Gas and Mining and need consultation on T&E species for the proposed Kinney No 2 Mine area. The area is in Carbon County. The attached PDF map shows the area of interest.

Would you please review your records and indicate if there have been any T&E species identified within the area marked on the map.

Please reply to my email address, and by hard copy.

If you have any questions please call Ben Grimes at (435) 650-7075.

Thank
you.

This message was sent using Endymion MailMan.
http://www.endymion.com/products/mailman/

Ben Grimes

From: "Ben Grimes" <halengpr@emerytelcom.net>
To: <sarahlindsey@utah.gov>
Sent: Thursday, August 09, 2007 4:12 PM
Attach: List MapRequest_0001.pdf
Subject: Information Request

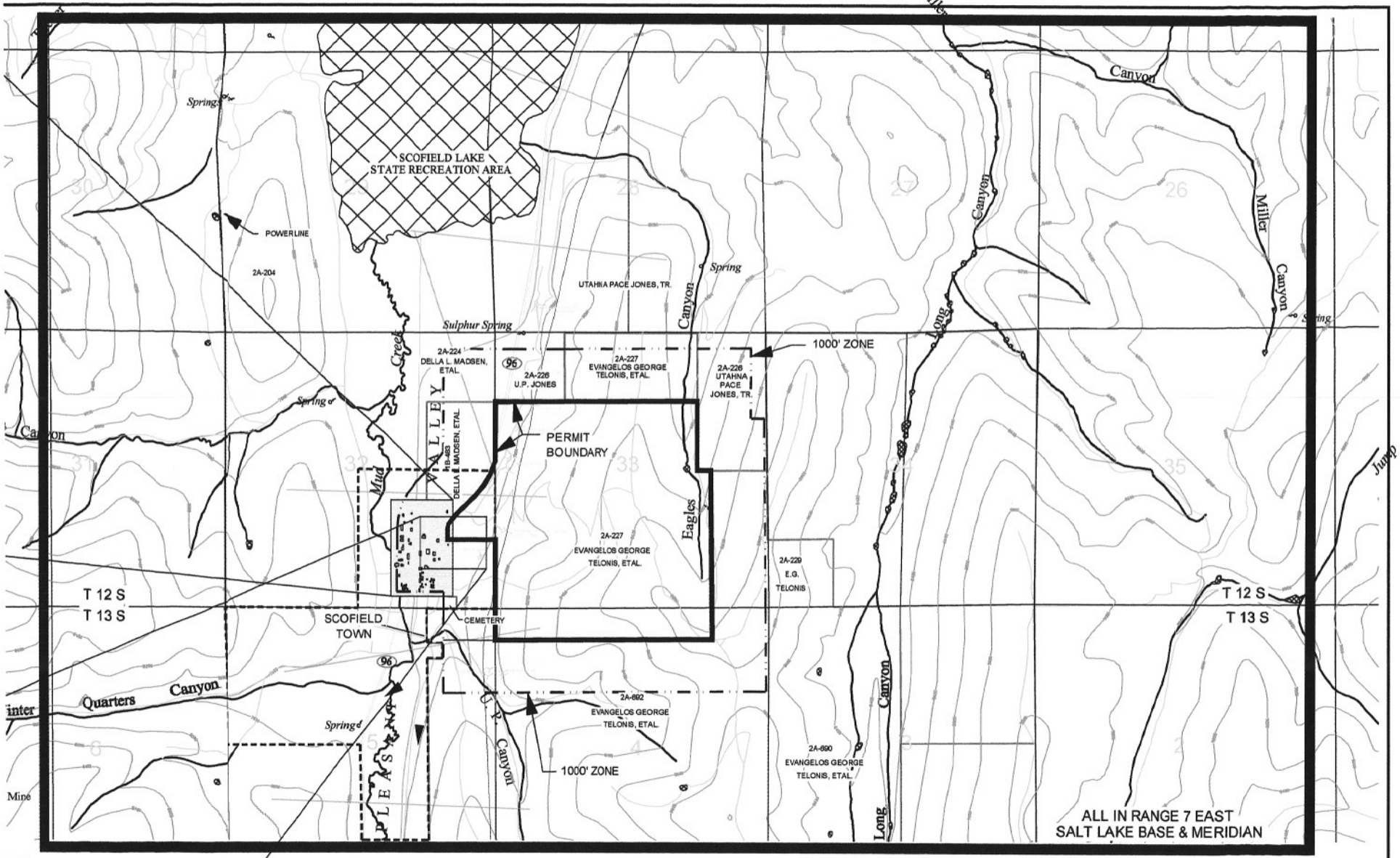
I am working on a permit application for a new coal mine in Carbon County and I need to include the following:

1. Species lists for mammals, birds, amphibians, snakes, and fish
2. Threatened and Endangered species

The attached PDF shows the area I need information for --- the large area inside the biggest black box.

If you have any questions please call me at (435) 650-7075.

Thank you,
Ben Grimes, Office Manager
HANSEN, ALLEN & LUCE ENGINEERS
PRICE, UAH



NEED SPECIES LISTS -MAMMALS, BIRDS, AMPHIBIANS, SNAKES ETC
AND T & E SPECIES FOR THIS AREA

Exhibit 9

Seep and Spring Survey

Rock Logic Consulting LLC
Rock Logic Consulting
PO Box 544 • Cedaredge, CO 81413
Phone: (435) 851-9044 • rocklogicconsulting@gmail.com
Brad Lindsay • Consulting Geologist

Memorandum

Date: 20 December 2006
To: Greg Hunt – Carbon Resources
From: Brad Lindsay
Subject: Spring and Seep Survey - June 2006

Summary

A spring and seep survey was conducted for Carbon Resources June 5th through June 9th 2006. Brad Lindsay conducted an extensive field survey within the area of interest outlined by Greg Hunt. Springs were observed and recorded in the field by traversing the property. Springs were identified in UP Canyon, Eagle Canyon, Long Canyon, Merrill Canyon, and Jump Creek. A 1/8-mile radius was traversed around drill hole locations listed in Carbon Resources Minor Coal Exploration Plan December 22, 2005. CR-06-04 was the only drill hole location with a spring within the 1/8-mile radius.

Methods

Area of interest survey - Greg Hunt outlined a large area of interest. The area was traversed by 4-wheeler and by hiking. Large dry slopes were observed from a distance. Areas that are more likely to have springs (such as down-dip slopes, heavily wooded areas, and canyon bottoms) were covered with a tighter traverse. Indications of existing or previously existing water were watched for. Indications include changes in vegetation, soil erosion, and desiccation cracks. When springs were located they were described, photographed, and coordinates taken. Flows were estimated for each spring.

Drill hole survey - A 1/8-mile radius was walked around each drill hole. Areas within the circle that could not be observed while walking the radius were traversed. Distances were measured using a handheld GPS unit. Evidence of springs was recorded as described above. Eagle Seep 3 was the only spring or seep found within a 1/8-mile radius of a drill hole location.

Observations

Springs were identified in five main locations: UP Canyon, Eagle Canyon, Long Canyon, Merrill Canyon, and Jump Creek. Findings at each of these locations are discussed below. Please refer to the attached map for exact locations. A track identifying the traverse path is also included on the map. Photographs of the springs are attached.

UP Canyon and near highway 96

Sulfur Spring – is located just east of highway 96 approximately 1 mile north of Scofield. The spring runs year round at an average rate of approximately 80 gpm. The spring flows through a culvert under the highway and west into a field.

Miller Spring – is approximately 1 ¼ mile north of sulfur spring east of highway 96. It is slightly north of the area of interest. A wooden fence surrounds the springhead. The spring only flows in the springtime. Estimated flow at the time of the survey is approximately 1 gpm.

UP Spring – is located east of the dirt road up the south fork of UP Canyon. The spring was not flowing, but water was ponded in a low area.

Two dry ponds and one full pond were identified near the end of the road up the south fork of UP Canyon. One dry pond was located near the end of the road up the east fork of UP Canyon.

Eagle Canyon

Angle Spring – is located at the north end of Eagle Canyon where it bends to the west. The spring is piped out of the ground into several metal stock tanks. The spring flows year round at an average rate of approximately ½ gpm.

Eagle Seep 1 & Eagle Seep 1A – these seeps are located near the valley bottom. They appear to flow into a stock pond immediately down hill and north. There is some old piping around the seeps and the stock pond. The flow from the seeps is estimated to be less than ½ gpm.

Eagle Spring 2 – is located north of Seep 1 and 1A in the valley bottom. A springhead was not located. A large stock pond was observed to be full all summer long. It is assumed that the spring feeds the pond from its bottom somewhere. The flow was not estimated.

Eagle Seep 3 – is located approximately 400 feet northeast downhill of proposed drill hole CR-06-04. The seep has an estimated flow of less than ½ gpm.

There is a dry trough and some piping directly north of an old corral in the bottom of the valley east of proposed drill hole CR-06-04. It appears that there may have been a spring at that location at one time.

Long Canyon

An effluent stream flows down Long Canyon fed by visible springs and seeps. The springs and seeps along with current beaver ponds have been mapped.

LC Seep 1 & 2 – are located at the north (downstream) end of Long Canyon. These seeps are north of the area of interest.

LC Seep 3 – is located approximately 1 mile south of LC Seep 1 &2.

LC Spring 1 – is near LC Seep 3. It is located on the west side of the stream. The estimated flow is approximately 10 gpm.

LC Spring 2 **–** is near LC Spring 1. It is located on the east side of the stream. The estimated flow is approximately 1/2 gpm.

LC Spring 3 – is south of LC Spring 1 & 2. It is located on the west side of the stream. The estimated flow is approximately 3 gpm.

LC Spring 4 – is part way up a small drainage along the west side of the canyon. The estimated flow is less than ½ gpm.

LC Spring 5 & 5A – are located in the canyon bottom at the east-west fence line that runs along the township 12 and township 13 boundary. Each spring has an estimated flow of approximately 5 gpm.

LC Spring 6 – is located in the west split of Long Canyon. The estimated flow is approximately 10 gpm.

LC Spring 7 – is located in a drainage along the west side of the west split of Long Canyon. It feeds a small stock pond. The estimated flow is approximately 7 gpm.

LC Spring 8 – is located in the east split of Long Canyon. It flows out of a steep cut bank west of the stream. The estimated flow is approximately 20 gpm.

Merrill Canyon

Merrill Canyon branches off approximately 1 mile south of the mouth of Long Canyon. It runs southeast toward Jump Creek. A small stream flows from Merrill Canyon into the stream in Long Canyon. At the time of this field survey, the majority of the water flowing from Merrill Canyon appeared to originate from springs in the canyon.

Merrill Spring 1 – is located at the canyon bottom up near the southeast end of the canyon. The estimated flow is approximately 10 gpm.

Luis Spring – is located on the south edge of the stream. The estimated flow is approximately 10-15 gpm.

Guzman Spring – is immediately west. The estimated flow is approximately 1/2 gpm.

Merrill Spring 2 – is north down the canyon. It is also located on the south side of the canyon. The estimated flow is approximately 10 gpm.

Merrill Spring 4, 5 & 5A, & 6 – are located in a small canyon that extends south from Merrill Canyon. Merrill Spring 4 is at the south (upstream) end of the canyon. It has an estimated flow of approximately 5 gpm. Merrill springs 5 and 5A are near the middle of the offshoot canyon. There is some 1" pvc piping protruding from the ground here. The springs have an estimated combined flow of approximately 10 gpm. Merrill spring 6 is located near the mouth of the offshoot canyon. It feeds a small pond. The estimated flow is less than 1 gpm.

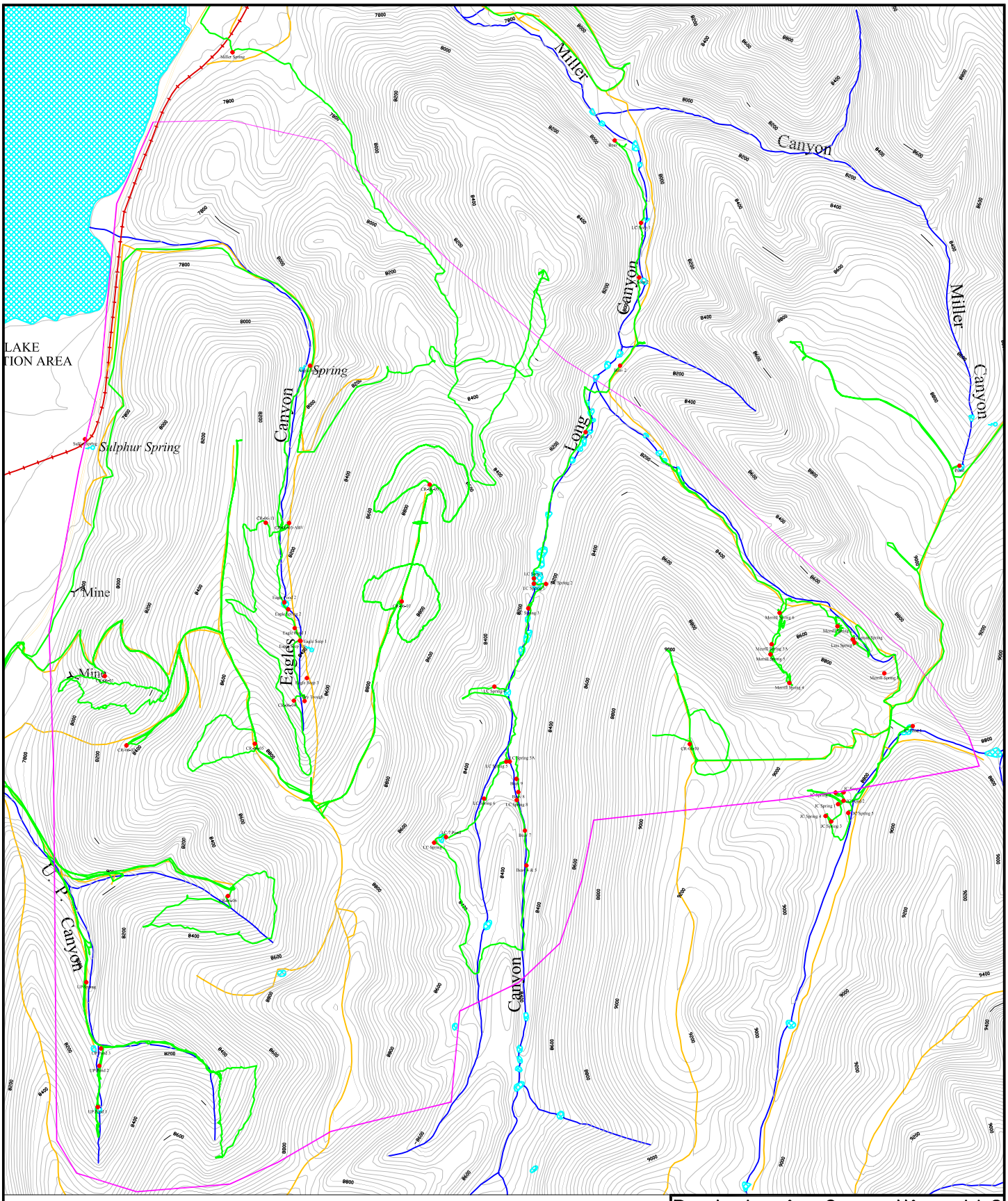
Jump Creek

Several springs were identified just south of the area of interest near Jump Creek. There is a spring fed stock pond in the area. There is also a second pond down the canyon that is fed by Jump Creek.

JC Spring 1 – is south of the pond and flows into Jump Creek. It has an estimated flow of approximately 10 gpm.

JC Spring 2 – is located northwest and feeds into the stock pond. It has an estimated flow of approximately 5 gpm.

JC Springs 3, 4, & 5 – are all located south of the stock pond and flow into Jump Creek. They each have estimated flows of less than 1 gpm.



KEY

Angle Spring — Spring, Seep, or Pond Location

Area of Interest Boundary

Survey Traverse Track

Refer to Map 7
(Regional Hydrology)

Scale 1 = 2,200

Drawing Loc: Spring and Seep Survey\GPS Data in KCS.dwg

Rock Logic Consulting LLC

Carbon Resources LLC
Spring and Seep Survey
June 2006

DWG	BWL & ER
CKD	
APD	

DATE: 6/28/06

Miller Spring

UP Spring

UP Pond 1

Angle Spring

Eagle Seep 1

Eagle Spring 2 and Pond

Eagle Seep 3

LC Spring 1

LC Spring 2

LC Spring 3

LC Spring 4

LC Spring 5A

LC Spring 5A

LC Spring 5

LC Spring 6

LC Spring 7

LC Spring 8

Merrill Spring 1

Luis Spring

Guzman Spring

Merrill Spring 4

Merrill Spring 5

JC Pond 1

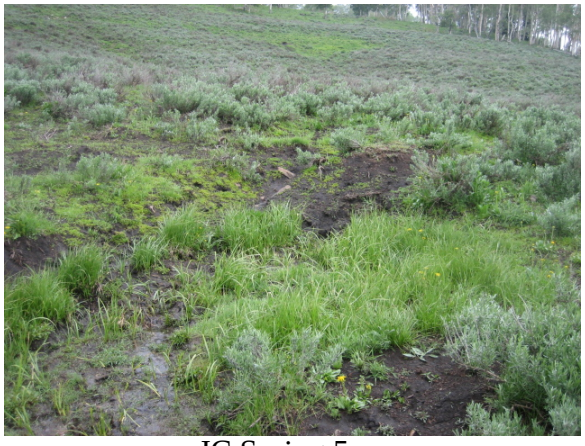
JC Spring 1

JC Spring 2

JC Pond 2

JC Spring 3

JC Spring 4



JC Spring 5

Exhibit 10

Surface and Ground Water Field Measurements

Carbon Resources LLC

Kinney II Baseline Water Sampling
Ground Water Field Measurements

Eagle Spring* (Miller Spring)

Elevation: **~7,700**

Revised Feb. 2011

Date	Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/11/2005	<10	7.35	6	98.9	18.0
9/6/2005	dried up				
10/31/2005	dried up				
11/28/2005	dried up				
12/22/2005	dried up				
1/22/2006	dried up				
2/26/2006	dried up				
3/27/2006	dried up				
4/26/2006	<10	7.2	4.7	41.8	21.0
5/25/2006		8.18	5.9	83.7	28.9
6/29/2006	dried up				
7/31/2006	dried up				
8/20/2006	dried up				
9/7/2006	dried up				
10/30/2006	dried up				
11/27/2006	dried up				
12/26/2006	dried up				
1/31/2007	dried up				
2/19/2007	dried up				
3/29/2007	dried up				
4/25/2007	dried up				
5/29/2007	dried up				
6/25/2007	dried up				
7/30/2007	dried up				
3/25/2008	snow				
6/16/2008	2	7.31	5	44.1	23.5
8/26/2008	dried up				
10/29/2008	dried up				
6/23/2010	dried up				
9/28/2010	dried up				
12/1/2010	snow				
2/24/2011	snow				

*****The sample collected at Eagle Spring in May 2005 was mislabeled "Eagle Springs" and analytic data are labeled accordingly. Data labeled Eagle Spring & Eagle Springs represent samples collected at the same location. This same spring was later mislabeled Miller Spring

Carbon Resources LLC

Kinney II Baseline Water Sampling
Ground Water Field Measurements

Angle Spring

Elevation: **~7,940**

Revised Feb. 2011

Date	Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
9/6/2005	0.25	7.4	3.7	358	22.0
10/31/2005	0.33	6.0	4.7	519	10.6
11/28/2005	0.35	6.5	4.7	428	22.2
12/22/2005	0.35	5.2	3.9	512	11.6
1/22/2006	0.31	4.4	8.4	469	8.9
2/26/2006		8.3	4.7	385	14.7
3/27/2006	0.35	**7.0**		**670**	~10.0
4/26/2006	0.75	7.3	5.1	361	18.0
5/25/2006	1.00	6.0	3.8	492	20.5
6/29/2006		7.5	6.3	522	20.9
7/31/2006	1.25	7.2	3.7	410	29.9
8/20/2006	1.03	7.3	3.5	156	22.3
9/7/2006	0.86	lab	4	387	18.5
10/30/2006	not measured				
11/27/2006	not measured				
12/26/2006	not measured				
	ACCESS DEINIED				

NOTE: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

Carbon Resources LLC

Kinney II Baseline Water Sampling
Ground Water Field Measurements

Aspen Spring

Elevation: **~8,360**

Revised April. 2011

Date	Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
11/12/2007	no flow*				
3/25/2008	snow				
6/16/2008	low flow**	8.69	2.2	190	29.8
8/26/2008	not meas	7.91	4	496	32.8
10/29/2008	low flow**	7.14	3.7	541	5.7
6/23/2010	not meas	*12*	*20.4*	295	24.6
9/28/2010	nearly dry	9.33		419	14.6
12/1/2010	snow				
2/24/2011	snow				

* no flow = upper bank of pond is dry
**low flow = upper bank of pond is soggy
Italicized Values are SUSPECT

Rock Logic Consulting LLC

Rock Logic Consulting
PO Box 544 • Cedaredge, CO 81413
Phone: (435) 851-9044 • rocklogicconsulting@gmail.com
Brad Lindsay • Consulting Geologist

Memorandum

Date: 20 April 2011
To: Greg Hunt – Carbon Resources
From: Brad Lindsay
Subject: Aspen Spring Flow Data

This memo is in response to your request for flow data at the sample location "Aspen Spring" in Eagles Canyon east of Scofield, Utah. It was previously designated "Eagle Pond 1" in the spring and seep survey conducted in June 2006. Below is a photo of the pond taken during the spring and seep survey, which was inadvertently omitted from the spring and seep survey report. It appears that someone made an embankment to catch flow from a spring to provide water for animals. The pond sits west of the road and east of the drainage bottom. If any water were to flow down the canyon it would pass to the west of the pond. It is positioned to catch runoff water from only a small area. The water is considered spring water because the pond does not dry up completely even in the summer.

Aspen Spring has been visited nine times, in addition to the Spring and Seep Survey, and water samples have been collected six times. The pond was snow covered the other three visits. Quantitative flow measurements have not been collected because it is unclear where water enters into the pond. No visible stream or spring flows into it and water has never been observed to top the berm and flow out. The upper bank, south east side of the pond, is sometimes wet. Uphill to the south the top of an old buried pipe is exposed. This may be carrying water to the bottom of the pond although I never observed either end of the pipe, just the short exposed section uphill from the pond.

This location was selected for sampling because the ponding results in enough water to sample. The other nearby seeps do not appear to produce enough water to collect an adequate sample. Pond 2 was not chosen as the sample location because it is larger, holding water that might not be as representative of spring water, and the recharge is not visible. Both ponds and the nearby seeps appear to be basically in line and all part of one system.

I reviewed my field notes from when I was at the site collecting water samples. Generally I did not make any notes regarding flow of the spring because the flow is not observable. There were four dates when I did make notes of conditions at the pond.

- November 12, 2007 I noted that there is no visible flow. The upper bank was dry.
- June 16, 2008 I noted low flow. The upper bank of the pond was soggy.
- October 29, 2008 I noted low flow. The upper bank of the pond was soggy.
- September 28, 2010 I noted that the pond was nearly dry.

View of Aspen Spring (AKA Eagle Pond 1) looking north northwest. June 6, 2006

HANSEN ALLEN & LUCE INC ENGINEERS

CLIENT Carbon Resources
PROJECT
FEATURE Aspen Spring
PROJECT NO 308.01.600

SHEET 1 OF 1
COMPUTED DEH
CHECKED
DATE 21 APR 2011

ESTIMATE OF ASPEN SPRING FLOW

Assumptions

1. No Surface Outflow from Spring
2. Spring is approx 20' in diameter
3. Evap can be estimated from Pan Evap data (Class A Pan)
4. Source of Water is subsurface, therefore, seepage is minimal
5. Peak flow occurs in June
6. Scofield pan data is applicabe - 1948-1991 June Evap = 7.84"
7. Wildlife also drink water based on Trail Evidence
   Assume the following users

User	#	Qty @	Total
Elk	5	0.0056	0.028
Deer	10	0.0014	0.014
Other	50	0.00084	0.040
			0.084 ac-ft

8. Water Level stays the same in June
9. Aspen Spring is 20' in diameter, approximated by a circle
10. Aspen Spring is not heavily used by large animals due to the lack of Muddy hoof print damage. (ie: livestock)

Calc July flow (31 days)

Animals $0.084 ac\text{-}ft = 3659 ft^3 / 12 = 305 ft^3$

Evaporation

$\frac{7.84"}{12} = 0.653 ft$

$Area = \frac{\pi}{4}(20)^2 = 314 ft^2$

$Vol = 314 * 0.653 = 205 ft^3 \ (85,794 gal)$

$V_{TOTAL} = 305 + 205 = 510 ft^3 \ (213,440 gal)$

$Total\ Flow = \frac{213,440 gal}{31 d * 24 \frac{hr}{d} * 60 \frac{min}{hr}} = 4.78 gpm$

$Evap\ Flow = \frac{85,794}{31(24)60} = 1.9 gpm$

Flow Range - 2-5 gpm

However, flows are most likely in the ±2 gpm range since without constant Animal demand would result in daily fluctuations.

UTAH

MONTHLY AVERAGE PAN EVAPORATION (INCHES)

	PERIOD OF RECORD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ARCHES NATL PARK HQ	1980-2005	0.00	0.00	0.00	7.44	9.81	12.33	12.94	11.15	8.16	4.73	0.00	0.00	66.56
BEAR RIVER BAY	1969-1996	0.00	0.00	0.00	6.27	10.17	12.59	13.86	12.29	7.83	4.89	0.00	0.00	67.90
BEAR RIVER REFUGE	1948-1984	0.00	0.00	0.00	4.80	7.21	8.66	10.46	9.30	6.13	3.27	1.27	0.00	51.10
BRYCE CANYON NAT'L PRK	1971-1978	0.00	0.00	0.00	0.00	6.86	7.86	8.07	7.21	5.30	0.00	0.00	0.00	35.30
FARMINGTON USU FLD STN	1948-2005	0.00	0.00	0.00	0.00	7.33	6.35	9.25	8.62	4.63	2.97	0.00	0.00	39.15
FERRON	1948-2005	0.00	0.00	0.00	5.20	5.66	8.06	6.58	6.39	5.49	3.53	0.00	0.00	40.91
FISH SPRINGS REFUGE	1960-2005	0.00	0.00	0.00	7.02	10.70	12.90	15.92	13.58	9.92	5.84	0.00	0.00	75.88
FLAMING GORGE	1957-2005	0.00	0.00	0.00	0.00	6.23	8.74	9.71	8.62	5.76	3.94	0.00	0.00	43.00
FORT DUCHESNE	1894-2005	0.00	0.00	0.00	5.16	7.41	8.61	9.06	7.98	5.57	3.25	0.00	0.00	47.04
GREEN RIVER AVIATION	1893-2005	0.00	0.00	0.00	6.07	8.07	9.29	9.49	7.97	5.74	3.52	1.60	0.00	51.75
GUNNISON	1956-1990	0.00	0.00	0.00	5.10	7.23	8.70	9.65	8.26	6.03	3.81	0.00	0.00	48.78
HITE	1949-1962	0.00	0.00	0.00	7.84	11.74	14.14	14.01	12.44	8.34	4.86	1.94	0.00	75.31
LOGAN USU EXP STN	1950-1978	0.00	0.00	0.00	4.01	5.98	7.05	8.37	7.50	5.02	2.92	0.00	0.00	40.85
LOGAN 5 SW EXP FARM	1969-2005	0.00	0.00	3.30	4.57	6.57	8.48	10.05	8.93	5.88	3.51	0.00	0.00	51.29
MANILA	1952-2005	0.00	0.00	0.00	0.00	7.31	8.66	9.83	8.37	6.50	4.63	0.00	0.00	45.30
MEXICAN HAT	1948-2005	0.00	0.00	6.31	8.45	11.99	14.42	14.87	12.48	9.37	5.52	2.25	0.00	85.66
MILFORD	1906-2005	0.00	0.00	0.00	7.47	10.22	13.54	15.47	13.24	9.88	6.16	2.32	0.00	78.30
MOAB	1889-2005	0.00	0.00	4.19	7.29	10.41	12.03	12.72	10.75	7.66	4.25	2.26	0.00	71.56
MORGAN	1948-2005	0.00	0.00	0.00	4.94	6.96	7.30	9.07	8.01	6.15	3.74	0.00	0.00	46.17
PIUTE DAM	1948-1971	0.00	0.00	0.00	0.00	7.91	9.98	10.13	8.40	6.98	4.60	0.00	0.00	48.00
PROVO AIRPORT	1948-1953	0.00	0.00	2.91	6.03	6.83	8.62	8.88	8.36	6.09	3.41	0.00	0.00	51.13
PROVO BYU	1980-2005	0.00	0.00	2.59	4.71	6.81	8.77	9.85	8.70	5.59	2.92	0.00	0.00	49.94
PROVO RADIO KAYK	1952-1977	0.00	0.00	0.00	4.38	5.94	7.53	8.32	7.58	5.40	3.21	1.53	0.00	43.89
ST GEORGE	1862-2005	0.00	0.00	4.57	7.36	10.08	12.22	13.17	11.55	8.22	4.83	2.68	0.00	74.68
SALTAIR SALT PLANT	1956-1991	0.00	0.00	3.66	6.20	9.19	11.88	14.40	12.67	8.58	4.86	2.32	0.00	73.76
* SCOFIELD DAM	1948-1991	0.00	0.00	0.00	0.00	5.52	7.84	8.29	6.94	5.13	3.90	0.00	0.00	37.62
SEVIER DRY LAKE	1987-1993	0.00	0.00	2.93	6.33	13.52	16.06	18.32	0.00	0.00	0.00	0.00	0.00	57.16
STRAWBERRY RESERVOIR EA	1956-1977	0.00	0.00	0.00	0.00	5.82	7.28	7.87	7.31	5.08	3.02	0.00	0.00	36.38
UTAH LAKE LEHI	1928-2003	0.00	0.00	2.77	5.19	7.11	8.80	9.61	8.58	6.10	3.81	1.42	0.00	53.39
VERNAL ARPT	1928-2005	0.00	0.00	0.00	5.07	6.41	7.48	6.64	6.34	4.89	2.92	0.00	0.00	39.75
WANSHIP DAM	1955-2005	0.00	0.00	0.00	0.00	6.09	6.79	7.41	6.59	4.79	3.19	0.00	0.00	34.86

Class A Pan Coeff = 0.70 - 0.75 (INTRO TO HYDROLOGY)

Annual Evap for Scofield Dam = 37.62" = 3.135'

$A = \frac{\pi}{4}(4')^2 = 12.56\ ft^2$

3.135' * 0.70 (Lower due to Wooded Loc) = 2.1945'

NOTE: data from www.wrcc.dri.edu/htmlfiles/westevap.final.html#UTAH

STOCKWATERING: The diversion figures for this purpose are based on year-round watering. Stock operations for lesser or intermittent periods would need adjustment accordingly. Water diverted for this use is generally considered to be 100% depleted by the animal, evaporation, phreatophytes, and/or waste water collection.

cow or horse		0.028	acre-foot
sheep, goat, swine, moose, or elk	*	0.0056	acre-foot
ostrich or emu		0.0036	acre-foot
llama		0.0022	acre-foot
deer, antelope, bighorn sheep, or mt. goat	*	0.0014	acre-foot
chicken, turkey, chukar, sagehen, or pheasant	*	0.00084	acre-foot
mink or fox (caged)		0.00005	acre-foot

NOTE: Copied from Utah Division of Water Rights Web Site

Carbon Resources LLC

Kinney II Baseline Water Sampling
Ground Water Field Measurements

Sulfur Spring *

Elevation: **~7,670**

Revised Feb. 2011

Date	Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/11/2005	73	6.8	0.7	603	13.6
9/6/2005	32	7.2	2.4	559	15.9
10/31/2005	90	5.7	2.6	541	13.2
11/28/2005	76	5.9	3.9	561	11.9
12/22/2005	69	5.6	3.5	490	17.4
1/22/2006	69	7.6	1.3	410	14.7
2/26/2006	69	8.1	4.3	383	23.9
3/27/2006	90	**7.4**		**710**	~14.0
4/26/2006	64	7.0	1.2	413	23.4
5/25/2006	79	7.5	2.4	503	28.2
6/29/2006	69	7.5	2.9	550	25.1
7/31/2006	74	7.3	2.0	446	24.1
8/20/2006	72	7.3	2.3	169	24.1
9/7/2006	86	lab	2.2	473	22.0
10/30/2006	80	7.3	4.0	384	22.2
11/27/2006	90	7.0	1.8	389	20.0
12/26/2006	90	7.0	3.0	538	20.0
1/31/2007	90	7.0	5.1	682	17.4
2/19/2007	88	7.0	4.1	473	21.5
3/29/2007	72	7.4	4.4	544	21.7
4/25/2007	90	7.3	7.0	557	23.4
5/29/2007	91	7.4	5.5	523	22.8
6/25/2006	86	7.3	2.4	615	27.5
7/30/2007	136	7.3	4.0	507	22.7
3/25/2008	93	6.8	2.2	973	21.9
6/16/2008	93	7.7	1.9	341	31.4
8/26/2008	127	7.1	2.5	646	27.5
10/29/2008	88	7.3	4.4	595	17.1
6/23/2010	82	*12.0*	*14.6*	423	17.4
9/28/2010	75	7.4		715	14.8
12/1/2010	93	6.3		714	13.8
2/24/2011	83	6.3		710	13.7

NOTE: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

*****Samples collected at Sulfur Spring have occasionally been mislabeled "Sulfur Springs", "Sulfer Spring", & "Sulfer Springs". From May 2005 to Nov 2006 sample names varied. From Dec 06 to present, samples have been labeled Sulfur Spring. Analytic data are Labeled accordingly. Data labeled Sulfur Spring, Sulfur Springs, Sulfer Spring, & Sulfer Springs represent samples collected at the same location.

Italicized Values are SUSPECT

Carbon Resources LLC

Kinney II Baseline Water Sampling
Surface Water Field Measurements

Mud Creek *

Elevation: **~7,685**

Revised Feb. 2011

Date	~CFS	Estimated ** Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/11/2005	50	22,442	8.31	7.4	694	10.0
9/6/2005	11	4,937	8.51	5.4	655	17.7
10/31/2005	14	6,284	6.68	6.4	759	10.7
11/29/2005	13	5,835	6.94	7.2	758	5.6
12/22/2005	12	5,386	6.67	6.2	520	13.6
1/22/2006	13	5,835	8.63	4.1	568	7.6
2/26/2006	12	5,386	9.00	3.6	501	19.3
3/27/2006	12	5,386	**8.18**		**1000**	~2.0
4/26/2006	37	16,607	8.30	5	394	18.5
5/25/2006	131	58,797	8.45	4.4	324	26.5
6/29/2006	26	11,670		6.2	581	28.5
7/31/2006	15	6,732	8.40	4.8	471	26.9
8/20/2006	14	6,284	8.38	5.1	188	27.7
9/7/2006	15	6,732	lab	6.1	564	14.3
10/30/2006	16	7,181	7.94	6.9	424	17.3
11/27/2006	16	7,181	7.76	6	463	12.0
12/26/2006	15	6,732	8.08	7.3	571	13.1
1/31/2007	16	7,181	7.40	5.5	834	12.4
2/19/2007	15	6,732	8.30	6.8	476	12.4
3/29/2007	19	8,528	8.33	7.9	555	13.4
4/25/2007	19	8,528	8.29	7.8	546	25.0
5/29/2007	26	11,670	8.51	7.9	481	20.7
6/25/2006	16	7,181	8.65	5.7	742	27.7
7/30/2007	14	6,284	8.58	5.3	532	25.5
3/25/2008	9	4,129	7.80	5.0	633	17.5
6/16/2008	85	38,151	8.93	4.7	355	23.8
8/26/2008	15	6,732	8.31	3.9	651	28.6
10/29/2008	14	6,284	8.93	11.4	667	15.9
6/23/2010	17	7,630	*9.29*	*3.4*	289	24.6
9/28/2010	11	4,937	8.90		732	11.4
12/1/2010	12	5,386	7.62		741	6.8
2/24/2011			7.84		744	4.8

NOTE: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

***The sample collected at Mud Creek in May 2005 was mislabeled "Muddy Creek" and analytic data are labeled accordingly. Data labeled Mud Creek & Muddy Creek represent samples collected at the same location.

**
Flow Data From USGS 09310700 MUD CRK BL WINTER QUARTERS CYN @ SCOFIELD, UT From Web Site
http://waterdata.usgs.gov/nwis/dv/?site_no=09310700&agency_cd=USGS&referred_module=sw

Italicized Values are SUSPECT

Carbon Resources LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

Miller Outlet *

Elevation: **~7,632**

Revised Feb. 2011

Date	Estimated Flow (gpm)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/11/2005	59	8.1	6.9	474	10.4
9/6/2005	18	8.0	4.6	433	13.1
10/31/2005	134	6.9	7.2	440	4.8
11/28/2005	frozen	5.7	8.0	556	1.7
12/22/2005	frozen	6.1	6.8	435	4.2
1/22/2006	frozen	6.0	7.1	440	1.2
2/26/2006	frozen		4.6	320	14.0
3/27/2006	frozen	**8.1**		**550**	~1.0
4/26/2006	545	8.0	3.6	369	19.2
5/25/2006	266	8.5	4.0	408	30.2
6/29/2006	171	8.6	4.2	415	28.6
7/31/2006	103	8.4	4.4	326	27.6
8/20/2006	89	8.6	4.6	110	27.7
9/7/2006	122	lab	7.4	375	13.0
10/30/2006	182	8.3	8.5	285	13.0
11/27/2006	frozen	8.0	5.1	327	10.0
12/26/2006	frozen	8.1	7.2	428	8.4
1/31/2007	frozen	8.0	5.3	387	8.6
2/19/2007	frozen	8.1	7.0	354	8.0
3/29/2007	212	8.7	9.9	440	13.3
4/25/2007	156	8.5	6.7	436	23.4
5/29/2007	142	8.4	7.9	417	22.9
6/25/2006	35	8.1	4.7	508	31.0
7/30/2007	36	8.5	4.9	362	27.7
3/25/2008	23	7.8	5.0	633	17.5
6/16/2008	289	8.7		377	30.4
8/26/2008	66	8.3	3.9	456	29.6
10/29/2008	85	8.4	9.6	434	12.3
6/23/2010	43	*12.0*	*22.9*	283	16.5
9/28/2010	25	8.7		480	12.5
12/1/2010	frozen	7.5		617	0.1
2/24/2011	frozen	No Measurement			

NOTE: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

*****Miller Outlet was initially misnamed "Eagle Outlet" and was once misnamed "Eagle Outlook". Samples collected from may 2005 to may 2006 were mislabeled "Eagle Outlet" or "Eagle Outlook" and analytic data are labeled accordingly. From June 2006 to present the data are labeled as Miller Outlet. Data labeled Miller Outlet, Eagle Outlet, & Eagle Outlook represent samples collected at the same location.

Italicized Values are SUSPECT

Carbon Resources LLC

Kinney II Baseline Water Sampling
Surface Water Field Measurements

Res-1 (Scofield Reservoir) *

Elevation: **~7,620**

Revised Feb. 2011

Date	Water Level (feet)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
5/30/2006	13.5	8.09	5.6	424	20.6
6/29/2006		9.03	10	287	31.9
7/31/2006	9.4	10.16	9.1	257	29.8
8/20/2006	7.7	9.82	9	108	35.7
9/7/2006	6.0	lab	5.2	365	15.5
10/30/2006	4.5	8.13	6.7	351	18.2
11/27/2006	4.8	frozen			
12/26/2006		frozen			
1/31/2007		frozen			
2/19/2007		frozen			
3/29/2007	7.8	8.43	9.7	408	14.9
4/25/2007	7.8	8.39	7.8	390	23.4
5/29/2007	8.1	8.48	8	350	24.9
6/25/2006	5.6	10.52	7.3	360	36.1
7/30/2007	0.1	8.02	5.9	616	28.0
3/25/2008		7.14	5.3	775	12.7
6/16/2008	9.1	8.69	4.6	341	31.4
8/26/2008	2.9	8.54	7.5	743	32.1
10/29/2008	96.8	7.98	7.6	605	17.0
6/23/2010	8.2	*12*	*38.2*	261	18.7
9/28/2010	97.7	9.22		867	23.1
12/1/2010		frozen			
2/24/2011		frozen			

*****The samples collected at Res-1 in June, July, & Aug 2006 were mislabeled "Scofield Res. 1" and analytic data are labeled accordingly. Data labeled Res-1 & Scofield Res. 1 represent samples collected at the same location.

Italicized Values are SUSPECT

Carbon Resources LLC

Kinney II Baseline Water Sampling
Surface Water Field Measurements

Eagles Canyon
Monay Draw
Blue Seal Draw
Kinney Draw
Columbine Draw
Jones Draw
UP Canyon

Refer to Map 7 for location of Drainages

Revised Feb. 2011

Ben Grimes visited Scofield on each of the days listed and observed an absence of rain and an absence of running water in the seven ephemeral drainages within and adjacent to the Kinney # 2 Permit Boundary.

Date	Water Level (feet)
5/26/2006	DRY
10/16/2006	DRY
10/27/2006	DRY
5/8/2007	DRY
9/20/2007	DRY
9/21/2007	DRY
10/27/2007	DRY
9/22/2009	DRY
9/23/2009	DRY
9/29/2009	DRY
9/30/2009	DRY
10/1/2009	DRY
4/26/2010	DRY
4/27/2010	DRY
7/3/2010	DRY
8/19/2010	DRY
9/7/2010	DRY
9/14/2010	DRY
9/16/2010	DRY
9/30/2010	DRY
10/20/2010	DRY

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-06-01

WL DEPTH DATUM :	Top of PVC completion string		
DEPTH DATUM ELEVATION:		7951.2	
Ground Level Elevation:	7,950.3	(Depths in blue are from Ground Level)	
WL's are measured from WL Datum, well completions from Ground Elevation.			
Screened Interval Depth:		81.9	88.9
Screened Interval Elevation:		7868.4	7861.4
Blank Interval Depth:		88.9	98.9
Blank Interval Elevation:		7861.4	7851.4
Hiawatha Seam Interval Depth:		76.9	85
Hiawatha Seam Interval Elevation:		7873.4	7865.3

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
	No water encountered during drilling.					
3/8/2006	Dry					
4/26/2006	Dry					
5/25/2006	Dry					
6/29/2006	Dry					
7/25/2006	Dry					
8/20/2006	Dry					
9/7/2006	Dry					
10/30/2006	Dry					
11/27/2006	Dry					
12/26/2006	97.4	7,853.8				
1/31/2007	97.5	7,853.7				
2/19/2007	97.4	7,853.8				
3/29/2007	Dry					
4/25/2007	97.6	7,853.6				
5/29/2007	97.4	7,853.8				
6/25/2007	not measured					
7/30/2007	not measured					
6/16/2008	Dry					
8/26/2008	Dry					
10/29/2008	Dry					
6/23/2010	Dry					
9/28/2010	Dry					
12/1/2010	Dry					

Note all water levels are Below the Screened Interval therefore are in the closed "blank" and do not represent a static ground water level.

Reviesed 11 Feb 2011

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-06-01-BLW

DEPTH DATUM :	Top of Fiberglass completion string			
DEPTH DATUM ELEVATION:		7951.1		
Ground Level Elevation:	7,950.3	(Depths in blue are from Ground Level)		
*Screened Interval Depth:		243.2	253.2	
Screened Interval Elevation:		7707.1	7697.1	
Blank Interval Elevatioin:		7697.1	7687.1	
Hiawatha Seam Interval Depth:		76.9	85	
Hiawatha Seam Interval Elevation:		7873.4	7865.3	

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
	Water was observed in open hole with a downhole video at 210 feet and 215 feet immediatley after drilling.					
	*Screened Intervan & other completion details, plus water level inside of blank confirmed by down-hole video.					
3/8/2006	Dry					
4/26/2006	241.2	7,709.9				
4/26/2006	263.3	7,687.8	Tagged bottom of Blank			
5/25/2006	Dry					
6/29/2006	242.0	7,709.1				
7/19/2006	Dry					
8/20/2006	242.1	7,709.0				
9/7/2006	242.0	7,709.1				
10/30/2006	242.2	7,708.9				
11/27/2006	237.3	7,713.8				
12/26/2006	242.1	7,709.0				
1/31/2007	242.3	7,708.8				
2/19/2007	242.2	7,708.9				
3/29/2007	Dry					
4/25/2007	242.4	7,708.7				
5/29/2007	242.3	7,708.8				
6/25/2007	not measured					
7/30/2007	not measured					
6/16/2008	Dry					
8/26/2008	Dry					
10/29/2008	*249.0*	*7,702.1*	*V Suspect*	Depth	Elev.	
6/23/2010	254.0	7,697.1	Tagged Bottom @	264.0	7687.1	
9/28/2010	254.0	7,697.1	Tagged Bottom @	264.0	7687.1	
12/1/2010	Dry		Tagged Bottom @	264.0	7687.1	

Note: all water levels are "False Positives" where depth indicator encountered moisture near top of reducer as confirmed by downhole video; therefore, water level measurements shown here do not represent static ground water levels.

Reviesed 11 Feb 2011

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-06-02

DEPTH DATUM :	Top of PVC completion string		
DEPTH DATUM ELEVATION:		8,339.55	
Ground Level Elevation:	8,336.7	(Depths in blue are from Ground Level)	
Screened Interval Depth:		422.7	432.7
Screened Interval Elevation:		7,914.0	7,904.0
Blank Interval Depth:		432.72	442.72
Blank Interval Elevatioin:		7,904.0	7,894.0
Hiawatha Seam Interval Depth:		428	437
Hiawatha Seam Interval Elevation:		7908.67	7899.67

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
	No water encountered during drilling.					
3/8/2006	437.0	7,902.6				
4/26/2006	437.1	7,902.5				
*5/25/2006	*441.4*	7,898.2				
6/29/2006	438.3	7,901.3				
7/19/2006	438.1	7,901.5				
8/20/2006	438.4	7,901.2				
9/7/2006	439.0	7,900.6				
10/30/2006	437.6	7,902.0				
11/27/2006	439.3	7,900.3				
12/26/2006	439.3	7,900.3				
1/31/2007	439.7	7,899.9				
2/19/2007	439.9	7,899.7				
3/29/2007	439.3	7,900.3				
4/25/2007	439.9	7,899.7				
5/29/2007	440.1	7,899.5				
6/25/2007	not measured					
7/30/2007	not measured					
11/12/2007	442.3	7,897.3				
3/25/2008	snow covered					
6/16/2008	442.2	7,897.4				
8/26/2008	442.7	7,896.9				
10/29/2008	442.7	7,896.9				
6/23/2010	442.7	7,896.9				
9/28/2010	442.7	7,896.9				
12/1/2010	441.7	7,897.9				
3/3/2011	443.2	7,896.4				

Note all water levels are Below the Screened Interval therefore are in the closed "blank" and do not represent a static ground water level as confirmed by downhole video and multiple TD (Total Depth) soundings.

Reviesed 4 March 2011 Following Dowhole Video and TD Sounding.

Tagged bottom of Blank @ 445.6
Elev= 7,894

* Measurement on 5-25-06 is suspect

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-06-02-ABV

DEPTH DATUM :	Top of PVC completion string			
DEPTH DATUM ELEVATION:		8338.7		
Ground Level Elevation:	8,336.7	(Depths in blue are from Ground Level)		
Screened Interval Depth:		288.0	298.0	
Screened Interval Elevation:		8048.67	8038.67	
Blank Interval Depth:		298.0	308.0	
Blank Interval Elevatioin:		8,038.7	8,028.7	
Hiawatha Seam Interval Depth:		428.0	437.0	
Hiawatha Seam Interval Elevation:		7908.67	7899.67	

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
	No water encountered during drilling.					
3/8/2006	302.8	8,035.9				
4/26/2006	309.0	8,029.7				
5/25/2006	Dry					
6/29/2006	307.2	8,031.5				
7/19/2006	303.6	8,035.1				
8/20/2006	301.7	8,037.0				
9/7/2006	301.6	8,037.1				
10/30/2006	301.7	8,037.0				
11/27/2006	301.6	8,037.1				
12/26/2006	301.6	8,037.1				
1/31/2007	301.2	8,037.5				
2/19/2007	301.8	8,036.9				
3/29/2007	301.7	8,037.0				
4/25/2007	301.8	8,036.9				
5/29/2007	301.7	8,037.0				
6/25/2007	not measured					
7/30/2007	not measured					
6/16/2008	301.6	8,038.0				
8/26/2008	301.8	8,037.8				
10/29/2008	301.8	8,037.8				
6/23/2010	301.9	8,037.7				
9/28/2010	301.9	8,037.7				
12/1/2010	301.5	8,038.1				

Note all water levels are Below the Screened Interval therefore are in the closed "blank" and do not represent a static ground water level.

Reviesed March 2011

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-06-03-ABV

DEPTH DATUM :	Top of Fiberglass completion string					
DEPTH DATUM ELEVATION:				8,135.97		
Ground Level Elevation:	8,132.9	(Depths in blue are from Ground Level)				
Screened Interval Depth:				480	490	
Screened Interval Elevation:				7652.86	7642.86	
Hiawatha Seam Interval Depth:				647	654	
Hiawatha Seam Interval Elevation:				7485.86	7478.86	

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
	Water encountered during drilling at ~ 380 feet. Higher flow of water during drilling at ~450 feet.					
3/6/2006	Purged approximately 600 gal of water.					
3/7/2006	Purged an additional 300 gal of water & Sampled					
4/26/2006	337.1	7,798.9	6.92	5.7	425	26.6
5/25/2006	337.8	7,798.2	7.28	1.3	599	28.3
6/29/2006	338.2	7,797.8	7.23	2.2	689	21.8
7/31/2006	337.5	7,798.5	6.87	1.1	549	23.9
8/20/2006	337.7	7,798.3	6.99	1.1	245	25.0
9/7/2006	337.8	7,798.2	>12	1.7	522	20.7
10/30/2006	not measured					
11/27/2006	not measured					
12/26/2006	not measured					
1/31/2007	not measured					
2/19/2007	not measured			Reviesed 11 Feb 2011		
3/29/2007	not measured					
4/25/2007	not measured					
5/29/2007	not measured					
6/25/2007	not measured					
7/30/2007	not measured					

Discontinued Measuring

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-06-05A

DEPTH DATUM :	Top of PVC completion string						
DEPTH DATUM ELEVATION:				8798.9			
Ground Level Elevation:	8,795.7	(Depths in blue are from Ground Level)					
Screened Interval Depth:				1036	1051		
Screened Interval Elevation:				7759.7	7744.7		
Hiawatha Seam Interval Depth:				1037	1043		
Hiawatha Seam Interval Elevation:				7758.7	7752.7		

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
9/7/2006	1051.7	7,747.2				
10/30/2006	1057.6	7,741.3				
11/27/2006	not measured					
12/26/2006	1058.0	7,740.9				
1/31/2007	1057.8	7,741.1				
2/19/2007	1057.9	7,741.0				
3/29/2007	1057.5	7,741.4				
4/25/2007	1058.1	7,740.8				
5/29/2007	1057.8	7,741.1				
6/25/2007	not measured					
7/30/2007	not measured					
6/16/2008	1057.7	7,741.2				
8/26/2008	1058.2	7,740.7				
10/29/2008	1058.4	7,740.5				
6/23/2010	1058.5	7,740.4				
9/28/2010	1057.9	7,741.0				
12/1/2010	1055.9	7,743.0				

Note all water levels except the intial measurement are below the Screened Interval therefore are in the closed "blank" and do not represent a static ground water level. The initial measurement was apparently taken before all drilling fluid had dissipated.

Reviesed 11 Feb 2011

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-06-09-ABV

DEPTH DATUM :	Top PVC of completion string						
DEPTH DATUM ELEVATION:				8843.3			
Ground Level Elevation:	8,840.8	(Depths in blue are from Ground Level)					
Screened Interval Depth:				888	898		
Screened Interval Elevation:				7952.8	7942.8		
Hiawatha Seam Interval Depth:				992.2	>1002		
Hiawatha Seam Interval Elevation:				7848.6	<7840.4		

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)	
9/7/2006	Not developed - WL 3 days after installation = 861.3						
10/30/2006	863.1	7,980.2					
11/27/2006	not measured						
12/26/2006	863.9	7,979.4					
1/31/2007	864.5	7,978.8					
2/19/2007	864.1	7,979.2					
3/29/2007	864.7	7,978.6					
4/25/2007	866.1	7,977.2					
5/29/2007	866.1	7,977.2					
6/25/2007	not measured						
7/30/2007	not measured						
6/16/2008	867.3	7,976.0					
8/26/2008	867.9	7,975.4					
10/29/2008	867.8	7,975.5		Reviesed 11 Feb 2011			
6/23/2010	867.9	7,975.0					
9/28/2010	868.5	7,974.4					
12/1/2010	868.3	7,974.6					

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-06-09

DEPTH DATUM :	Top of PVC completion string						
DEPTH DATUM ELEVATION:				8,843.30			
Ground Level Elevation:	8,840.8	(Depths in blue are from Ground Level)					
Screened Interval Depth:				989.5	1001.5		
Screened Interval Elevation:				7851.3	7839.3		
Hiawatha Seam Interval Depth:				992.2	>1002		
Hiawatha Seam Interval Elevation:				7848.6	<7840.4		

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)	
	Water encountered during drilling at ~ 380 feet.						
	Higher flow of water during drilling at ~450 feet.						
9/7/2006	982.0	7,861.3					
10/30/2006	984.1	7,859.2					
11/27/2006	not measured						
12/26/2006	982.4	7,860.9					
1/31/2007	983.1	7,860.2					
2/19/2007	983.3	7,860.0					
3/29/2007	982.8	7,860.5					
4/25/2007	982.9	7,860.4					
5/29/2007	982.6	7,860.7					
6/25/2007	not measured						
7/30/2007	not measured						
6/16/2008	982.1	7,861.2					
8/26/2008	982.8	7,860.5					
10/29/2008	983.2	7,860.1		Reviesed 11 Feb 2011			
6/23/2010	983.1	7,859.8					
9/28/2010	983.1	7,859.8					
12/1/2010	not measured						

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-06-09-BLW

DEPTH DATUM :	Top of PVC completion string			
DEPTH DATUM ELEVATION:		8842.9		
Ground Level Elevation:	8,840.4	(Depths in blue are from Ground Level)		
Screened Interval Depth:		1020	1040	
Screened Interval Elevation:		7820.4	7800.4	
Hiawatha Seam Interval Depth:		990	1001.5	
Hiawatha Seam Interval Elevation:		7850.4	7838.9	

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
	Water appeared during drilling at ~760 feet. After drilling deeper, apparent wl was ~800 feet. During geophysical logging wl was 935 feet.					
8/18/2006	989.5	7,853.4				
9/7/2006	990.5	7,852.4				
10/30/2006	990.8	7,852.1				
11/27/2006	not measured					
12/26/2006	991.0	7,851.9				
1/31/2007	991.0	7,851.9				
2/19/2007	990.3	7,852.6				
3/29/2007	991.2	7,851.7				
4/25/2007	990.8	7,852.1				
5/29/2007	991.0	7,851.9				
6/25/2007	not measured					
7/30/2007	not measured					
6/16/2008	991.4	7,851.5				
8/26/2008	991.8	7,851.1		Reviesed 11 Feb 2011		
10/29/2008	992.2	7,850.7				
6/23/2010	992.3	7,850.6				
9/28/2010	992.3	7,850.6				
12/1/2010	991.8	7,851.1				

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-10-11

DEPTH DATUM :	Top 10" Steel Casing		
DEPTH DATUM ELEVATION:		7656.67	
Ground Level Elevation:	7,655.4	(Depths in blue are from Ground Level)	
Screened Interval Depth:		60.1	70.1
Screened Interval Elevation:		7595.3	7585.3
Hiawatha Seam Interval Depth:		N/A	N/A
Hiawatha Seam Interval Elevation:		N/A	N/A

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
7/13/2010	Hole is ARTESIAN. Cuttings DRY down to 20 ft.					
7/14/2010	Developed for ~ 12 hours					
7/15/2010	10.4	7,646.3	7.6		250*	11.0
8/31/2010	9.5	7,647.2	7.02		300*	10.0
9/28/2010	9.5	7,647.2	7.57		539	9.3
10/30/2010	8.7	7,648.0	7.36		762	8.5
11/30/2010	8.5	7,648.2	6.32		540	7.3
12/29/2010	7.7	7,649.0	6.34		546	7.5
1/22/2011	7.8	7,648.9	6.56		553	7.5
2/24/2011	8.2	7,648.5	6.55		539	8.1
				Reviesed 26 Feb 2011		

* Hardness from Colorimetric Strips

Carbon Resources LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

CR-10-12

DEPTH DATUM :	Top of 10" Steel Casing		
DEPTH DATUM ELEVATION:	7703.83		
Ground Level Elevation:	7,702.3	(Depths in blue are from Ground Level)	
Screened Interval Depth:	82.6	92.6	
Screened Interval Elevation:	7619.7	7609.7	
Hiawatha Seam Interval Depth:	N/A	N/A	
Hiawatha Seam Interval Elevation:	N/A	N/A	

Date	Water Level Depth from DATUM (ft)	Water Level Elevation (ft)	pH	Dissolved Oxygen (ppm)	Specific Conductivity (Us)	Temp (C)
7/10/2010	Hole is Artesian. First water detected during drilling ~90 ft.					
7/12/2010	Developed @~15gpm for ~ 20 hours					
7/14/2010	54.6	7,649.2	7.8		250*	11.0
8/31/2010	53.1	7,650.7	7.4		300*	10.0
9/28/2010	53.0	7,650.8	7.62		588	8.9
10/30/2010	53.2	7,650.6	7.6		730	8.0
11/30/2010	52.5	7,651.3	6.56		518	7.3
12/29/2010	51.9	7,652.0	6.5		526	7.6
1/22/2011	51.9	7,652.0	6.71		534	7.8
1/24/2011	52.1	7,651.7	6.75		526	8.1
				Reviesed 26 Feb 2011		

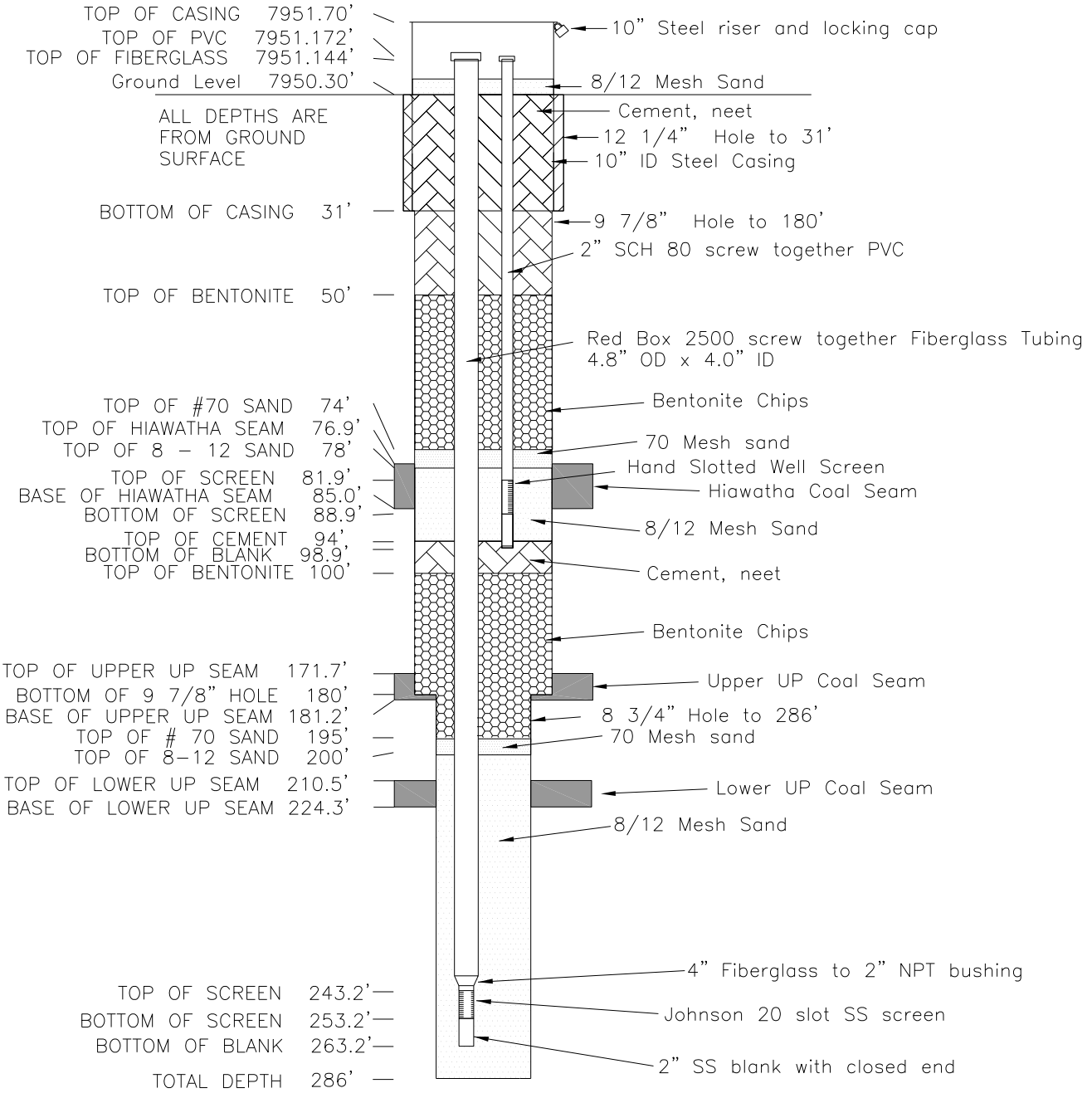
* Hardness from Colorimetric Strips

Exhibit 11

Monitoring Well Completion Details

Monitor Well Completion Diagram
CR-06-01 AND CR-06-01-BLW

NOT TO SCALE



8000 ft Elevation Datum
E. 1739299.757
N. 7073837.862
Gounnd Surface, ELEV. 7950'

REVISED: FEB, 2011

Carbon Resources LLC
Monitor Well Completion Diagram
CR-06-01 AND CR-06-01-BLW

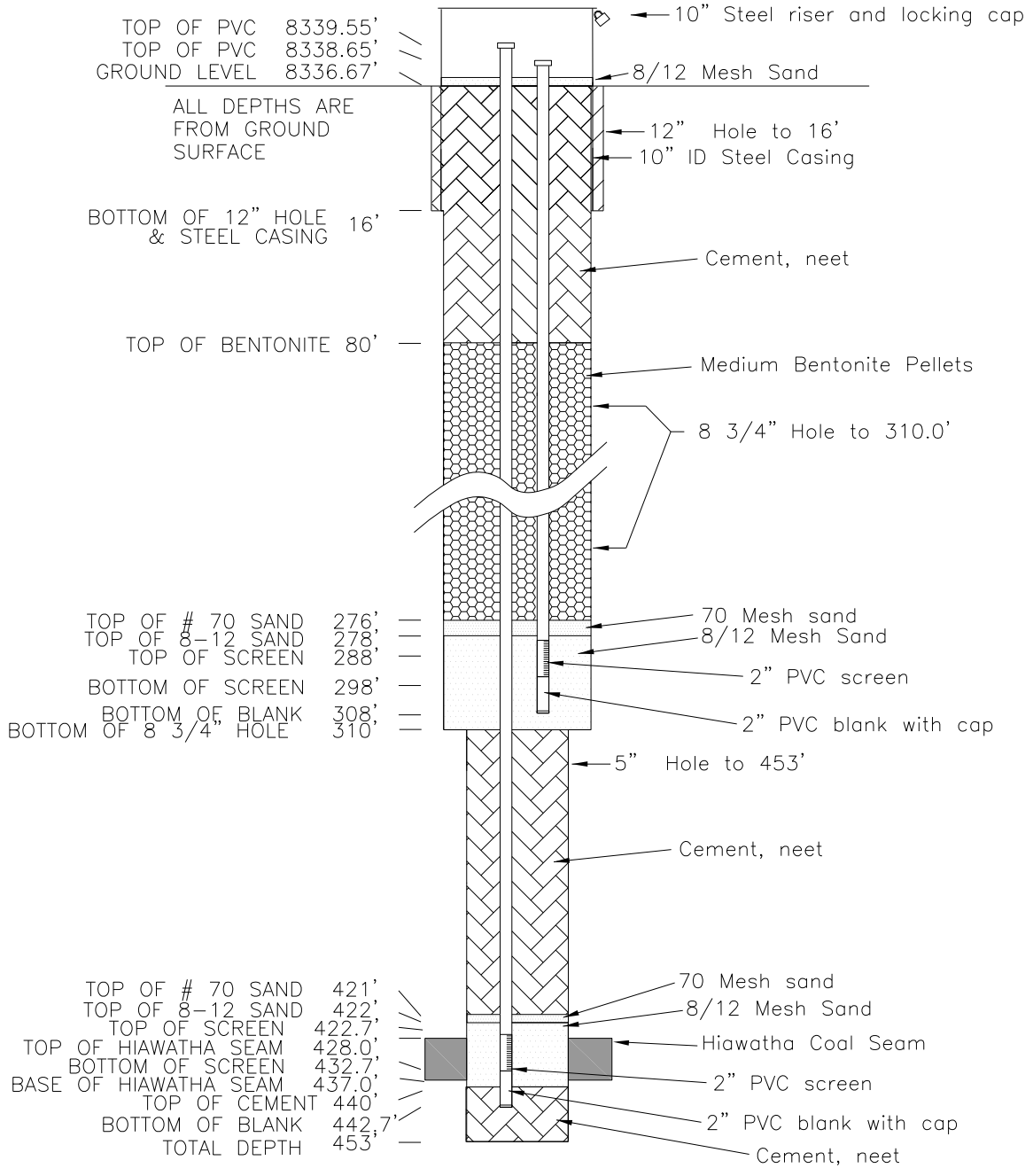
DWG	BWL	
CKD		
APD		

DATE: 3/25/06

Drawing Loc: Drilling Phase 1\Completion Diagrams\CR-06-01 AS BUILT.dwg

Monitor Well Completion Diagram
CR-06-02 AND CR-06-02-ABV

NOT TO SCALE



8000 ft Elevation Datum
E. 1739673.995
N. 7072672.439
Gounnd Surface, ELEV. 8337'

REVISED: March 2011

Carbon Resources LLC
Monitor Well Completion Diagram
CR-06-02 AND CR-06-02-ABV

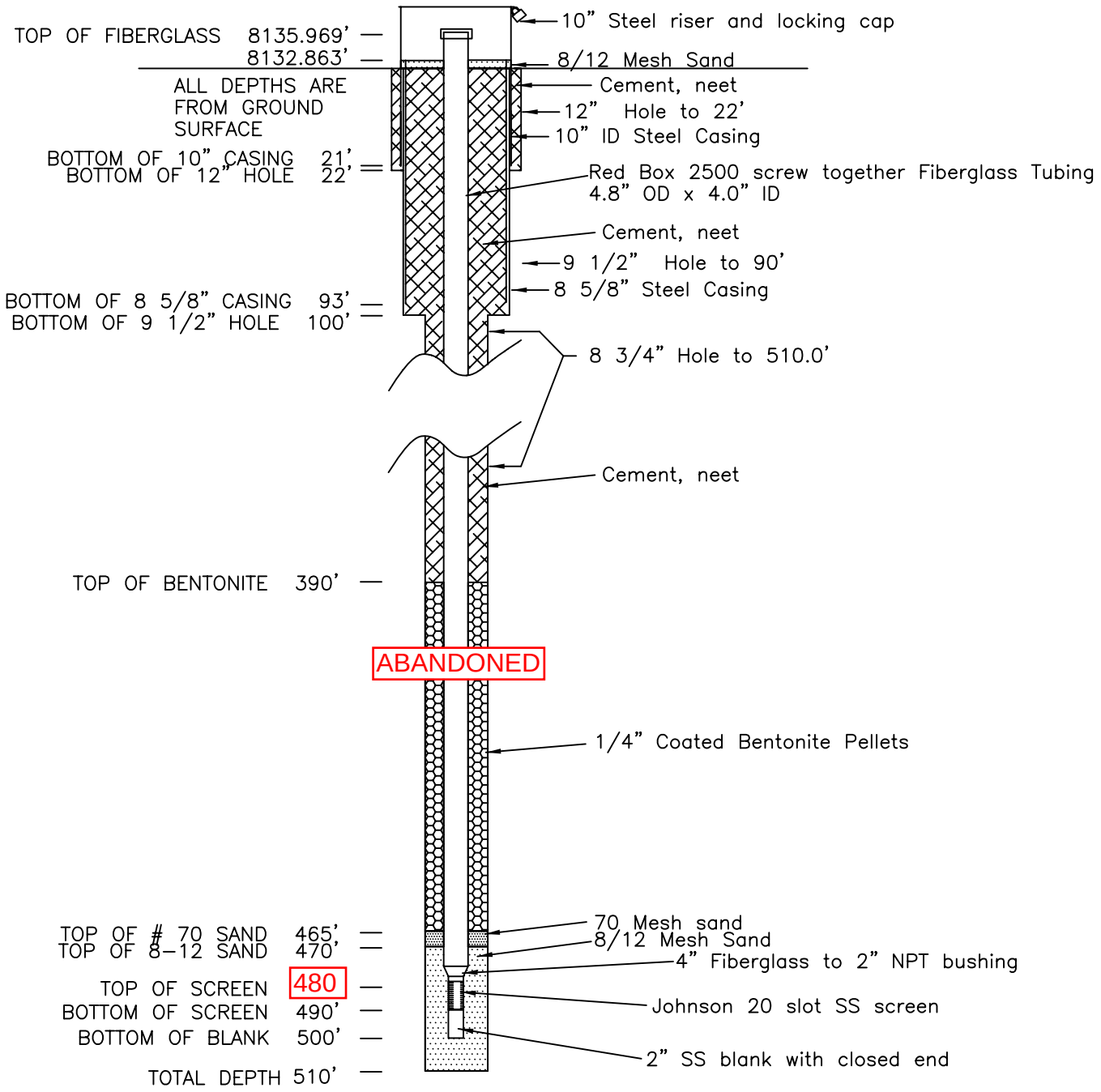
DWG	BWL	
CKD		
APD		

DATE: 3/25/06

Drawing Loc: Drilling Phase 1\Completion Diagrams\CR-06-02 AS BUILT.dwg

Monitor Well Completion Diagram
CR-06-03-ABV

NOT TO SCALE



8000 ft Elevation Datum
E. 1742345.531
N. 7076325.902
Gounnd Surface, ELEV. 8132

Carbon Resources LLC
Monitor Well Completion Diagram
CR-06-03-ABV

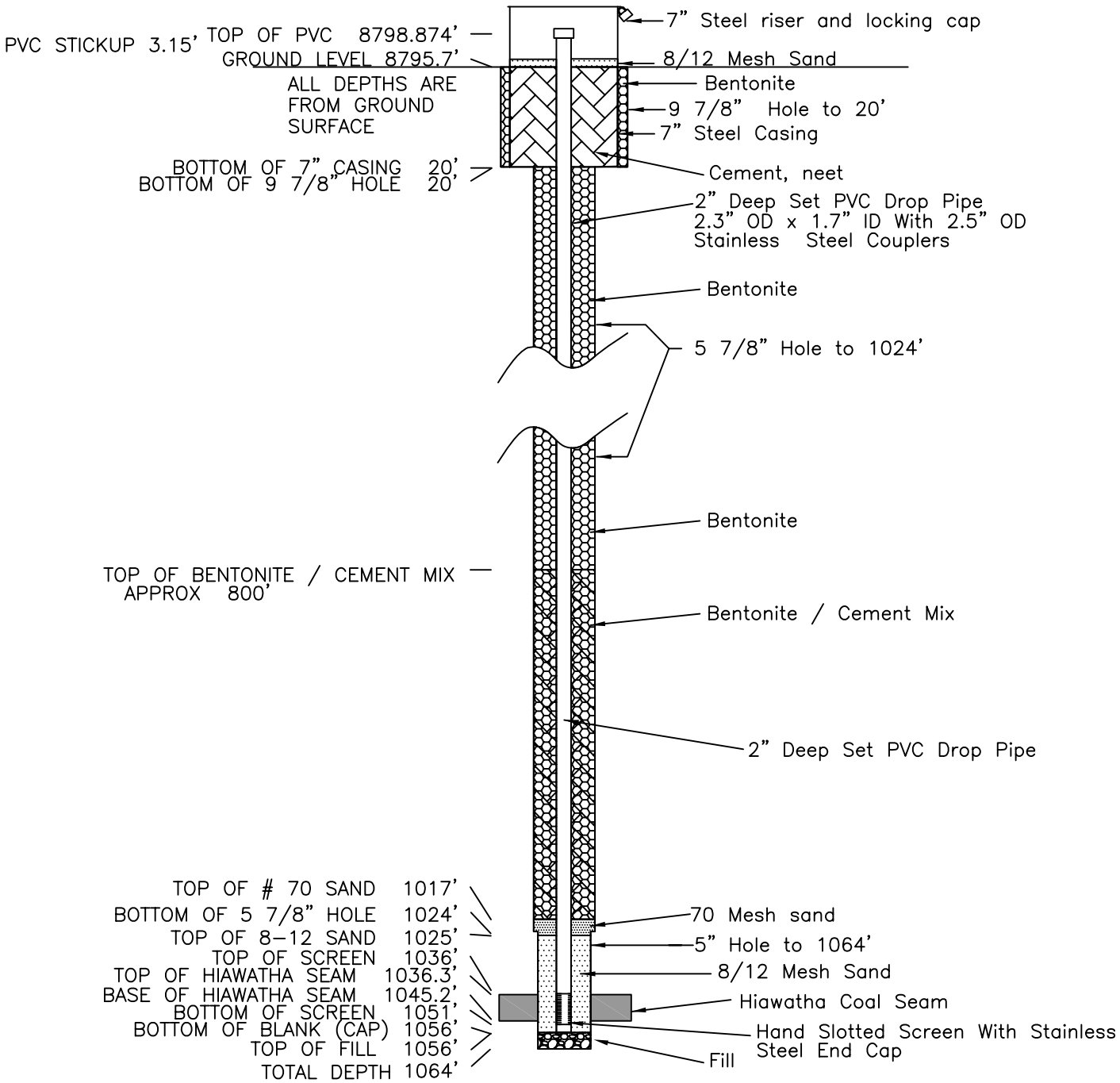
DWG	BWL
CKD	
APD	

DATE: 3/25/06

Drawing Loc: Drilling Phase 1\Completion Diagrams\CR-06-03-ABV AS BUILT.dwg

Monitor Well Completion Diagram
CR–06–05–A

NOT TO SCALE



8000 ft Elevation Datum
E. 1740939.20397
N. 7069330.51296
Gounnd Surface, ELEV. 8795.7'

Carbon Resources LLC
Monitor Well Completion Diagram
CR–06–05–A

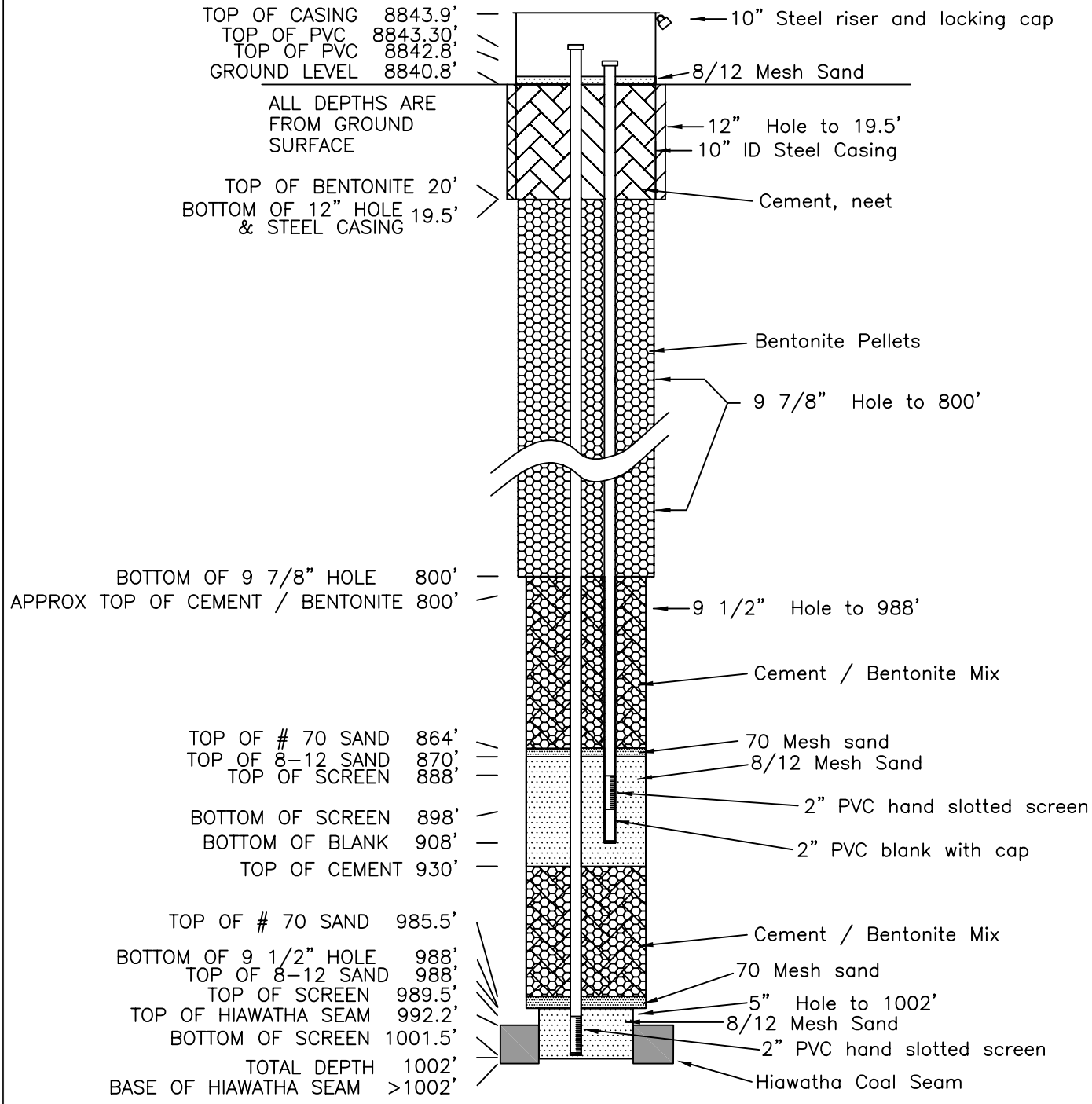
DWG	BWL	
CKD		
APD		

DATE: 12/18/06

\Completion Diagrams\CR–06–05–A AS BUILT.dwg

Monitor Well Completion Diagram
CR-06-09 AND CR-06-09-ABV

NOT TO SCALE



E. 1743857.5
N. 7073380.8
Gounnd Surface, ELEV. 8841'

Carbon Resources LLC
Monitor Well Completion Diagram
CR-06-09 AND CR-06-09-ABV

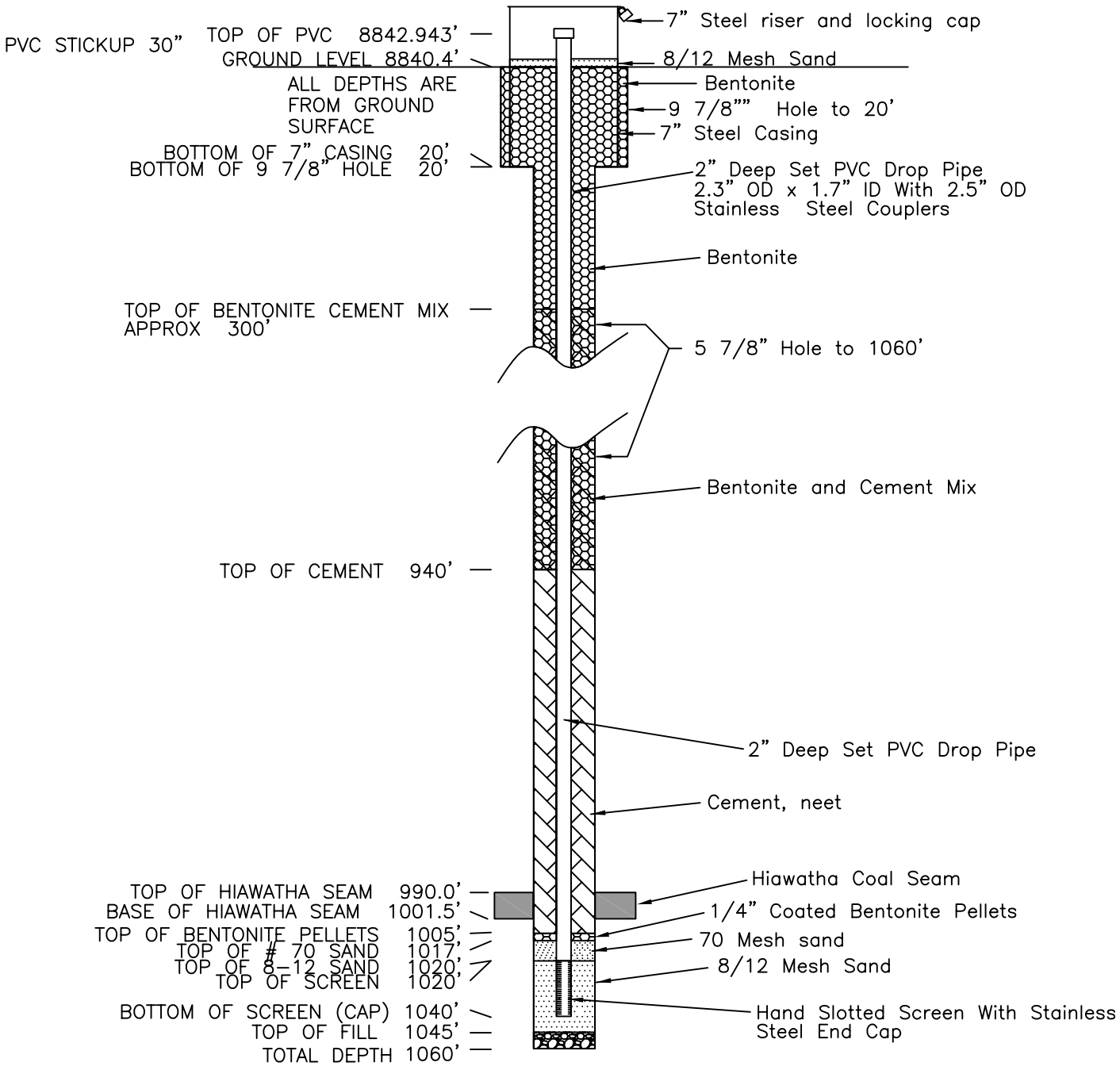
DWG	BWL	
CKD		
APD		

DATE: 12/18/06

Drawing Loc: Drilling Phase 1\Completion Diagrams\CR-06-09 AS BUILT.dwg

Monitor Well Completion Diagram
CR–06–09–BLW

NOT TO SCALE



8000 ft Elevation Datum
E. 1743808.008
N. 7073416.824
Gounnd Surface, ELEV. 8840.4

Carbon Resources LLC
Monitor Well Completion Diagram
CR–06–09–BLW

DWG	BWL	
CKD		
APD		

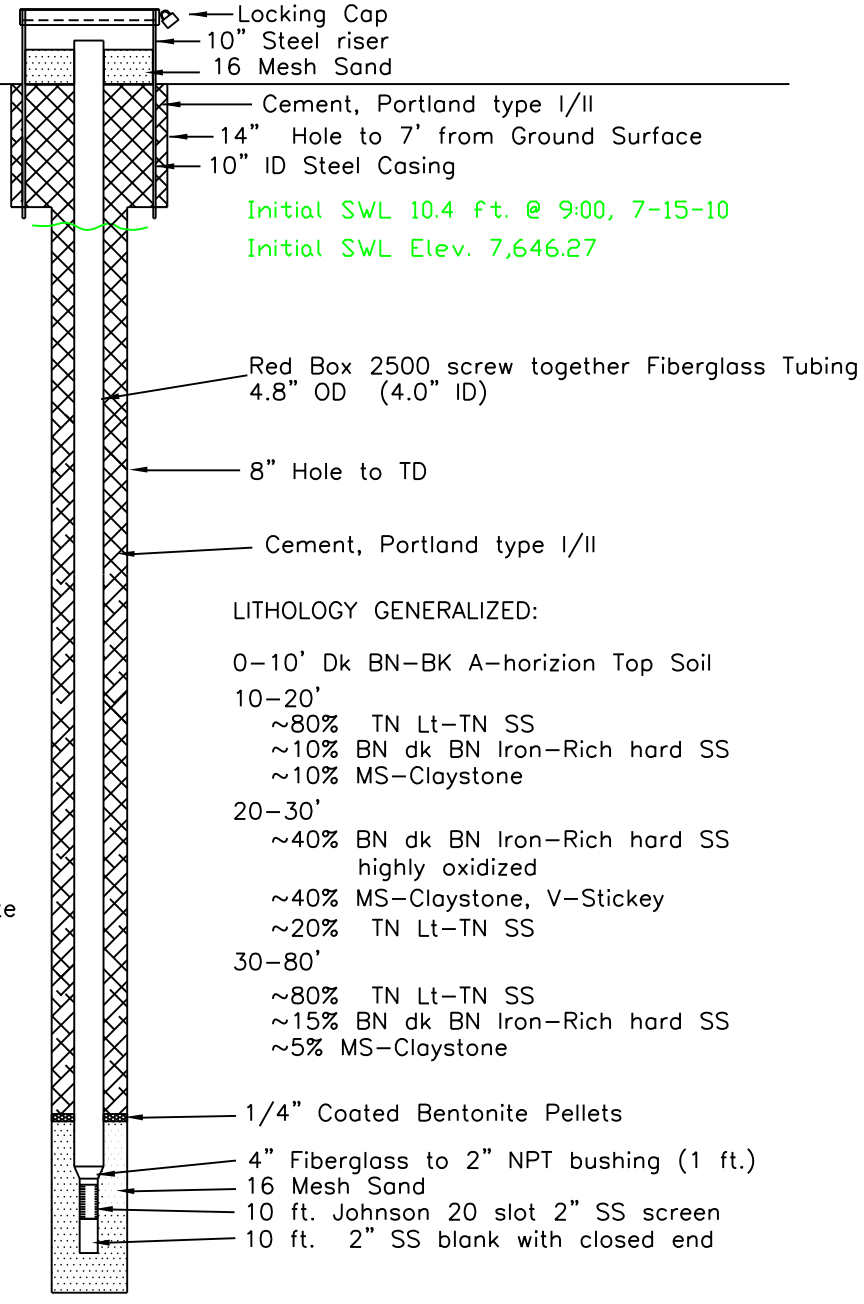
DATE: 9/8/06

\Completion Diagrams\CR–06–09–BLW AS BUILT.dwg

Monitor Well Completion Diagram

CR-10-11

NOT TO SCALE



DRILLING PROCESS GENERALIZED:

Medium=air/foam 0-30 ft.
Bentonite Mud 30-83 ft.
Relatively easy drilling, to TD

DRY 0-20 ft.

Damp @ 20 ft.

Switched medium to Mud, made it hard to tell when in water zone.
Viscosity decreased over 2 hrs while circulating mud at 81 ft.; an indication of formation water.

Measured flow by air jetting from 39 ft. @ ~2.3 gpm

Completion Materials;
3, 92.6 lb bags type I/II portland
6, 100lb. bags 16 mesh frac sand
~ 0.5 gallons of 1/4" coated bentonite
19, 92.6 lb bags type I/II portland

LITHOLOGY GENERALIZED:

0-10' Dk BN-BK A-horizion Top Soil
10-20'
~80% TN Lt-TN SS
~10% BN dk BN Iron-Rich hard SS
~10% MS-Claystone
20-30'
~40% BN dk BN Iron-Rich hard SS highly oxidized
~40% MS-Claystone, V-Stickey
~20% TN Lt-TN SS
30-80'
~80% TN Lt-TN SS
~15% BN dk BN Iron-Rich hard SS
~5% MS-Claystone

8000 ft (Local Elevation Convention)
E. 75,936.75
N. 38,622.95
APPROX. Ground Surface, ELEV. 7,655.4

This Survey is in Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Drawing Loc:CR-Kinney\2010 Drilling\CR-10-11

Carbon Resources LLC

CR-10-11

Ground Water Monitor Well

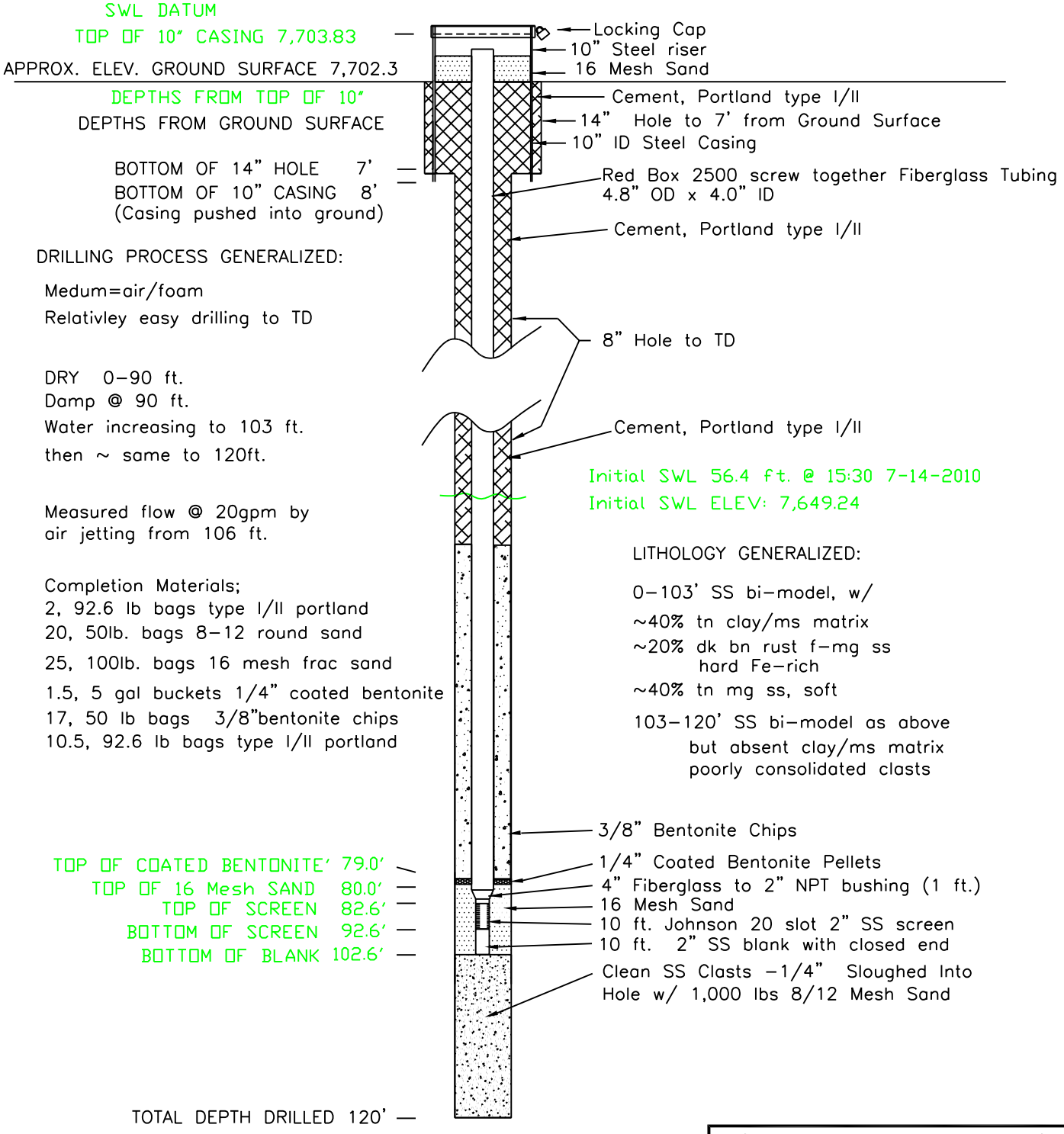
DWG	GLH
CKD	
APD	

DATE: 7-16-10

Monitor Well Completion Diagram

CR-10-12

NOT TO SCALE



DRILLING PROCESS GENERALIZED:

Medum=air/foam

Relativley easy drilling to TD

DRY 0-90 ft.
Damp @ 90 ft.
Water increasing to 103 ft.
then ~ same to 120ft.

Measured flow @ 20gpm by
air jetting from 106 ft.

Completion Materials;
2, 92.6 lb bags type I/II portland
20, 50lb. bags 8-12 round sand
25, 100lb. bags 16 mesh frac sand
1.5, 5 gal buckets 1/4" coated bentonite
17, 50 lb bags 3/8"bentonite chips
10.5, 92.6 lb bags type I/II portland

LITHOLOGY GENERALIZED:

0-103' SS bi-model, w/
~40% tn clay/ms matrix
~20% dk bn rust f-mg ss
hard Fe-rich
~40% tn mg ss, soft

103-120' SS bi-model as above
but absent clay/ms matrix
poorly consolidated clasts

8000 ft (Local Elevation Convention)
E. 74,418.27
N. 38,084.79
Approx. Ground Surface, ELEV. 7,702.3

Surveyed in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Carbon Resources LLC

CR-10-12

Ground Water Monitor Well

DWG	GLH
CKD	
APD	

DATE: 7-16-10

Drawing Location CR Kinney\Drilling2010

EXHIBIT 12

SURFACE AND GROUNDWATER QUALITY DATA
(5-5-2009 Thru 8-31-2010)

TWO PARTS

AWAL Labs
Organized Spreadsheet Printouts
52 Pages

AWAL Labs
Individual Analyses Sheet
~~1,022 Pages~~
1,085 Pages

Carbon Resources Kinney # 2 Mine
1-10-2010

EXHIBIT 12

SURFACE AND GROUNDWATER QUALITY DATA
(5-5-2009 Thru 8-31-2010)

AWAL Labs
Organized Spreadsheet Printouts
52 Pages

Carbon Resources Kinney # 2 Mine

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Angle Spring	L67580-03B	9/6/2005		9/9/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L67580-03B	9/6/2005		9/8/2005	Aqueous	Alkalinity,(As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L67580-03F	9/6/2005	9/7/2005	9/8/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L67580-03B	9/6/2005		9/8/2005	Aqueous	Bicarbonate (As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	96	10	mg/L		ICP-W-DIS
Angle Spring	L67580-03B	9/6/2005		9/8/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L67580-03B	9/6/2005		9/13/2005	Aqueous	Chloride	16887-00-6	10	21	10	mg/L		300.0-W
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Angle Spring	L67580-03C	9/6/2005	9/8/2005	9/13/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	10	mg/L		ICP-W-DIS
Angle Spring	L67580-03C	9/6/2005	9/8/2005	9/15/2005	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L67580-03B	9/6/2005		8/7/2005	Aqueous	Nitrate (as N)		1	0.97	0.01	mg/L		NO3-W
Angle Spring	L67580-03B	9/6/2005		9/7/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L67580-03E	9/6/2005		9/7/2005	Aqueous	Oil & Grease		1	4.6	3	mg/L		OGB-W
Angle Spring	L67580-03B	9/6/2005		9/8/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.06	mg/L		PO4-O
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	1.4	1	mg/L		ICP-W-DIS
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L67580-03A	9/6/2005		9/7/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	9.4	1	mg/L		ICP-W-DIS
Angle Spring	L67580-03B	9/6/2005		9/13/2005	Aqueous	Sulfate	14808-79-8	10	15	10	mg/L		300.0-W
Angle Spring	L67580-03A	9/6/2005		9/7/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L67580-03D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Angle Spring	L68520-03B	10/31/2005		11/2/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Alkalinity,(As CaCO3)		1	320	10	mg/L		2320B-ALK-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L68520-03F	10/31/2005	11/7/2005	11/9/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Bicarbonate (As CaCO3)		1	320	10	mg/L		2320B-ALK-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	94	5	mg/L		ICP-W-DIS
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L68520-03B	10/31/2005		11/9/2005	Aqueous	Chloride	16887-00-6	1	20	5	mg/L		CL-W-LAT
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L68520-03C	10/31/2005	11/1/2005	11/9/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	1	mg/L		ICP-W-DIS
Angle Spring	L68520-03C	10/31/2005	11/1/2005	11/10/2005	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Nitrate (as N)		1	0.99	0.01	mg/L		NO3-W
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L68520-03E	10/31/2005		11/2/2005	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	1.5	1	mg/L		ICP-W-DIS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68520-03A	10/31/2005		11/1/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	9.8	5	mg/L		ICP-W-DIS
Angle Spring	L68520-03B	10/31/2005		11/10/2005	Aqueous	Sulfate	14808-79-8	1	0	5	mg/L		SO4-W
Angle Spring	L68520-03A	10/31/2005		11/1/2005	Aqueous	TDS		1	350	10	mg/L		TDS-W
Angle Spring	L68520-03A	10/31/2005		11/1/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.058	0.01	mg/L		6020-W-DISS
Angle Spring	L68520-03B	10/31/2005		11/2/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Alkalinity,(As CaCO3)		1	320	10	mg/L		2320B-ALK-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L68520-03F	10/31/2005	11/7/2005	11/9/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Bicarbonate (As CaCO3)		1	320	10	mg/L		2320B-ALK-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	94	5	mg/L		ICP-W-DIS
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L68520-03B	10/31/2005		11/9/2005	Aqueous	Chloride	16887-00-6	1	20	5	mg/L		CL-W-LAT
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L68520-03C	10/31/2005	11/1/2005	11/9/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	1	mg/L		ICP-W-DIS
Angle Spring	L68520-03C	10/31/2005	11/1/2005	11/10/2005	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Nitrate (as N)		1	0.99	0.01	mg/L		NO3-W
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L68520-03E	10/31/2005		11/2/2005	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Angle Spring	L68520-03B	10/31/2005		11/1/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	1.5	1	mg/L		ICP-W-DIS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Angle Spring	L68520-03A	10/31/2005		11/1/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	9.8	5	mg/L		ICP-W-DIS
Angle Spring	L68520-03B	10/31/2005		11/10/2005	Aqueous	Sulfate	14808-79-8	1	0	5	mg/L		SO4-W
Angle Spring	L68520-03A	10/31/2005		11/1/2005	Aqueous	TDS		1	350	10	mg/L		TDS-W
Angle Spring	L68520-03A	10/31/2005		11/1/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L68520-03D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.058	0.01	mg/L		6020-W-DISS
Angle Spring	L68977-04C	11/28/2005		12/1/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L68977-04C	11/28/2005		11/29/2005	Aqueous	Alkalinity,(As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L68977-04F	11/28/2005	12/6/2005	12/7/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68977-04C	11/28/2005		11/29/2005	Aqueous	Bicarbonate (As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	100	5	mg/L		ICP-W-DIS
Angle Spring	L68977-04C	11/28/2005		11/29/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L68977-04C	11/28/2005		12/3/2005	Aqueous	Chloride	16887-00-6	10	22	10	mg/L		300.0-W
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	340	10	mg/L		HARD
Angle Spring	L68977-04E	11/28/2005	11/30/2005	12/6/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	1	mg/L		ICP-W-DIS
Angle Spring	L68977-04E	11/28/2005	11/30/2005	12/2/2005	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L68977-04C	11/28/2005		11/29/2005	Aqueous	Nitrate (as N)		1	0.96	0.01	mg/L		NO3-W
Angle Spring	L68977-04C	11/28/2005		11/29/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L68977-04G	11/28/2005		11/30/2005	Aqueous	Oil & Grease		1	3.7	3	mg/L		OGB-W
Angle Spring	L68977-04C	11/28/2005		11/29/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	1.0	1	mg/L		ICP-W-DIS
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L68977-04A	11/28/2005		11/29/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	10	5	mg/L		ICP-W-DIS
Angle Spring	L68977-04C	11/28/2005		12/3/2005	Aqueous	Sulfate	14808-79-8	10	16	10	mg/L		300.0-W
Angle Spring	L68977-04B	11/28/2005		12/2/2005	Aqueous	TDS		1	290	10	mg/L		TDS-W
Angle Spring	L68977-04A	11/28/2005		11/29/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L68977-04D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.024	0.01	mg/L		6020-W-DISS
Angle Spring	L69428-04B	12/22/2005		12/23/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L69428-04B	12/22/2005		12/23/2005	Aqueous	Alkalinity,(As CaCO3)		1	310	10	mg/L		2320B-ALK-W
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L69428-04E	12/22/2005	12/23/2005	12/28/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Arsenic	7440-38-2	2	0	0.005	mg/L		6020-W-DISS
Angle Spring	L69428-04B	12/22/2005		12/23/2005	Aqueous	Bicarbonate (As CaCO3)		1	310	10	mg/L		2320B-ALK-W
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Cadmium	7440-43-9	2	0	0.004	mg/L		6020-W-DISS
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	100	1	mg/L		ICP-W-DIS
Angle Spring	L69428-04B	12/22/2005		12/23/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L69428-04B	12/22/2005		12/28/2005	Aqueous	Chloride	16887-00-6	10	22	10	mg/L		300.0-W
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Copper	7440-50-8	2	0	0.004	mg/L		6020-W-DISS
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	330	10	mg/L		HARD
Angle Spring	L69428-04D	12/22/2005	12/23/2005	12/27/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Lead	7439-92-1	2	0	0.005	mg/L		6020-W-DISS
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	19	1	mg/L		ICP-W-DIS
Angle Spring	L69428-04D	12/22/2005	12/23/2005	12/28/2005	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Manganese	7439-96-5	2	0	0.005	mg/L		6020-W-DISS
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L69428-04B	12/22/2005		12/23/2005	Aqueous	Nitrate (as N)		1	0.98	0.01	mg/L		NO3-W
Angle Spring	L69428-04B	12/22/2005		12/23/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L69428-04F	12/22/2005		12/28/2005	Aqueous	Oil & Grease		1	3.4	3	mg/L		OGB-W
Angle Spring	L69428-04B	12/22/2005		12/23/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	1.4	1	mg/L		ICP-W-DIS
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Selenium	7782-49-2	2	0	0.005	mg/L		6020-W-DISS
Angle Spring	L69428-04A	12/22/2005		12/23/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	9.8	1	mg/L		ICP-W-DIS
Angle Spring	L69428-04B	12/22/2005		12/28/2005	Aqueous	Sulfate	14808-79-8	10	15	10	mg/L		300.0-W
Angle Spring	L69428-04A	12/22/2005		12/23/2005	Aqueous	TDS		1	400	10	mg/L		TDS-W
Angle Spring	L69428-04A	12/22/2005		12/23/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L69428-04C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Zinc	7440-66-6	2	0	0.01	mg/L		6020-W-DISS
Angle Spring	L69847-01B	1/22/2006		1/24/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L69847-01B	1/22/2006		1/24/2006	Aqueous	Alkalinity,(As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L69847-01F	1/22/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L69847-01C	1/22/2006	1/31/2006	2/1/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L69847-01F	1/22/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L69847-01B	1/22/2006		1/24/2006	Aqueous	Bicarbonate (As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L69847-01F	1/22/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L69847-01F	1/22/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0.088	0.004	mg/L		6020-W-DISS
Angle Spring	L69847-01F	1/22/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	100	10	mg/L		ICP-W-DIS
Angle Spring	L69847-01B	1/22/2006		1/24/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L69847-01B	1/22/2006		1/27/2006	Aqueous	Chloride	16887-00-6	1	33	10	mg/L	[1]	300.0-W
Angle Spring	L69847-01F	1/22/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.020	0.004	mg/L		6020-W-DISS
Angle Spring	L69847-01F	1/22/2006		1/27/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	330	10	mg/L		HARD
Angle Spring	L69847-01E	1/22/2006	1/24/2006	1/27/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L69847-01F	1/22/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L69847-01F	1/22/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L69847-01F	1/22/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	19	10	mg/L		ICP-W-DIS
Angle Spring	L69847-01F	1/22/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.012	0.005	mg/L		6020-W-DISS
Angle Spring	L69847-01E	1/22/2006	1/24/2006	1/30/2006	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Angle Spring	L69847-01F	1/22/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L69847-01B	1/22/2006		1/24/2006	Aqueous	Nitrate (as N)		1	1.1	0.01	mg/L	1@	NO3-W
Angle Spring	L69847-01B	1/22/2006		1/24/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L69847-01D	1/22/2006		1/24/2006	Aqueous	Oil & Grease		1	4.8	3	mg/L		OGB-W
Angle Spring	L69847-01B	1/22/2006		1/24/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L69847-01F	1/22/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.5	1	mg/L		ICP-W-DIS
Angle Spring	L69847-01F	1/22/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0.052	0.005	mg/L		6020-W-DISS
Angle Spring	L69847-01A	1/22/2006		1/24/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L69847-01F	1/22/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.4	1	mg/L		ICP-W-DIS
Angle Spring	L69847-01B	1/22/2006		1/27/2006	Aqueous	Sulfate	14808-79-8	1	16	2	mg/L		300.0-W
Angle Spring	L69847-01A	1/22/2006		1/24/2006	Aqueous	TDS		1	350	10	mg/L		TDS-W
Angle Spring	L69847-01A	1/22/2006		1/24/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L69847-01F	1/22/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.091	0.01	mg/L		6020-W-DISS
Angle Spring	L70355-04A	2/26/2006		2/28/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L70355-04A	2/26/2006		2/28/2006	Aqueous	Alkalinity,(As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L70355-04C	2/26/2006	3/2/2006	3/2/2006	Aqueous	Ammonia (as N)		1	0.17	0.05	mg/L		NH3-W
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L70355-04A	2/26/2006		2/28/2006	Aqueous	Bicarbonate (As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	100	10	mg/L	2	ICP-W-DIS
Angle Spring	L70355-04A	2/26/2006		2/28/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L70355-04A	2/26/2006		2/28/2006	Aqueous	Chloride	16887-00-6	10	22	10	mg/L		300.0-W
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L70355-04F	2/26/2006		3/7/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	330	10	mg/L		HARD
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L70355-04E	2/26/2006	2/28/2006	2/28/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L	@	6020-W-DISS
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	19	1	mg/L		ICP-W-DIS
Angle Spring	L70355-04E	2/26/2006	2/28/2006	2/28/2006	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		ICP-W
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L70355-04A	2/26/2006		2/27/2006	Aqueous	Nitrate (as N)		1	1.1	0.01	mg/L		NO3-W
Angle Spring	L70355-04A	2/26/2006		2/27/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L70355-04D	2/26/2006		2/27/2006	Aqueous	Oil & Grease		1	5.5	3	mg/L		OGB-W
Angle Spring	L70355-04A	2/26/2006		2/27/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.6	1	mg/L		ICP-W-DIS
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L70355-04B	2/26/2006		2/27/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.9	1	mg/L		ICP-W-DIS
Angle Spring	L70355-04A	2/26/2006		2/28/2006	Aqueous	Sulfate	14808-79-8	10	14	10	mg/L		300.0-W
Angle Spring	L70355-04B	2/26/2006		3/3/2006	Aqueous	TDS		1	240	10	mg/L		TDS-W
Angle Spring	L70355-04B	2/26/2006		2/28/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L70355-04F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.073	0.01	mg/L		6020-W-DISS
Angle Spring	L70885-01B	3/27/2006		3/30/2006	Aqueous	Bicarbonate (As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	97	10	mg/L		ICP-W-DIS
Angle Spring	L70885-01B	3/27/2006		3/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L70885-01B	3/27/2006		3/29/2006	Aqueous	Chloride	16887-00-6	10	24	10	mg/L		300.0-W
Angle Spring	L70885-01B	3/27/2006		3/30/2006	Aqueous	Conductivity		1	670	2	µmhos/cm		COND-W
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L70885-01E	3/27/2006		4/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	320	10	mg/L		HARD
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L70885-01D	3/27/2006	4/6/2006	4/9/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	19	1	mg/L		ICP-W-DIS
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L70885-01D	3/27/2006	4/3/2006	4/4/2006	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		ICP-W
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L70885-01B	3/27/2006		3/29/2006	Aqueous	Nitrate (as N)		1	0.92	0.01	mg/L	1	NO3-W
Angle Spring	L70885-01B	3/27/2006		3/29/2006	Aqueous	Nitrite (as N)		1	0.099	0.01	mg/L	1@	NO2-W
Angle Spring	L70885-01F	3/27/2006		3/28/2006	Aqueous	Oil & Grease		1	4.0	3	mg/L		OGB-W
Angle Spring	L70885-01B	3/27/2006		3/28/2006	Aqueous	pH @ 25° C		1	7.04	0	pH Units		PH-W
Angle Spring	L70885-01B	3/27/2006		3/29/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	1	PO4-O
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.9	1	mg/L		ICP-W-DIS
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L70885-01A	3/27/2006		3/28/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	10	1	mg/L		ICP-W-DIS
Angle Spring	L70885-01B	3/27/2006		3/29/2006	Aqueous	Sulfate	14808-79-8	10	15	10	mg/L		300.0-W
Angle Spring	L70885-01A	3/27/2006		3/31/2006	Aqueous	TDS		1	190	10	mg/L		TDS-W
Angle Spring	L70885-01A	3/27/2006		3/28/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L70885-01E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.052	0.01	mg/L		6020-W-DISS
Angle Spring	L71507-03B	4/26/2006		5/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L71507-03B	4/26/2006		5/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Angle Spring	L71507-03C	4/26/2006	5/3/2006	5/3/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.0086	0.005	mg/L		6020-W-DISS
Angle Spring	L71507-03B	4/26/2006		5/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	100	10	mg/L		ICP-W-dis
Angle Spring	L71507-03B	4/26/2006		5/2/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L71507-03B	4/26/2006		5/12/2006	Aqueous	Chloride	16887-00-6	1	22	10	mg/L		300.0-W
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.0046	0.004	mg/L		6020-W-DISS
Angle Spring	L71507-03E	4/26/2006		5/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	340	10	mg/L		HARD
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Angle Spring	L71507-03D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	20	10	mg/L		ICP-W-dis
Angle Spring	L71507-03D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		ICP-W
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Angle Spring	L71507-03C	4/26/2006		5/4/2006	Aqueous	Nitrate/Nitrite (as N)		1	1.4	0.01	mg/L		NO2/NO3-W
Angle Spring	L71507-03F	4/26/2006		5/5/2006	Aqueous	Oil & Grease		1	3.8	3	mg/L		OGB-W
Angle Spring	L71507-03B	4/26/2006		4/28/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.04	0.05	mg/L		PO4-O
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	0	1	mg/L		ICP-W-dis
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0.013	0.005	mg/L		6020-W-DISS
Angle Spring	L71507-03A	4/26/2006		4/28/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	10	21	10	mg/L		ICP-W-dis
Angle Spring	L71507-03B	4/26/2006		5/12/2006	Aqueous	Sulfate	14808-79-8	1	19	10	mg/L		300.0-W
Angle Spring	L71507-03A	4/26/2006		4/28/2006	Aqueous	TDS		1	310	10	mg/L		TDS-W
Angle Spring	L71507-03A	4/26/2006		4/28/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L71507-03E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.11	0.01	mg/L		6020-W-DISS
Angle Spring	L72071-03B	5/25/2006		5/30/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L72071-03B	5/25/2006		5/30/2006	Aqueous	Alkalinity,(As CaCO3)		1	290	10	mg/L		2320B-ALK-W
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L72071-03C	5/25/2006	5/30/2006	5/31/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L72071-03B	5/25/2006		5/30/2006	Aqueous	Bicarbonate (As CaCO3)		1	290	10	mg/L		2320B-ALK-W
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	90	10	mg/L		ICP-W-DIS
Angle Spring	L72071-03B	5/25/2006		5/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L72071-03B	5/25/2006		6/1/2006	Aqueous	Chloride	16887-00-6	1	22	10	mg/L		300.0-W
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L72071-03E	5/25/2006		6/9/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	220	10	mg/L		HARD
Angle Spring	L72071-03D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	10	mg/L		ICP-W-DIS
Angle Spring	L72071-03D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		ICP-W
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L72071-03B	5/25/2006		5/26/2006	Aqueous	Nitrate (as N)		1	0.96	0.01	mg/L		NO3-W
Angle Spring	L72071-03B	5/25/2006		5/26/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L72071-03F	5/25/2006		5/30/2006	Aqueous	Oil & Grease		1	4.3	3	mg/L		OGB-W
Angle Spring	L72071-03B	5/25/2006		5/26/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.5	1	mg/L		ICP-W-DIS
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L72071-03A	5/25/2006		5/26/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.6	1	mg/L		ICP-W-DIS
Angle Spring	L72071-03B	5/25/2006		6/1/2006	Aqueous	Sulfate	14808-79-8	1	14	10	mg/L		300.0-W
Angle Spring	L72071-03A	5/25/2006		5/26/2006	Aqueous	TDS		1	330	10	mg/L		TDS-W
Angle Spring	L72071-03A	5/25/2006		5/26/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L72071-03E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.010	0.01	mg/L		6020-W-DISS
Angle Spring	L72660-05B	6/29/2006		7/3/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L72660-05B	6/29/2006		7/3/2006	Aqueous	Alkalinity,(As CaCO3)		1	290	20	mg/L		2320B-ALK-W
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L72660-05C	6/29/2006	7/5/2006	7/7/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L72660-05B	6/29/2006		7/3/2006	Aqueous	Bicarbonate (As CaCO3)		1	290	20	mg/L		2320B-ALK-W
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	92	10	mg/L		ICP-W-DIS
Angle Spring	L72660-05B	6/29/2006		7/3/2006	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Angle Spring	L72660-05B	6/29/2006		7/5/2006	Aqueous	Chloride	16887-00-6	1	22	10	mg/L		300.0-W
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L72660-05E	6/29/2006		7/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	330	10	mg/L		HARD
Angle Spring	L72660-05D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	10	mg/L		ICP-W-DIS
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L72660-05D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		ICP-W
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L72660-05B	6/29/2006		6/30/2006	Aqueous	Nitrate (as N)		1	0.94	0.01	mg/L		NO3-W
Angle Spring	L72660-05B	6/29/2006		6/30/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L72660-05F	6/29/2006		6/30/2006	Aqueous	Oil & Grease		1	3.1	3	mg/L		OGB-W
Angle Spring	L72660-05B	6/29/2006		6/30/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.2	1	mg/L		ICP-W-DIS
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L72660-05A	6/29/2006		6/30/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	8.7	1	mg/L		ICP-W-DIS
Angle Spring	L72660-05B	6/29/2006		7/5/2006	Aqueous	Sulfate	14808-79-8	1	18	10	mg/L		300.0-W
Angle Spring	L72660-05A	6/29/2006		6/30/2006	Aqueous	TDS		1	280	20	mg/L		TDS-W
Angle Spring	L72660-05A	6/29/2006		6/30/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L72660-05E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Angle Spring	L73160-02B	7/31/2006		8/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L73160-02B	7/31/2006		8/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	290	20	mg/L		2320B-ALK-W
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L73160-02C	7/31/2006	8/2/2006	8/4/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L73160-02B	7/31/2006		8/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	96	10	mg/L		ICP-W-DIS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Angle Spring	L73160-02B	7/31/2006		8/2/2006	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Angle Spring	L73160-02B	7/31/2006		8/8/2006	Aqueous	Chloride	16887-00-6	1	67	10	mg/L		300.0-W
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Angle Spring	L73160-02E	7/31/2006		8/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Angle Spring	L73160-02D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	1	mg/L		ICP-W-DIS
Angle Spring	L73160-02D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		ICP-W
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L73160-02B	7/31/2006		8/2/2006	Aqueous	Nitrate (as N)		1	1.0	0.01	mg/L		NO3-W
Angle Spring	L73160-02B	7/31/2006		8/2/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L73160-02F	7/31/2006		8/8/2006	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Angle Spring	L73160-02B	7/31/2006		8/2/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.1	1	mg/L		ICP-W-DIS
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Angle Spring	L73160-02A	7/31/2006		8/2/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.4	1	mg/L		ICP-W-DIS
Angle Spring	L73160-02B	7/31/2006		8/8/2006	Aqueous	Sulfate	14808-79-8	1	18	10	mg/L		300.0-W
Angle Spring	L73160-02A	7/31/2006		8/3/2006	Aqueous	TDS		1	290	20	mg/L		TDS-W
Angle Spring	L73160-02A	7/31/2006		8/2/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L73160-02E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.021	0.01	mg/L		6020-W-DISS
Angle Spring	L73504-02B	8/21/2006		8/23/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Angle Spring	L73504-02B	8/21/2006		8/23/2006	Aqueous	Alkalinity,(As CaCO3)		1	300	20	mg/L		2320B-ALK-W
Angle Spring	L73504-02E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L73504-02C	8/21/2006	8/23/2006	8/24/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Angle Spring	L73504-02E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Angle Spring	L73504-02B	8/21/2006		8/23/2006	Aqueous	Bicarbonate (As CaCO3)		1	300	20	mg/L		2320B-ALK-W
Angle Spring	L73504-02E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Angle Spring	L73504-02E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Angle Spring	L73504-02E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	100	10	mg/L		ICP-W-DIS
Angle Spring	L73504-02B	8/21/2006		8/23/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Angle Spring	L73504-02B	8/21/2006		8/24/2006	Aqueous	Chloride	16887-00-6	1	23	10	mg/L		300.0-W
Angle Spring	L73504-02E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
Angle Spring	L73504-02E	8/21/2006		9/5/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	330	10	mg/L		HARD
Angle Spring	L73504-02E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Angle Spring	L73504-02D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Angle Spring	L73504-02E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Angle Spring	L73504-02E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	19	10	mg/L		ICP-W-DIS
Angle Spring	L73504-02E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Manganese	7439-96-5	5	0	0.005	mg/L		6020-W-DISS
Angle Spring	L73504-02D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Manganese	7439-96-5	1	0	0.005	mg/L		ICP-W
Angle Spring	L73504-02E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Angle Spring	L73504-02B	8/21/2006		8/23/2006	Aqueous	Nitrate (as N)		1	0.94	0.01	mg/L		NO3-W
Angle Spring	L73504-02B	8/21/2006		8/23/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Angle Spring	L73504-02F	8/21/2006		8/23/2006	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Angle Spring	L73504-02B	8/21/2006		8/23/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Angle Spring	L73504-02E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.5	1	mg/L		ICP-W-DIS
Angle Spring	L73504-02E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Angle Spring	L73504-02A	8/21/2006		8/23/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Angle Spring	L73504-02E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	10	1	mg/L		ICP-W-DIS
Angle Spring	L73504-02B	8/21/2006		8/24/2006	Aqueous	Sulfate	14808-79-8	1	18	10	mg/L		300.0-W
Angle Spring	L73504-02A	8/21/2006		8/25/2006	Aqueous	TDS		1	270	20	mg/L		TDS-W
Angle Spring	L73504-02A	8/21/2006		8/23/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Angle Spring	L73504-02E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Zinc	7440-66-6	5	0	0.01	mg/L		6020-W-DISS
Aspen Spring	L81026-05B	11/12/2007		11/15/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Aspen Spring	L81026-05B	11/12/2007		11/15/2007	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Aspen Spring	L81026-05C	11/12/2007	11/15/2007	11/15/2007	Aqueous	Ammonia (as N)		1	0.093	0.05	mg/L		NH3-W
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Arsenic	7440-38-2	20	0.0016	0.0006	mg/L		6020-W-DISS
Aspen Spring	L81026-05B	11/12/2007		11/15/2007	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	64	10	mg/L	#	ICP-W-dis
Aspen Spring	L81026-05B	11/12/2007		11/15/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Aspen Spring	L81026-05B	11/12/2007		11/21/2007	Aqueous	Chloride	16887-00-6	10	26	10	mg/L		300.0-W
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Copper	7440-50-8	20	0.0020	0.0008	mg/L		6020-W-DISS
Aspen Spring	L81026-05F	11/12/2007		11/27/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	210	10	mg/L		HARD
Aspen Spring	L81026-05E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Iron	7439-89-6	1	5.2	0.05	mg/L		ICP-W
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Iron	7439-89-6	1	1.5	0.05	mg/L		ICP-W-dis
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0001	mg/L		6020-W-DISS
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	13	1	mg/L		ICP-W-dis
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Manganese	7439-96-5	20	0.75	0.0012	mg/L		6020-W-DISS
Aspen Spring	L81026-05E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Manganese	7439-96-5	1	0.90	0.005	mg/L		ICP-W
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Aspen Spring	L81026-05B	11/12/2007		11/14/2007	Aqueous	Nitrate (as N)		1	0.36	0.01	mg/L		NO3-W
Aspen Spring	L81026-05B	11/12/2007		11/14/2007	Aqueous	Nitrite (as N)		1	0.012	0.01	mg/L		NO2-W
Aspen Spring	L81026-05D	11/12/2007		11/21/2007	Aqueous	Oil & Grease		1	5.1	3	mg/L		OGB-W
Aspen Spring	L81026-05B	11/12/2007		11/14/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	15	1	mg/L		ICP-W-dis
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Aspen Spring	L81026-05A	11/12/2007		11/14/2007	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	27	1	mg/L		ICP-W-dis
Aspen Spring	L81026-05B	11/12/2007		11/27/2007	Aqueous	Sulfate	14808-79-8	1	1.7	1	mg/L		300.0-W
Aspen Spring	L81026-05A	11/12/2007		11/14/2007	Aqueous	TDS		1	340	20	mg/L		TDS-W
Aspen Spring	L81026-05A	11/12/2007		11/14/2007	Aqueous	TSS		1	27	3	mg/L		TSS-W-2540D
Aspen Spring	L81026-05F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Aspen Spring	L84608-06B	6/16/2008		6/20/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Aspen Spring	L84608-06B	6/16/2008		6/20/2008	Aqueous	Alkalinity,(As CaCO3)		1	75	20	mg/L		2320B-ALK-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Aspen Spring	L84608-06C	6/16/2008	6/20/2008	6/25/2008	Aqueous	Ammonia (as N)		1	0.052	0.05	mg/L		NH3-W
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Arsenic	7440-38-2	20	0.0010	0.0006	mg/L		6020-W-DISS
Aspen Spring	L84608-06B	6/16/2008		6/20/2008	Aqueous	Bicarbonate (As CaCO3)		1	71	20	mg/L		2320B-ALK-W
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Calcium	7440-70-2	1	20	1	mg/L		ICP-W-dis
Aspen Spring	L84608-06B	6/16/2008		6/20/2008	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Aspen Spring	L84608-06B	6/16/2008		6/26/2008	Aqueous	Chloride	16887-00-6	5	5.8	0.5	mg/L		300.0-W
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Copper	7440-50-8	20	0.0040	0.0008	mg/L		6020-W-DISS
Aspen Spring	L84608-06F	6/16/2008		6/18/2008	Aqueous Dissolved	Hardness (as CaCO3)	471-34-1	1	70	10	mg/L		HARD
Aspen Spring	L84608-06E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Iron	7439-89-6	1	1.2	0.05	mg/L		ICP-W
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Iron	7439-89-6	1	0.17	0.05	mg/L		ICP-W-dis
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Magnesium	7439-95-4	1	4.7	1	mg/L		ICP-W-dis
Aspen Spring	L84608-06E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Manganese	7439-96-5	1	0.10	0.005	mg/L		ICP-W
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Manganese	7439-96-5	20	0.0040	0.0012	mg/L		6020-W-DISS
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Aspen Spring	L84608-06B	6/16/2008		6/18/2008	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Aspen Spring	L84608-06B	6/16/2008		6/18/2008	Aqueous	Nitrite (as N)		1	0.011	0.01	mg/L		NO2-W
Aspen Spring	L84608-06D	6/16/2008		6/18/2008	Aqueous	Oil & Grease		1	6.4	3	mg/L	*	OGB-W
Aspen Spring	L84608-06B	6/16/2008		6/18/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Potassium	7440-09-7	1	3.2	1	mg/L		ICP-W-dis
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Aspen Spring	L84608-06A	6/16/2008		6/18/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Sodium	7440-23-5	1	14	1	mg/L		ICP-W-dis
Aspen Spring	L84608-06B	6/16/2008		6/26/2008	Aqueous	Sulfate	14808-79-8	5	4.8	3.8	mg/L		300.0-W
Aspen Spring	L84608-06A	6/16/2008		6/19/2008	Aqueous	TDS		1	120	100	mg/L		TDS-W
Aspen Spring	L84608-06A	6/16/2008		6/18/2008	Aqueous	TSS		1	26	3	mg/L		TSS-W-2540D
Aspen Spring	L84608-06F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Zinc	7440-66-6	20	0.022	0.0054	mg/L		6020-W-DISS
Aspen Spring	L85972-01B	8/26/2008		8/29/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Aspen Spring	L85972-01B	8/26/2008		8/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	180	20	mg/L		2320B-ALK-W
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Aspen Spring	L85972-01D	8/26/2008	8/28/2008	8/29/2008	Aqueous	Ammonia (as N)		1	0.057	0.05	mg/L		NH3-W
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0.00092	0.0006	mg/L		6020-W-DISS
Aspen Spring	L85972-01B	8/26/2008		8/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	180	20	mg/L		2320B-ALK-W
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	57	10	mg/L	² ~	ICP-W-dis
Aspen Spring	L85972-01B	8/26/2008		8/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Aspen Spring	L85972-01B	8/26/2008		8/28/2008	Aqueous	Chloride	16887-00-6	20	24	2	mg/L		300.0-W
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0022	0.0008	mg/L		6020-W-DISS
Aspen Spring	L85972-01E	8/26/2008		9/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	200	10	mg/L		HARD
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Aspen Spring	L85972-01F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Iron	7439-89-6	1	1.4	0.05	mg/L		ICP-W
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0.0011	0.0004	mg/L		6020-W-DISS
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	12	1	mg/L		ICP-W-dis
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.053	0.0012	mg/L		6020-W-DISS
Aspen Spring	L85972-01F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Manganese	7439-96-5	1	0.22	0.005	mg/L		ICP-W
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Aspen Spring	L85972-01B	8/26/2008		8/28/2008	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Aspen Spring	L85972-01B	8/26/2008		8/28/2008	Aqueous	Nitrate/Nitrite (as N)		1	0	0.01	mg/L		NO2/NO3-W
Aspen Spring	L85972-01B	8/26/2008		8/28/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Aspen Spring	L85972-01C	8/26/2008		9/5/2008	Aqueous	Oil & Grease		1	3.2	3	mg/L		OGB-W
Aspen Spring	L85972-01B	8/26/2008		8/28/2008	Aqueous	Phosphorus, Orthophosphate (as I	7723-14-0	1	0	0.1	mg/L		300.0-W
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	10	1	mg/L		ICP-W-dis
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Aspen Spring	L85972-01A	8/26/2008		8/28/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	10	22	10	mg/L	~	ICP-W-dis
Aspen Spring	L85972-01B	8/26/2008		8/28/2008	Aqueous	Sulfate	14808-79-8	1	8.7	0.75	mg/L		300.0-W
Aspen Spring	L85972-01A	8/26/2008		8/28/2008	Aqueous	TDS		1	280	20	mg/L		TDS-W
Aspen Spring	L85972-01A	8/26/2008		8/28/2008	Aqueous	TSS		1	27	3	mg/L		TSS-W-2540D
Aspen Spring	L85972-01E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Aspen Spring	L87283-05B	10/29/2008		10/31/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Aspen Spring	L87283-05B	10/29/2008		10/31/2008	Aqueous	Alkalinity,(As CaCO3)		1	280	20	mg/L		2320B-ALK-W
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Aspen Spring	L87283-05D	10/29/2008	11/6/2008	11/7/2008	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0.00094	0.0006	mg/L		6020-W-DISS
Aspen Spring	L87283-05B	10/29/2008		10/31/2008	Aqueous	Bicarbonate (As CaCO3)		1	280	20	mg/L		2320B-ALK-W
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	92	10	mg/L	~	ICP-W-dis
Aspen Spring	L87283-05B	10/29/2008		10/31/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Aspen Spring	L87283-05B	10/29/2008		11/11/2008	Aqueous	Chloride	16887-00-6	5	25	0.5	mg/L		300.0-W
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.00089	0.0008	mg/L		6020-W-DISS
Aspen Spring	L87283-05E	10/29/2008		11/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	290	10	mg/L		HARD
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0.057	0.05	mg/L		ICP-W-dis
Aspen Spring	L87283-05F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Iron	7439-89-6	1	2.5	0.05	mg/L		ICP-W
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	15	1	mg/L		ICP-W-dis
Aspen Spring	L87283-05F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Manganese	7439-96-5	1	0.65	0.005	mg/L		ICP-W
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.025	0.0012	mg/L		6020-W-DISS
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Aspen Spring	L87283-05B	10/29/2008		10/31/2008	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Aspen Spring	L87283-05B	10/29/2008		10/31/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Aspen Spring	L87283-05C	10/29/2008		11/2/2008	Aqueous	Oil & Grease		1	4.0	3	mg/L		OGB-W
Aspen Spring	L87283-05B	10/29/2008		10/31/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	6.0	1	mg/L		ICP-W-dis
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Aspen Spring	L87283-05A	10/29/2008		10/30/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	8.6	1	mg/L		ICP-W-dis
Aspen Spring	L87283-05B	10/29/2008		11/11/2008	Aqueous	Sulfate	14808-79-8	5	8.7	3.8	mg/L		300.0-W
Aspen Spring	L87283-05A	10/29/2008		10/31/2008	Aqueous	TDS		1	370	20	mg/L		TDS-W
Aspen Spring	L87283-05A	10/29/2008		10/30/2008	Aqueous	TSS		1	26	3	mg/L		TSS-W-2540D
Aspen Spring	L87283-05E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0.022	0.0054	mg/L		6020-W-DISS
Aspen Spring	1006480-001	6/23/2010		6/25/2010	Aqueous	Settleable Solids		1	0	0.10	mL/L		SS-W-2540F
Aspen Spring	1006480-001	6/23/2010		6/25/2010	Aqueous	Total Dissolved Solids		2	220	20	mg/L		TDS-W-2540C
Aspen Spring	1006480-001	6/23/2010		6/25/2010	Aqueous	Total Suspended Solids	TSS	1	13	3.0	mg/L		TSS-W-2540D
Aspen Spring	1006480-001	6/23/2010		6/29/2010	Aqueous	Chloride	16887-00-6	10	18	1.0	mg/L		300.0-W
Aspen Spring	1006480-001	6/23/2010		6/29/2010	Aqueous	Sulfate	14808-79-8	10	9.9	7.5	mg/L		300.0-W
Aspen Spring	1006480-001	6/23/2010		6/28/2010	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Aspen Spring	1006480-001	6/23/2010		6/28/2010	Aqueous	Alkalinity (as CaCO3)		2	150	20	mg/L		ALK-W-2320B
Aspen Spring	1006480-001	6/23/2010		6/28/2010	Aqueous	Bicarbonate (as CaCO3)		2	150	20	mg/L		ALK-W-2320B
Aspen Spring	1006480-001	6/23/2010		6/28/2010	Aqueous	Carbonate (as CaCO3)		2	0	10	mg/L		ALK-W-2320B
Aspen Spring	1006480-001	6/23/2010		6/25/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0.021	0.010	mg/L		NO2-W-353.2
Aspen Spring	1006480-001	6/23/2010		6/25/2010	Aqueous	Nitrate (as N)	14797-55-8	1	0	0.010	mg/L		NO3-W-353.2
Aspen Spring	1006480-001	6/23/2010		6/25/2010	Aqueous	pH @ 25° C		1	7.71	1.00	pH Units	H	PH-4500H+B
Aspen Spring	1006480-001	6/23/2010		6/25/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0	0.050	mg/L	[1]	PO4-O-365.1
Aspen Spring	1006480-001	6/23/2010		6/30/2010	Aqueous	Oil & Grease		1	0	3.0	mg/L		OGB-W-1664A
Aspen Spring	1006480-001	6/23/2010	6/28/2010	6/29/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0.15	0.050	mg/L		NH3-W-350.1
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Aluminum	7429-90-5	1	0	0.10	mg/L		6010C-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Boron	7440-42-8	1	0	0.50	mg/L		6010C-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Calcium	7440-70-2	1	44	1.0	mg/L		6010C-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	1.1	0.10	mg/L		6010C-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Magnesium	7439-95-4	1	9.1	1.0	mg/L		6010C-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.020	mg/L		6010C-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Potassium	7440-09-7	1	12	1.0	mg/L		6010C-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Sodium	7440-23-5	1	5.8	1.0	mg/L		6010C-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Arsenic	7440-38-2	20	0.0034	0.00060	mg/L		6020-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Copper	7440-50-8	20	0.00095	0.00080	mg/L		6020-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Lead	7439-92-1	20	0	0.00040	mg/L		6020-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Manganese	7439-96-5	20	0.0066	0.0012	mg/L		6020-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Selenium	7782-49-2	20	0.0013	0.00080	mg/L		6020-DIS
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Zinc	7440-66-6	20	0	0.0050	mg/L		6020-DIS
Aspen Spring	1006480-001	6/23/2010		6/28/2010	Aqueous	Hardness (as CaCO3)		1	150	10	mg/L		HARD-2340B
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	4.8	0.10	mg/L		6010C-W
Aspen Spring	1006480-001	6/23/2010	6/25/2010	6/25/2010	Aqueous	Manganese	7439-96-5	20	0.15	0.0012	mg/L		6020-W
CR-06-03	L72071-05B	5/25/2006		5/30/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
CR-06-03	L72071-05B	5/25/2006		5/30/2006	Aqueous	Alkalinity,(As CaCO3)		1	370	10	mg/L		2320B-ALK-W
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03	L72071-05C	5/25/2006	5/30/2006	5/31/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.027	0.005	mg/L		6020-W-DISS
CR-06-03	L72071-05B	5/25/2006		5/30/2006	Aqueous	Bicarbonate (As CaCO3)		1	370	10	mg/L		2320B-ALK-W
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	110	10	mg/L		ICP-W-DIS
CR-06-03	L72071-05B	5/25/2006		5/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
CR-06-03	L72071-05B	5/25/2006		6/1/2006	Aqueous	Chloride	16887-00-6	1	19	10	mg/L		300.0-W
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.0064	0.004	mg/L		6020-W-DISS
CR-06-03	L72071-05E	5/25/2006		6/9/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	280	10	mg/L		HARD
CR-06-03	L72071-05D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Iron	7439-89-6	1	0.51	0.05	mg/L		ICP-W
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	28	10	mg/L		ICP-W-DIS
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.048	0.005	mg/L		6020-W-DISS
CR-06-03	L72071-05D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Manganese	7439-96-5	1	0.053	0.005	mg/L		ICP-W
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03	L72071-05B	5/25/2006		5/26/2006	Aqueous	Nitrate (as N)		1	0.029	0.01	mg/L		NO3-W
CR-06-03	L72071-05B	5/25/2006		5/26/2006	Aqueous	Nitrite (as N)		1	0.018	0.01	mg/L		NO2-W
CR-06-03	L72071-05B	5/25/2006		5/26/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.3	1	mg/L		ICP-W-DIS
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	20	10	mg/L		ICP-W-DIS
CR-06-03	L72071-05B	5/25/2006		6/1/2006	Aqueous	Sulfate	14808-79-8	1	34	10	mg/L		300.0-W
CR-06-03	L72071-05A	5/25/2006		5/26/2006	Aqueous	TDS		1	430	10	mg/L		TDS-W
CR-06-03	L72071-05E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.36	0.01	mg/L		6020-W-DISS
CR-06-03 ABV	L73160-01B	7/31/2006		8/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
CR-06-03 ABV	L73160-01B	7/31/2006		8/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	380	20	mg/L		2320B-ALK-W
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0.12	0.1	mg/L		ICP-W-DIS
CR-06-03 ABV	L73160-01C	7/31/2006	8/2/2006	8/4/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.035	0.005	mg/L		6020-W-DISS
CR-06-03 ABV	L73160-01B	7/31/2006		8/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	380	20	mg/L		2320B-ALK-W
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	120	10	mg/L		ICP-W-DIS
CR-06-03 ABV	L73160-01B	7/31/2006		8/2/2006	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
CR-06-03 ABV	L73160-01B	7/31/2006		8/8/2006	Aqueous	Chloride	16887-00-6	1	63	10	mg/L		300.0-W
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
CR-06-03 ABV	L73160-01E	7/31/2006		8/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	430	10	mg/L		HARD
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
CR-06-03 ABV	L73160-01D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Iron	7439-89-6	1	0.64	0.05	mg/L		ICP-W
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	29	1	mg/L		ICP-W-DIS
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.021	0.005	mg/L		6020-W-DISS
CR-06-03 ABV	L73160-01D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Manganese	7439-96-5	1	0.022	0.005	mg/L		ICP-W
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03 ABV	L73160-01B	7/31/2006		8/2/2006	Aqueous	Nitrate (as N)		1	0.069	0.01	mg/L		NO3-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
CR-06-03 ABV	L73160-01B	7/31/2006		8/2/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
CR-06-03 ABV	L73160-01B	7/31/2006		8/2/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	1	PO4-O
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.9	1	mg/L		ICP-W-DIS
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.0	1	mg/L		ICP-W-DIS
CR-06-03 ABV	L73160-01B	7/31/2006		8/8/2006	Aqueous	Sulfate	14808-79-8	1	42	10	mg/L		300.0-W
CR-06-03 ABV	L73160-01A	7/31/2006		8/3/2006	Aqueous	TDS		1	370	20	mg/L		TDS-W
CR-06-03 ABV	L73160-01E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.28	0.01	mg/L		6020-W-DISS
CR-06-03 ABV	L73504-01B	8/21/2006		8/23/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
CR-06-03 ABV	L73504-01B	8/21/2006		8/23/2006	Aqueous	Alkalinity,(As CaCO3)		1	370	20	mg/L		2320B-ALK-W
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03 ABV	L73504-01C	8/21/2006	8/23/2006	8/24/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L	1	NH3-W
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Arsenic	7440-38-2	5	0.037	0.005	mg/L		6020-W-DISS
CR-06-03 ABV	L73504-01B	8/21/2006		8/23/2006	Aqueous	Bicarbonate (As CaCO3)		1	370	20	mg/L		2320B-ALK-W
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	120	10	mg/L		ICP-W-DIS
CR-06-03 ABV	L73504-01B	8/21/2006		8/23/2006	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
CR-06-03 ABV	L73504-01B	8/21/2006		8/24/2006	Aqueous	Chloride	16887-00-6	1	20	10	mg/L		300.0-W
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
CR-06-03 ABV	L73504-01E	8/21/2006		9/5/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	420	10	mg/L		HARD
CR-06-03 ABV	L73504-01D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Iron	7439-89-6	1	0.95	0.05	mg/L		ICP-W
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	30	10	mg/L		ICP-W-DIS
CR-06-03 ABV	L73504-01D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Manganese	7439-96-5	1	0.018	0.005	mg/L		ICP-W
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Manganese	7439-96-5	5	0.021	0.005	mg/L		6020-W-DISS
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03 ABV	L73504-01B	8/21/2006		8/23/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L	1	NO3-W
CR-06-03 ABV	L73504-01B	8/21/2006		8/23/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
CR-06-03 ABV	L73504-01B	8/21/2006		8/23/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.0	1	mg/L		ICP-W-DIS
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.8	1	mg/L		ICP-W-DIS
CR-06-03 ABV	L73504-01B	8/21/2006		8/24/2006	Aqueous	Sulfate	14808-79-8	1	40	10	mg/L		300.0-W
CR-06-03 ABV	L73504-01E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Zinc	7440-66-6	5	0.23	0.01	mg/L		6020-W-DISS
CR-06-03-ABV	L70402-01B	2/28/2006		3/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
CR-06-03-ABV	L70402-01B	2/28/2006		3/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	400	10	mg/L		2320B-ALK-W
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/7/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03-ABV	L70402-01C	2/28/2006	3/2/2006	3/2/2006	Aqueous	Ammonia (as N)		1	0	0.1	mg/L		NH3-W
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/13/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.036	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L70402-01B	2/28/2006		3/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	400	10	mg/L		2320B-ALK-W
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/7/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/13/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/7/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	130	10	mg/L		ICP-W-DIS
CR-06-03-ABV	L70402-01B	2/28/2006		3/2/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
CR-06-03-ABV	L70402-01B	2/28/2006		3/3/2006	Aqueous	Chloride	16887-00-6	10	36	10	mg/L		300.0-W
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/13/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.068	0.004	mg/L		6020-W-DISS
CR-06-03-ABV	L70402-01E	2/28/2006		3/7/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	460	10	mg/L		HARD
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/7/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
CR-06-03-ABV	L70402-01D	2/28/2006	3/1/2006	3/2/2006	Aqueous	Iron	7439-89-6	1	4.3	0.05	mg/L		ICP-W
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/13/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/7/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	30	1	mg/L		ICP-W-DIS
CR-06-03-ABV	L70402-01D	2/28/2006	3/1/2006	3/2/2006	Aqueous	Manganese	7439-96-5	1	0.15	0.005	mg/L		ICP-W
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/13/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.095	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/7/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03-ABV	L70402-01B	2/28/2006		3/2/2006	Aqueous	Nitrate (as N)		1	0.086	0.01	mg/L		NO3-W
CR-06-03-ABV	L70402-01B	2/28/2006		3/2/2006	Aqueous	Nitrite (as N)		1	0.019	0.01	mg/L		NO2-W
CR-06-03-ABV	L70402-01B	2/28/2006		3/1/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.066	0.05	mg/L		PO4-O
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/7/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.4	1	mg/L		ICP-W-DIS
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/13/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/7/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	25	10	mg/L		ICP-W-DIS
CR-06-03-ABV	L70402-01B	2/28/2006		3/3/2006	Aqueous	Sulfate	14808-79-8	10	50	10	mg/L		300.0-W
CR-06-03-ABV	L70402-01A	2/28/2006		3/3/2006	Aqueous	TDS		1	460	10	mg/L		TDS-W
CR-06-03-ABV	L70402-01E	2/28/2006	3/2/2006	3/13/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	2.8	0.01	mg/L		6020-W-DISS
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	120	10	mg/L		ICP-W-DIS
CR-06-03-ABV	L70885-05B	3/27/2006		3/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
CR-06-03-ABV	L70885-05B	3/27/2006		3/29/2006	Aqueous	Chloride	16887-00-6	10	17	10	mg/L		300.0-W
CR-06-03-ABV	L70885-05B	3/27/2006		3/30/2006	Aqueous	Conductivity		1	800	2	umhos/cm		COND-W
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.0088	0.004	mg/L		6020-W-DISS
CR-06-03-ABV	L70885-05E	3/27/2006		4/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	420	10	mg/L		HARD
CR-06-03-ABV	L70885-05D	3/27/2006	4/6/2006	4/9/2006	Aqueous	Iron	7439-89-6	1	0.46	0.05	mg/L		ICP-W
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0.052	0.05	mg/L		ICP-W-DIS
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	31	1	mg/L		ICP-W-DIS
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.075	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L70885-05D	3/27/2006	4/3/2006	4/4/2006	Aqueous	Manganese	7439-96-5	1	0.11	0.005	mg/L		ICP-W
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03-ABV	L70885-05B	3/27/2006		3/29/2006	Aqueous	Nitrate (as N)		1	0.076	0.01	mg/L		NO3-W
CR-06-03-ABV	L70885-05B	3/27/2006		3/29/2006	Aqueous	Nitrite (as N)		1	0.025	0.01	mg/L		NO2-W
CR-06-03-ABV	L70885-05B	3/27/2006		3/28/2006	Aqueous	pH @ 25° C		1	7.14	0	pH Units		PH-W
CR-06-03-ABV	L70885-05B	3/27/2006		3/29/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.5	1	mg/L		ICP-W-DIS
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.4	1	mg/L		ICP-W-DIS
CR-06-03-ABV	L70885-05B	3/27/2006		3/29/2006	Aqueous	Sulfate	14808-79-8	10	34	10	mg/L		300.0-W
CR-06-03-ABV	L70885-05A	3/27/2006		3/31/2006	Aqueous	TDS		1	350	10	mg/L		TDS-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
CR-06-03-ABV	L70885-05E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.43	0.01	mg/L		6020-W-DISS
CR-06-03-ABV	L71507-05B	4/26/2006		5/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
CR-06-03-ABV	L71507-05B	4/26/2006		5/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	410	10	mg/L		2320B-ALK-W
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
CR-06-03-ABV	L71507-05C	4/26/2006	5/3/2006	5/3/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.026	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L71507-05B	4/26/2006		5/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	410	10	mg/L		2320B-ALK-W
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	130	10	mg/L		ICP-W-dis
CR-06-03-ABV	L71507-05B	4/26/2006		5/2/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
CR-06-03-ABV	L71507-05B	4/26/2006		5/13/2006	Aqueous	Chloride	16887-00-6	1	17	10	mg/L		300.0-W
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.011	0.004	mg/L		6020-W-DISS
CR-06-03-ABV	L71507-05E	4/26/2006		5/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	450	10	mg/L		HARD
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
CR-06-03-ABV	L71507-05D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Iron	7439-89-6	1	0.99	0.05	mg/L		ICP-W
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	31	10	mg/L		ICP-W-dis
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.058	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L71507-05D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Manganese	7439-96-5	1	0.063	0.005	mg/L		ICP-W
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
CR-06-03-ABV	L71507-05C	4/26/2006		5/4/2006	Aqueous	Nitrate/Nitrite (as N)		1	0.024	0.01	mg/L		NO2/NO3-W
CR-06-03-ABV	L71507-05B	4/26/2006		4/28/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.04	0.05	mg/L		PO4-O
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.4	1	mg/L		ICP-W-dis
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	10	21	10	mg/L		ICP-W-dis
CR-06-03-ABV	L71507-05B	4/26/2006		5/13/2006	Aqueous	Sulfate	14808-79-8	1	31	10	mg/L		300.0-W
CR-06-03-ABV	L71507-05A	4/26/2006		4/28/2006	Aqueous	TDS		1	410	10	mg/L		TDS-W
CR-06-03-ABV	L71507-05E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.40	0.01	mg/L		6020-W-DISS
CR-06-03-ABV	L72660-06B	6/29/2006		7/3/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
CR-06-03-ABV	L72660-06B	6/29/2006		7/3/2006	Aqueous	Alkalinity,(As CaCO3)		1	380	20	mg/L		2320B-ALK-W
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03-ABV	L72660-06C	6/29/2006	7/5/2006	7/7/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.033	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L72660-06B	6/29/2006		7/3/2006	Aqueous	Bicarbonate (As CaCO3)		1	380	20	mg/L		2320B-ALK-W
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	110	10	mg/L		ICP-W-DIS
CR-06-03-ABV	L72660-06B	6/29/2006		7/3/2006	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
CR-06-03-ABV	L72660-06B	6/29/2006		7/5/2006	Aqueous	Chloride	16887-00-6	1	17	10	mg/L		300.0-W
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
CR-06-03-ABV	L72660-06E	6/29/2006		7/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	430	10	mg/L		HARD
CR-06-03-ABV	L72660-06D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Iron	7439-89-6	1	0.31	0.05	mg/L		ICP-W
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	29	10	mg/L		ICP-W-DIS
CR-06-03-ABV	L72660-06D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Manganese	7439-96-5	1	0.025	0.005	mg/L		ICP-W
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.031	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
CR-06-03-ABV	L72660-06B	6/29/2006		6/30/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
CR-06-03-ABV	L72660-06B	6/29/2006		6/30/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
CR-06-03-ABV	L72660-06B	6/29/2006		6/30/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.0	1	mg/L		ICP-W-DIS
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	8.7	1	mg/L		ICP-W-DIS
CR-06-03-ABV	L72660-06B	6/29/2006		7/5/2006	Aqueous	Sulfate	14808-79-8	1	39	10	mg/L		300.0-W
CR-06-03-ABV	L72660-06A	6/29/2006		6/30/2006	Aqueous	TDS		1	370	20	mg/L		TDS-W
CR-06-03-ABV	L72660-06E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.38	0.01	mg/L		6020-W-DISS
CR-06-03-ABV	L73504-01A	8/21/2006		8/25/2006	Aqueous	TDS		1	400	20	mg/L		TDS-W
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Chloride	16887-00-6	10	14.2	1.00	mg/L		300.0-W
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Sulfate	14808-79-8	10	27.4	7.50	mg/L		300.0-W
CR-10-11	1007245-001	7/15/2010		7/19/2010	Aqueous	Acidity		1	50.0	15.0	mg/L		ACIDITY-W-2310B
CR-10-11	1007245-001	7/15/2010		7/19/2010	Aqueous	Alkalinity (as CaCO3)		2	212	20.0	mg/L		ALK-W-2320B
CR-10-11	1007245-001	7/15/2010		7/19/2010	Aqueous	Bicarbonate (as CaCO3)		2	212	20.0	mg/L		ALK-W-2320B
CR-10-11	1007245-001	7/15/2010		7/19/2010	Aqueous	Carbonate (as CaCO3)		2	0	10.0	mg/L		ALK-W-2320B
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0	0.0100	mg/L		NO2-W-353.2
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Nitrate (as N)	14797-55-8	10	2.54	0.100	mg/L		NO3-W-353.2
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0.0584	0.0500	mg/L	[1]	PO4-O-365.1
CR-10-11	1007245-001	7/15/2010	7/28/2010	7/29/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0	0.0500	mg/L		NH3-W-350.1
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Aluminum	7429-90-5	1	0	0.100	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Boron	7440-42-8	1	0	0.500	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Calcium	7440-70-2	10	77.9	10.0	mg/L	[2]	6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Iron	7439-89-6	1	0	0.100	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Magnesium	7439-95-4	1	11.9	1.00	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.0200	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Potassium	7440-09-7	1	0	1.00	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Sodium	7440-23-5	1	11.4	1.00	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Arsenic	7440-38-2	20	0	0.000600	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Cadmium	7440-43-9	20	0	0.000180	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Copper	7440-50-8	20	0	0.000800	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Lead	7439-92-1	20	0	0.000400	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Manganese	7439-96-5	20	0.00213	0.00120	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Selenium	7782-49-2	20	0.00206	0.000800	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Zinc	7440-66-6	20	0.0113	0.00500	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010		7/20/2010	Aqueous	Hardness (as CaCO3)		10	243	100	mg/L		HARD-2340B
CR-10-11	1007245-001	7/15/2010	7/19/2010	7/21/2010	Aqueous	Iron	7439-89-6	1	0.648	0.100	mg/L		6010C-W
CR-10-11	1007245-001	7/15/2010	7/19/2010	7/20/2010	Aqueous	Manganese	7439-96-5	20	0.00801	0.00120	mg/L		6020-W
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Total Dissolved Solids		2	288	20.0	mg/L		TDS-W-2540C
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Chloride	16887-00-6	10	14.2	1.00	mg/L		300.0-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Sulfate	14808-79-8	10	27.4	7.50	mg/L		300.0-W
CR-10-11	1007245-001	7/15/2010		7/19/2010	Aqueous	Acidity		1	50.0	15.0	mg/L		ACIDITY-W-2310B
CR-10-11	1007245-001	7/15/2010		7/19/2010	Aqueous	Alkalinity (as CaCO3)		2	212	20.0	mg/L		ALK-W-2320B
CR-10-11	1007245-001	7/15/2010		7/19/2010	Aqueous	Bicarbonate (as CaCO3)		2	212	20.0	mg/L		ALK-W-2320B
CR-10-11	1007245-001	7/15/2010		7/19/2010	Aqueous	Carbonate (as CaCO3)		2	0	10.0	mg/L		ALK-W-2320B
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0	0.0100	mg/L		NO2-W-353.2
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Nitrate (as N)	14797-55-8	10	2.54	0.100	mg/L		NO3-W-353.2
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0.0584	0.0500	mg/L	1	PO4-O-365.1
CR-10-11	1007245-001	7/15/2010	7/28/2010	7/29/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0	0.0500	mg/L		NH3-W-350.1
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Aluminum	7429-90-5	1	0	0.100	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Boron	7440-42-8	1	0	0.500	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Calcium	7440-70-2	10	77.9	10.0	mg/L	2	6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Iron	7439-89-6	1	0	0.100	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Magnesium	7439-95-4	1	11.9	1.00	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.0200	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Potassium	7440-09-7	1	0	1.00	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/20/2010	Aqueous	Sodium	7440-23-5	1	11.4	1.00	mg/L		6010C-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Arsenic	7440-38-2	20	0	0.000600	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Cadmium	7440-43-9	20	0	0.000180	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Copper	7440-50-8	20	0	0.000800	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Lead	7439-92-1	20	0	0.000400	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Manganese	7439-96-5	20	0.00213	0.00120	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Selenium	7782-49-2	20	0.00206	0.000800	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010	7/16/2010	7/19/2010	Aqueous	Zinc	7440-66-6	20	0.0113	0.00500	mg/L		6020-DIS
CR-10-11	1007245-001	7/15/2010		7/20/2010	Aqueous	Hardness (as CaCO3)		10	243	100	mg/L		HARD-2340B
CR-10-11	1007245-001	7/15/2010	7/19/2010	7/21/2010	Aqueous	Iron	7439-89-6	1	0.648	0.100	mg/L		6010C-W
CR-10-11	1007245-001	7/15/2010	7/19/2010	7/20/2010	Aqueous	Manganese	7439-96-5	20	0.00801	0.00120	mg/L		6020-W
CR-10-11	1007245-001	7/15/2010		7/16/2010	Aqueous	Total Dissolved Solids		2	288	20.0	mg/L		TDS-W-2540C
CR-10-11	1009035-001	8/31/2010		9/2/2010	Aqueous	Settleable Solids		1	6.50	0.100	mL/L		SS-W-2540F
CR-10-11	1009035-001	8/31/2010		9/2/2010	Aqueous	Total Dissolved Solids		1	470	50.0	mg/L		TDS-W-2540C
CR-10-11	1009035-001	8/31/2010		9/2/2010	Aqueous	Total Suspended Solids	TSS	1	2,690	30.0	mg/L		TSS-W-2540D
CR-10-11	1009035-001	8/31/2010		9/2/2010	Aqueous	Chloride	16887-00-6	5	14.7	0.500	mg/L		300.0-W
CR-10-11	1009035-001	8/31/2010		9/2/2010	Aqueous	Sulfate	14808-79-8	5	28.3	3.75	mg/L		300.0-W
CR-10-11	1009035-001	8/31/2010		9/3/2010	Aqueous	Acidity		1	46.0	15.0	mg/L		ACIDITY-W-2310B
CR-10-11	1009035-001	8/31/2010		9/3/2010	Aqueous	Alkalinity (as CaCO3)		2	214	20.0	mg/L		ALK-W-2320B
CR-10-11	1009035-001	8/31/2010		9/3/2010	Aqueous	Bicarbonate (as CaCO3)		2	214	20.0	mg/L		ALK-W-2320B
CR-10-11	1009035-001	8/31/2010		9/3/2010	Aqueous	Carbonate (as CaCO3)		2	0	10.0	mg/L		ALK-W-2320B
CR-10-11	1009035-001	8/31/2010		9/2/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0.0828	0.0100	mg/L		NO2-W-353.2
CR-10-11	1009035-001	8/31/2010		9/2/2010	Aqueous	Nitrate (as N)	14797-55-8	10	2.54	0.100	mg/L	1	NO3-W-353.2
CR-10-11	1009035-001	8/31/2010		9/2/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0.225	0.0500	mg/L		PO4-O-365.1
CR-10-11	1009035-001	8/31/2010		9/7/2010	Aqueous	Oil & Grease		1	0	3.00	mg/L		OGB-W-1664A
CR-10-11	1009035-001	8/31/2010	9/10/2010	9/14/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0	0.0500	mg/L		NH3-W-350.1
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/14/2010	Aqueous	Aluminum	7429-90-5	1	0	0.100	mg/L		6010C-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/14/2010	Aqueous	Boron	7440-42-8	1	0	0.500	mg/L		6010C-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/14/2010	Aqueous	Calcium	7440-70-2	10	82.3	10.0	mg/L	2	6010C-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/14/2010	Aqueous	Iron	7439-89-6	1	0	0.100	mg/L		6010C-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/14/2010	Aqueous	Magnesium	7439-95-4	1	12.4	1.00	mg/L		6010C-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/14/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.0200	mg/L		6010C-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/14/2010	Aqueous	Potassium	7440-09-7	1	1.27	1.00	mg/L		6010C-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/14/2010	Aqueous	Sodium	7440-23-5	1	11.5	1.00	mg/L		6010C-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/6/2010	Aqueous	Arsenic	7440-38-2	20	0	0.000600	mg/L		6020-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/6/2010	Aqueous	Cadmium	7440-43-9	20	0	0.000180	mg/L		6020-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/6/2010	Aqueous	Copper	7440-50-8	20	0.00140	0.000800	mg/L		6020-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/6/2010	Aqueous	Lead	7439-92-1	20	0	0.000400	mg/L		6020-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/6/2010	Aqueous	Manganese	7439-96-5	20	0.0182	0.00120	mg/L		6020-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/6/2010	Aqueous	Selenium	7782-49-2	20	0.00130	0.000800	mg/L		6020-DIS
CR-10-11	1009035-001	8/31/2010	9/3/2010	9/6/2010	Aqueous	Zinc	7440-66-6	20	0.00958	0.00500	mg/L		6020-DIS
CR-10-11	1009035-001	8/31/2010		9/14/2010	Aqueous	Hardness (as CaCO3)		1	257	10.0	mg/L		HARD-2340B
CR-10-11	1009035-001	8/31/2010	9/5/2010	9/8/2010	Aqueous	Iron	7439-89-6	1	22.7	0.100	mg/L		6010C-W
CR-10-11	1009035-001	8/31/2010	9/5/2010	9/6/2010	Aqueous	Manganese	7439-96-5	20	0.437	0.00120	mg/L		6020-W
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Chloride	16887-00-6	10	21.8	1.00	mg/L		300.0-W
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Sulfate	14808-79-8	10	73.9	7.50	mg/L		300.0-W
CR-10-12	1007213-001	7/13/2010		7/19/2010	Aqueous	Acidity		1	0	15.0	mg/L		ACIDITY-W-2310B
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Alkalinity (as CaCO3)		2	175	20.0	mg/L		ALK-W-2320B
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Bicarbonate (as CaCO3)		2	175	20.0	mg/L		ALK-W-2320B
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Carbonate (as CaCO3)		2	0	10.0	mg/L		ALK-W-2320B
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0.180	0.0100	mg/L		NO2-W-353.2
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Nitrate (as N)	14797-55-8	10	6.70	0.100	mg/L	1	NO3-W-353.2
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0.379	0.0500	mg/L		PO4-O-365.1
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/19/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0	0.0500	mg/L		NH3-W-350.1
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Aluminum	7429-90-5	1	0	0.100	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Boron	7440-42-8	1	0	0.500	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Calcium	7440-70-2	10	99.9	10.0	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Iron	7439-89-6	1	0	0.100	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Magnesium	7439-95-4	1	8.96	1.00	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.0200	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Potassium	7440-09-7	1	1.20	1.00	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Sodium	7440-23-5	1	16.1	1.00	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Arsenic	7440-38-2	20	0	0.000600	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Cadmium	7440-43-9	20	0	0.000180	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Copper	7440-50-8	20	0	0.000800	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Lead	7439-92-1	20	0	0.000400	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Manganese	7439-96-5	20	0	0.00120	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Selenium	7782-49-2	20	0.00120	0.000800	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Zinc	7440-66-6	20	0	0.00500	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Hardness (as CaCO3)		10	286	100	mg/L		HARD-2340B
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Iron	7439-89-6	1	44.8	0.100	mg/L	2	6010C-W
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Manganese	7439-96-5	100	0.559	0.00600	mg/L		6020-W
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Total Dissolved Solids		10	620	100	mg/L		TDS-W-2540C

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Chloride	16887-00-6	10	21.8	1.00	mg/L		300.0-W
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Sulfate	14808-79-8	10	73.9	7.50	mg/L		300.0-W
CR-10-12	1007213-001	7/13/2010		7/19/2010	Aqueous	Acidity		1	0	15.0	mg/L		ACIDITY-W-2310B
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Alkalinity (as CaCO3)		2	175	20.0	mg/L		ALK-W-2320B
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Bicarbonate (as CaCO3)		2	175	20.0	mg/L		ALK-W-2320B
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Carbonate (as CaCO3)		2	0	10.0	mg/L		ALK-W-2320B
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0.180	0.0100	mg/L		NO2-W-353.2
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Nitrate (as N)	14797-55-8	10	6.70	0.100	mg/L	[1]	NO3-W-353.2
CR-10-12	1007213-001	7/13/2010		7/15/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0.379	0.0500	mg/L		PO4-O-365.1
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/19/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0	0.0500	mg/L		NH3-W-350.1
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Aluminum	7429-90-5	1	0	0.100	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Boron	7440-42-8	1	0	0.500	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Calcium	7440-70-2	10	99.9	10.0	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Iron	7439-89-6	1	0	0.100	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Magnesium	7439-95-4	1	8.96	1.00	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.0200	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Potassium	7440-09-7	1	1.20	1.00	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/16/2010	Aqueous	Sodium	7440-23-5	1	16.1	1.00	mg/L		6010C-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Arsenic	7440-38-2	20	0	0.000600	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Cadmium	7440-43-9	20	0	0.000180	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Copper	7440-50-8	20	0	0.000800	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Lead	7439-92-1	20	0	0.000400	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Manganese	7439-96-5	20	0	0.00120	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Selenium	7782-49-2	20	0.00120	0.000800	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Zinc	7440-66-6	20	0	0.00500	mg/L		6020-DIS
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Hardness (as CaCO3)		10	286	100	mg/L		HARD-2340B
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Iron	7439-89-6	1	44.8	0.100	mg/L	[2]	6010C-W
CR-10-12	1007213-001	7/13/2010	7/15/2010	7/15/2010	Aqueous	Manganese	7439-96-5	100	0.559	0.00600	mg/L		6020-W
CR-10-12	1007213-001	7/13/2010		7/16/2010	Aqueous	Total Dissolved Solids		10	620	100	mg/L		TDS-W-2540C
CR-10-12	1009035-002	8/31/2010		9/2/2010	Aqueous	Settleable Solids		1	0	0.100	mL/L		SS-W-2540F
CR-10-12	1009035-002	8/31/2010		9/2/2010	Aqueous	Total Dissolved Solids		1	308	20.0	mg/L	@	TDS-W-2540C
CR-10-12	1009035-002	8/31/2010		9/2/2010	Aqueous	Total Suspended Solids	TSS	1	95.0	3.00	mg/L		TSS-W-2540D
CR-10-12	1009035-002	8/31/2010		9/2/2010	Aqueous	Chloride	16887-00-6	5	18.8	0.500	mg/L		300.0-W
CR-10-12	1009035-002	8/31/2010		9/2/2010	Aqueous	Sulfate	14808-79-8	5	37.1	3.75	mg/L		300.0-W
CR-10-12	1009035-002	8/31/2010		9/3/2010	Aqueous	Acidity		1	0	15.0	mg/L		ACIDITY-W-2310B
CR-10-12	1009035-002	8/31/2010		9/3/2010	Aqueous	Alkalinity (as CaCO3)		2	175	20.0	mg/L		ALK-W-2320B
CR-10-12	1009035-002	8/31/2010		9/3/2010	Aqueous	Bicarbonate (as CaCO3)		2	175	20.0	mg/L		ALK-W-2320B
CR-10-12	1009035-002	8/31/2010		9/3/2010	Aqueous	Carbonate (as CaCO3)		2	0	10.0	mg/L		ALK-W-2320B
CR-10-12	1009035-002	8/31/2010		9/2/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0.0426	0.0100	mg/L		NO2-W-353.2
CR-10-12	1009035-002	8/31/2010		9/2/2010	Aqueous	Nitrate (as N)	14797-55-8	10	5.17	0.100	mg/L		NO3-W-353.2
CR-10-12	1009035-002	8/31/2010		9/2/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0.0907	0.0500	mg/L		PO4-O-365.1
CR-10-12	1009035-002	8/31/2010		9/7/2010	Aqueous	Oil & Grease		1	0	3.00	mg/L		OGB-W-1664A
CR-10-12	1009035-002	8/31/2010	9/10/2010	9/14/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0	0.0500	mg/L		NH3-W-350.1
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/14/2010	Aqueous	Aluminum	7429-90-5	1	0	0.100	mg/L		6010C-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/14/2010	Aqueous	Boron	7440-42-8	1	0	0.500	mg/L		6010C-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/14/2010	Aqueous	Calcium	7440-70-2	10	66.2	10.0	mg/L		6010C-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/14/2010	Aqueous	Iron	7439-89-6	1	0	0.100	mg/L		6010C-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/14/2010	Aqueous	Magnesium	7439-95-4	1	6.10	1.00	mg/L		6010C-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/14/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.0200	mg/L		6010C-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/14/2010	Aqueous	Potassium	7440-09-7	1	1.04	1.00	mg/L		6010C-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/14/2010	Aqueous	Sodium	7440-23-5	1	25.7	1.00	mg/L		6010C-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/6/2010	Aqueous	Arsenic	7440-38-2	20	0	0.000600	mg/L		6020-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/6/2010	Aqueous	Cadmium	7440-43-9	20	0	0.000180	mg/L		6020-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/6/2010	Aqueous	Copper	7440-50-8	20	0	0.000800	mg/L		6020-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/6/2010	Aqueous	Lead	7439-92-1	20	0	0.000400	mg/L		6020-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/6/2010	Aqueous	Manganese	7439-96-5	20	0.00212	0.00120	mg/L		6020-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/6/2010	Aqueous	Selenium	7782-49-2	20	0.000870	0.000800	mg/L		6020-DIS
CR-10-12	1009035-002	8/31/2010	9/3/2010	9/6/2010	Aqueous	Zinc	7440-66-6	20	0	0.00500	mg/L		6020-DIS
CR-10-12	1009035-002	8/31/2010		9/14/2010	Aqueous	Hardness (as CaCO3)		1	191	10.0	mg/L		HARD-2340B
CR-10-12	1009035-002	8/31/2010	9/5/2010	9/8/2010	Aqueous	Iron	7439-89-6	1	3.01	0.100	mg/L		6010C-W
CR-10-12	1009035-002	8/31/2010	9/5/2010	9/6/2010	Aqueous	Manganese	7439-96-5	20	0.0287	0.00120	mg/L		6020-W
Eagle Spring	L65736-02B	5/9/2005		5/11/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Eagle Spring	L65736-02B	5/9/2005		5/11/2005	Aqueous	Alkalinity,(As CaCO3)		1	46	10	mg/L		2320B-ALK-W
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0.94	0.1	mg/L		ICP-W-dis
Eagle Spring	L65736-02F	5/9/2005	5/11/2005	5/12/2005	Aqueous	Ammonia (as N)		1	0.082	0.05	mg/L		NH3-W
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.002	0.005	mg/L		6020-W-DISS
Eagle Spring	L65736-02B	5/9/2005		5/11/2005	Aqueous	Bicarbonate (As CaCO3)		1	46	10	mg/L		2320B-ALK-W
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0.08	0.5	mg/L		ICP-W-dis
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	15	1	mg/L		ICP-W-dis
Eagle Spring	L65736-02B	5/9/2005		5/11/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Eagle Spring	L65736-02B	5/9/2005		5/18/2005	Aqueous	Chloride	16887-00-6	1	5.0	1	mg/L		300.0-W
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0.0057	0.004	mg/L		6020-W-DISS
Eagle Spring	L65736-02D	5/9/2005		5/20/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	55	10	mg/L		HARD
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0.75	0.05	mg/L		ICP-W-dis
Eagle Spring	L65736-02C	5/9/2005	5/11/2005	5/19/2005	Aqueous	Iron	7439-89-6	1	1.1	0.05	mg/L		ICP-W
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	3.5	1	mg/L		ICP-W-dis
Eagle Spring	L65736-02C	5/9/2005	5/11/2005	5/19/2005	Aqueous	Manganese	7439-96-5	1	0.018	0.005	mg/L		6020-W
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.017	0.005	mg/L		6020-W-DISS
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Eagle Spring	L65736-02B	5/9/2005		5/11/2005	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Eagle Spring	L65736-02B	5/9/2005		5/11/2005	Aqueous	Nitrite (as N)		1	0.010	0.01	mg/L		NO2-W
Eagle Spring	L65736-02E	5/9/2005		5/11/2005	Aqueous	Oil & Grease		1	3.3	3	mg/L		OGB-W
Eagle Spring	L65736-02B	5/9/2005		5/11/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.13	0.05	mg/L		PO4-O
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	4.5	1	mg/L		ICP-W-dis
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0.002	0.005	mg/L		6020-W-DISS
Eagle Spring	L65736-02A	5/9/2005		5/10/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	4.4	1	mg/L		ICP-W-dis

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Eagle Spring	L65736-02B	5/9/2005		5/18/2005	Aqueous	Sulfate	14808-79-8	1	6.2	1	mg/L		300.0-W
Eagle Spring	L65736-02A	5/9/2005		5/10/2005	Aqueous	TDS		1	120	10	mg/L		TDS-W
Eagle Spring	L65736-02A	5/9/2005		5/10/2005	Aqueous	TSS		1	8.0	3	mg/L		TSS-W
Eagle Spring	L65736-02D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.016	0.01	mg/L		6020-W-DISS
Eagle Spring	L71507-06B	4/26/2006		5/2/2006	Aqueous	Acidity		1	24	15	mg/L		ACIDITY-W
Eagle Spring	L71507-06B	4/26/2006		5/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	64	10	mg/L		2320B-ALK-W
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	1.5	0.1	mg/L		ICP-W-dis
Eagle Spring	L71507-06C	4/26/2006	5/3/2006	5/3/2006	Aqueous	Ammonia (as N)		1	0.081	0.05	mg/L		NH3-W
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.0056	0.005	mg/L		6020-W-DISS
Eagle Spring	L71507-06B	4/26/2006		5/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	64	10	mg/L		2320B-ALK-W
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	15	1	mg/L		ICP-W-dis
Eagle Spring	L71507-06B	4/26/2006		5/2/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Eagle Spring	L71507-06B	4/26/2006		5/13/2006	Aqueous	Chloride	16887-00-6	1	3.8	1	mg/L		300.0-W
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.0058	0.004	mg/L		6020-W-DISS
Eagle Spring	L71507-06E	4/26/2006		5/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	51	10	mg/L		HARD
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Iron	7439-89-6	1	1.1	0.05	mg/L		ICP-W-dis
Eagle Spring	L71507-06D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Iron	7439-89-6	1	2.7	0.05	mg/L	1	ICP-W
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	3.3	1	mg/L		ICP-W-dis
Eagle Spring	L71507-06D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Manganese	7439-96-5	1	0.016	0.005	mg/L		ICP-W
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.0060	0.005	mg/L		6020-W-DISS
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Eagle Spring	L71507-06C	4/26/2006		5/4/2006	Aqueous	Nitrate/Nitrite (as N)		1	0.31	0.01	mg/L		NO2/NO3-W
Eagle Spring	L71507-06F	4/26/2006		5/5/2006	Aqueous	Oil & Grease		1	3.3	3	mg/L		OGB-W
Eagle Spring	L71507-06B	4/26/2006		4/28/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.11	0.05	mg/L	H	PO4-O
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.3	1	mg/L		ICP-W-dis
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Eagle Spring	L71507-06A	4/26/2006		4/28/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	25	1	mg/L		ICP-W-dis
Eagle Spring	L71507-06B	4/26/2006		5/13/2006	Aqueous	Sulfate	14808-79-8	1	4.8	1	mg/L		300.0-W
Eagle Spring	L71507-06A	4/26/2006		4/28/2006	Aqueous	TDS		1	150	10	mg/L		TDS-W
Eagle Spring	L71507-06A	4/26/2006		4/28/2006	Aqueous	TSS		1	36	3	mg/L	~	TSS-W
Eagle Spring	L71507-06E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.026	0.01	mg/L		6020-W-DISS
Eagle Spring	L72071-06B	5/25/2006		5/30/2006	Aqueous	Acidity		1	18	15	mg/L		ACIDITY-W
Eagle Spring	L72071-06B	5/25/2006		5/30/2006	Aqueous	Alkalinity,(As CaCO3)		1	34	10	mg/L		2320B-ALK-W
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	1.2	0.1	mg/L		ICP-W-DIS
Eagle Spring	L72071-06C	5/25/2006	5/30/2006	5/31/2006	Aqueous	Ammonia (as N)		1	0.091	0.05	mg/L		NH3-W
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Eagle Spring	L72071-06B	5/25/2006		5/30/2006	Aqueous	Bicarbonate (As CaCO3)		1	34	10	mg/L		2320B-ALK-W
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	11	10	mg/L		ICP-W-DIS
Eagle Spring	L72071-06B	5/25/2006		5/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Eagle Spring	L72071-06B	5/25/2006		6/1/2006	Aqueous	Chloride	16887-00-6	1	5.0	1	mg/L		300.0-W
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.0063	0.004	mg/L		6020-W-DISS
Eagle Spring	L72071-06E	5/25/2006		6/9/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	28	10	mg/L		HARD
Eagle Spring	L72071-06D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Iron	7439-89-6	1	2.2	0.05	mg/L	1	ICP-W
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0.94	0.05	mg/L		ICP-W-DIS
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	2.7	1	mg/L		ICP-W-DIS
Eagle Spring	L72071-06D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Manganese	7439-96-5	1	0.0093	0.005	mg/L		ICP-W
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Eagle Spring	L72071-06B	5/25/2006		5/26/2006	Aqueous	Nitrate (as N)		1	0.099	0.01	mg/L		NO3-W
Eagle Spring	L72071-06B	5/25/2006		5/26/2006	Aqueous	Nitrite (as N)		1	0.025	0.01	mg/L		NO2-W
Eagle Spring	L72071-06F	5/25/2006		5/30/2006	Aqueous	Oil & Grease		1	3.4	3	mg/L		OGB-W
Eagle Spring	L72071-06B	5/25/2006		5/26/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.060	0.05	mg/L		PO4-O
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.1	1	mg/L		ICP-W-DIS
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Eagle Spring	L72071-06A	5/25/2006		5/26/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	11	10	mg/L		ICP-W-DIS
Eagle Spring	L72071-06B	5/25/2006		6/1/2006	Aqueous	Sulfate	14808-79-8	1	6.0	1	mg/L		300.0-W
Eagle Spring	L72071-06A	5/25/2006		5/26/2006	Aqueous	TDS		1	140	10	mg/L		TDS-W
Eagle Spring	L72071-06A	5/25/2006		5/26/2006	Aqueous	TSS		1	33	3	mg/L		TSS-W
Eagle Spring	L72071-06E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.027	0.01	mg/L		6020-W-DISS
Miller Outlet	L65736-01B	5/9/2005		5/11/2005	Aqueous	Acidity		1	86	15	mg/L		ACIDITY-W
Miller Outlet	L65736-01B	5/9/2005		5/11/2005	Aqueous	Alkalinity,(As CaCO3)		1	260	10	mg/L		2320B-ALK-W
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L65736-01F	5/9/2005	5/11/2005	5/12/2005	Aqueous	Ammonia (as N)		1	0.055	0.05	mg/L		NH3-W
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.001	0.005	mg/L		6020-W-DISS
Miller Outlet	L65736-01B	5/9/2005		5/11/2005	Aqueous	Bicarbonate (As CaCO3)		1	260	10	mg/L		2320B-ALK-W
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0.03	0.5	mg/L		ICP-W-dis
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	92	10	mg/L	1	ICP-W-dis
Miller Outlet	L65736-01B	5/9/2005		5/11/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L65736-01B	5/9/2005		5/18/2005	Aqueous	Chloride	16887-00-6	1	13	10	mg/L		300.0-W
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0.002	0.004	mg/L		6020-W-DISS
Miller Outlet	L65736-01D	5/9/2005		5/20/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L65736-01C	5/9/2005	5/11/2005	5/19/2005	Aqueous	Iron	7439-89-6	1	2.3	0.05	mg/L	1	ICP-W
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	1	mg/L		ICP-W-dis
Miller Outlet	L65736-01C	5/9/2005	5/11/2005	5/19/2005	Aqueous	Manganese	7439-96-5	1	0.16	0.005	mg/L		6020-W
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.075	0.005	mg/L		6020-W-DISS
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L65736-01B	5/9/2005		5/11/2005	Aqueous	Nitrate (as N)		1	0.023	0.01	mg/L		NO3-W
Miller Outlet	L65736-01B	5/9/2005		5/11/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W

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Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L65736-01E	5/9/2005		5/11/2005	Aqueous	Oil & Grease		1	3.5	3	mg/L		OGB-W
Miller Outlet	L65736-01B	5/9/2005		5/11/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	2.6	1	mg/L		ICP-W-dis
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0.002	0.005	mg/L		6020-W-DISS
Miller Outlet	L65736-01A	5/9/2005		5/10/2005	Aqueous	Settable Solids		1	0.20	0.1	ml/L		SS
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	11	1	mg/L	1	ICP-W-dis
Miller Outlet	L65736-01B	5/9/2005		5/18/2005	Aqueous	Sulfate	14808-79-8	1	42	10	mg/L		300.0-W
Miller Outlet	L65736-01A	5/9/2005		5/10/2005	Aqueous	TDS		1	330	10	mg/L		TDS-W
Miller Outlet	L65736-01A	5/9/2005		5/10/2005	Aqueous	TSS		1	150	3	mg/L		TSS-W
Miller Outlet	L65736-01D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Miller Outlet	L67580-01B	9/6/2005		9/9/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L67580-01B	9/6/2005		9/8/2005	Aqueous	Alkalinity,(As CaCO3)		1	220	10	mg/L		2320B-ALK-W
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0.24	0.1	mg/L		ICP-W-DIS
Miller Outlet	L67580-01F	9/6/2005	9/7/2005	9/8/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L67580-01B	9/6/2005		9/8/2005	Aqueous	Bicarbonate (As CaCO3)		1	220	10	mg/L		2320B-ALK-W
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	71	10	mg/L	1	ICP-W-DIS
Miller Outlet	L67580-01B	9/6/2005		9/8/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L67580-01B	9/6/2005		9/13/2005	Aqueous	Chloride	16887-00-6	10	11	10	mg/L		300.0-W
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	250	10	mg/L		HARD
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Iron	7439-89-6	1	1.3	0.05	mg/L		ICP-W-DIS
Miller Outlet	L67580-01C	9/6/2005	9/8/2005	9/13/2005	Aqueous	Iron	7439-89-6	1	2.2	0.05	mg/L		ICP-W
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	10	mg/L		ICP-W-DIS
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.15	0.005	mg/L		6020-W-DISS
Miller Outlet	L67580-01C	9/6/2005	9/8/2005	9/15/2005	Aqueous	Manganese	7439-96-5	1	0.16	0.005	mg/L		6020-W
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L67580-01B	9/6/2005		8/7/2005	Aqueous	Nitrate (as N)		1	0.018	0.01	mg/L		NO3-W
Miller Outlet	L67580-01B	9/6/2005		9/7/2005	Aqueous	Nitrite (as N)		1	0.024	0.01	mg/L		NO2-W
Miller Outlet	L67580-01E	9/6/2005		9/7/2005	Aqueous	Oil & Grease		1	4.0	3	mg/L		OGB-W
Miller Outlet	L67580-01B	9/6/2005		9/8/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.06	mg/L	1@	PO4-O
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	2.6	1	mg/L		ICP-W-DIS
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L67580-01A	9/6/2005		9/7/2005	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	6.9	1	mg/L		ICP-W-DIS
Miller Outlet	L67580-01B	9/6/2005		9/13/2005	Aqueous	Sulfate	14808-79-8	10	22	10	mg/L		300.0-W
Miller Outlet	L67580-01A	9/6/2005		9/7/2005	Aqueous	TSS		1	100	3	mg/L		TSS-W
Miller Outlet	L67580-01D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.019	0.01	mg/L		6020-W-DISS
Miller Outlet	L68520-01B	10/31/2005		11/2/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Alkalinity,(As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L68520-01F	10/31/2005	11/7/2005	11/9/2005	Aqueous	Ammonia (as N)		1	0.057	0.05	mg/L		NH3-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Bicarbonate (As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	79	5	mg/L		ICP-W-DIS
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L68520-01B	10/31/2005		11/9/2005	Aqueous	Chloride	16887-00-6	1	9.9	5	mg/L		CL-W-LAT
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	270	10	mg/L		HARD
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L68520-01C	10/31/2005	11/1/2005	11/9/2005	Aqueous	Iron	7439-89-6	1	2.2	0.05	mg/L		ICP-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	1	mg/L		ICP-W-DIS
Miller Outlet	L68520-01C	10/31/2005	11/1/2005	11/10/2005	Aqueous	Manganese	7439-96-5	1	0.13	0.005	mg/L		6020-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.042	0.005	mg/L		6020-W-DISS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Nitrate (as N)		1	0.092	0.01	mg/L		NO3-W
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L68520-01E	10/31/2005		11/2/2005	Aqueous	Oil & Grease		1	3.3	3	mg/L		OGB-W
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.055	0.05	mg/L		PO4-O
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	2.7	1	mg/L		ICP-W-DIS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L68520-01A	10/31/2005		11/1/2005	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	6.9	5	mg/L		ICP-W-DIS
Miller Outlet	L68520-01B	10/31/2005		11/10/2005	Aqueous	Sulfate	14808-79-8	1	29	5	mg/L		SO4-W
Miller Outlet	L68520-01A	10/31/2005		11/1/2005	Aqueous	TDS		1	300	10	mg/L		TDS-W
Miller Outlet	L68520-01A	10/31/2005		11/1/2005	Aqueous	TSS		1	88	3	mg/L		TSS-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.011	0.01	mg/L		6020-W-DISS
Miller Outlet	L68520-01B	10/31/2005		11/2/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Alkalinity,(As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L68520-01F	10/31/2005	11/7/2005	11/9/2005	Aqueous	Ammonia (as N)		1	0.057	0.05	mg/L		NH3-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Bicarbonate (As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	79	5	mg/L		ICP-W-DIS
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L68520-01B	10/31/2005		11/9/2005	Aqueous	Chloride	16887-00-6	1	9.9	5	mg/L		CL-W-LAT
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	270	10	mg/L		HARD
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L68520-01C	10/31/2005	11/1/2005	11/9/2005	Aqueous	Iron	7439-89-6	1	2.2	0.05	mg/L		ICP-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	1	mg/L		ICP-W-DIS
Miller Outlet	L68520-01C	10/31/2005	11/1/2005	11/10/2005	Aqueous	Manganese	7439-96-5	1	0.13	0.005	mg/L		6020-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.042	0.005	mg/L		6020-W-DISS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Nitrate (as N)		1	0.092	0.01	mg/L		NO3-W
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L68520-01E	10/31/2005		11/2/2005	Aqueous	Oil & Grease		1	3.3	3	mg/L		OGB-W
Miller Outlet	L68520-01B	10/31/2005		11/1/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.055	0.05	mg/L		PO4-O
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	2.7	1	mg/L		ICP-W-DIS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L68520-01A	10/31/2005		11/1/2005	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	6.9	5	mg/L		ICP-W-DIS
Miller Outlet	L68520-01B	10/31/2005		11/10/2005	Aqueous	Sulfate	14808-79-8	1	29	5	mg/L		SO4-W
Miller Outlet	L68520-01A	10/31/2005		11/1/2005	Aqueous	TDS		1	300	10	mg/L		TDS-W
Miller Outlet	L68520-01A	10/31/2005		11/1/2005	Aqueous	TSS		1	88	3	mg/L		TSS-W
Miller Outlet	L68520-01D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.011	0.01	mg/L		6020-W-DISS
Miller Outlet	L68977-01C	11/28/2005		12/1/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L68977-01C	11/28/2005		11/29/2005	Aqueous	Alkalinity,(As CaCO3)		1	290	10	mg/L		2320B-ALK-W
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L68977-01F	11/28/2005	12/6/2005	12/7/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L68977-01C	11/28/2005		11/29/2005	Aqueous	Bicarbonate (As CaCO3)		1	290	10	mg/L		2320B-ALK-W
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	100	5	mg/L		ICP-W-DIS
Miller Outlet	L68977-01C	11/28/2005		11/29/2005	Aqueous	Carbonate (As CaCO3)		1	7	10	mg/L		2320B-ALK-W
Miller Outlet	L68977-01C	11/28/2005		12/3/2005	Aqueous	Chloride	16887-00-6	10	12	10	mg/L		300.0-W
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	330	10	mg/L		HARD
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L68977-01E	11/28/2005	11/30/2005	12/6/2005	Aqueous	Iron	7439-89-6	1	1.2	0.05	mg/L		ICP-W
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	20	1	mg/L		ICP-W-DIS
Miller Outlet	L68977-01E	11/28/2005	11/30/2005	12/2/2005	Aqueous	Manganese	7439-96-5	1	0.12	0.005	mg/L		6020-W
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.070	0.005	mg/L		6020-W-DISS
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L68977-01C	11/28/2005		11/29/2005	Aqueous	Nitrate (as N)		1	0.36	0.01	mg/L		NO3-W
Miller Outlet	L68977-01C	11/28/2005		11/29/2005	Aqueous	Nitrite (as N)		1	0.010	0.01	mg/L		NO2-W
Miller Outlet	L68977-01G	11/28/2005		11/30/2005	Aqueous	Oil & Grease		1	3.9	3	mg/L		OGB-W
Miller Outlet	L68977-01C	11/28/2005		11/29/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	1.8	1	mg/L		ICP-W-DIS
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L68977-01A	11/28/2005		11/29/2005	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	7.3	5	mg/L		ICP-W-DIS
Miller Outlet	L68977-01C	11/28/2005		12/3/2005	Aqueous	Sulfate	14808-79-8	10	30	10	mg/L		300.0-W
Miller Outlet	L68977-01B	11/28/2005		12/2/2005	Aqueous	TDS		1	300	10	mg/L		TDS-W
Miller Outlet	L68977-01A	11/28/2005		11/29/2005	Aqueous	TSS		1	44	3	mg/L		TSS-W
Miller Outlet	L68977-01D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.015	0.01	mg/L		6020-W-DISS
Miller Outlet	L69428-03B	12/22/2005		12/23/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L69428-03B	12/22/2005		12/23/2005	Aqueous	Alkalinity,(As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L69428-03E	12/22/2005	12/23/2005	12/28/2005	Aqueous	Ammonia (as N)		1	0.087	0.05	mg/L		NH3-W
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Arsenic	7440-38-2	2	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L69428-03B	12/22/2005		12/23/2005	Aqueous	Bicarbonate (As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Cadmium	7440-43-9	2	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	95	1	mg/L		ICP-W-DIS
Miller Outlet	L69428-03B	12/22/2005		12/23/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L69428-03B	12/22/2005		12/28/2005	Aqueous	Chloride	16887-00-6	10	11	10	mg/L		300.0-W
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Copper	7440-50-8	2	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L69428-03D	12/22/2005	12/23/2005	12/27/2005	Aqueous	Iron	7439-89-6	1	1.5	0.05	mg/L		ICP-W
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Lead	7439-92-1	2	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	1	mg/L		ICP-W-DIS
Miller Outlet	L69428-03D	12/22/2005	12/23/2005	12/28/2005	Aqueous	Manganese	7439-96-5	1	0.14	0.005	mg/L		6020-W
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Manganese	7439-96-5	2	0.074	0.005	mg/L		6020-W-DISS
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L69428-03B	12/22/2005		12/23/2005	Aqueous	Nitrate (as N)		1	0.53	0.01	mg/L		NO3-W
Miller Outlet	L69428-03B	12/22/2005		12/23/2005	Aqueous	Nitrite (as N)		1	0.012	0.01	mg/L		NO2-W
Miller Outlet	L69428-03F	12/22/2005		12/28/2005	Aqueous	Oil & Grease		1	3.5	3	mg/L		OGB-W
Miller Outlet	L69428-03B	12/22/2005		12/23/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	1.9	1	mg/L		ICP-W-DIS
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Selenium	7782-49-2	2	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L69428-03A	12/22/2005		12/23/2005	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	6.4	1	mg/L		ICP-W-DIS
Miller Outlet	L69428-03B	12/22/2005		12/28/2005	Aqueous	Sulfate	14808-79-8	10	27	10	mg/L		300.0-W
Miller Outlet	L69428-03A	12/22/2005		12/23/2005	Aqueous	TDS		1	370	10	mg/L		TDS-W
Miller Outlet	L69428-03A	12/22/2005		12/23/2005	Aqueous	TSS		1	75	3	mg/L		TSS-W
Miller Outlet	L69428-03C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Zinc	7440-66-6	2	0.023	0.01	mg/L		6020-W-DISS
Miller Outlet	L69847-02B	1/23/2006		1/24/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L69847-02B	1/23/2006		1/24/2006	Aqueous	Alkalinity,(As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Miller Outlet	L69847-02F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L69847-02C	1/23/2006	1/31/2006	2/1/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L69847-02F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L69847-02B	1/23/2006		1/24/2006	Aqueous	Bicarbonate (As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Miller Outlet	L69847-02F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L69847-02F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0.053	0.004	mg/L		6020-W-DISS
Miller Outlet	L69847-02F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	98	10	mg/L		ICP-W-DIS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L69847-02B	1/23/2006		1/24/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L69847-02B	1/23/2006		1/27/2006	Aqueous	Chloride	16887-00-6	1	10	2	mg/L		300.0-W
Miller Outlet	L69847-02F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.0063	0.004	mg/L		6020-W-DISS
Miller Outlet	L69847-02F	1/23/2006		1/27/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Miller Outlet	L69847-02F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L69847-02E	1/23/2006	1/24/2006	1/27/2006	Aqueous	Iron	7439-89-6	1	1.4	0.05	mg/L		ICP-W
Miller Outlet	L69847-02F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L69847-02F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	10	mg/L		ICP-W-DIS
Miller Outlet	L69847-02F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.071	0.005	mg/L		6020-W-DISS
Miller Outlet	L69847-02E	1/23/2006	1/24/2006	1/30/2006	Aqueous	Manganese	7439-96-5	1	0.14	0.005	mg/L		6020-W
Miller Outlet	L69847-02F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L69847-02B	1/23/2006		1/24/2006	Aqueous	Nitrate (as N)		1	0.67	0.01	mg/L		NO3-W
Miller Outlet	L69847-02B	1/23/2006		1/24/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L69847-02D	1/23/2006		1/24/2006	Aqueous	Oil & Grease		1	3.9	3	mg/L		OGB-W
Miller Outlet	L69847-02B	1/23/2006		1/24/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L69847-02F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.9	1	mg/L		ICP-W-DIS
Miller Outlet	L69847-02F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0.031	0.005	mg/L		6020-W-DISS
Miller Outlet	L69847-02A	1/23/2006		1/24/2006	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Miller Outlet	L69847-02F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	6.6	1	mg/L		ICP-W-DIS
Miller Outlet	L69847-02B	1/23/2006		1/27/2006	Aqueous	Sulfate	14808-79-8	1	26	10	mg/L		300.0-W
Miller Outlet	L69847-02A	1/23/2006		1/24/2006	Aqueous	TDS		1	310	10	mg/L		TDS-W
Miller Outlet	L69847-02A	1/23/2006		1/24/2006	Aqueous	TSS		1	58	3	mg/L		TSS-W
Miller Outlet	L69847-02F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.090	0.01	mg/L		6020-W-DISS
Miller Outlet	L70355-03A	2/26/2006		2/28/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L70355-03A	2/26/2006		2/28/2006	Aqueous	Alkalinity,(As CaCO3)		1	290	10	mg/L		2320B-ALK-W
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L70355-03C	2/26/2006	3/2/2006	3/2/2006	Aqueous	Ammonia (as N)		1	0.16	0.05	mg/L		NH3-W
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L70355-03A	2/26/2006		2/28/2006	Aqueous	Bicarbonate (As CaCO3)		1	290	10	mg/L		2320B-ALK-W
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	100	10	mg/L		ICP-W-DIS
Miller Outlet	L70355-03A	2/26/2006		2/28/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L70355-03A	2/26/2006		3/1/2006	Aqueous	Chloride	16887-00-6	10	11	10	mg/L		300.0-W
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.0046	0.004	mg/L		6020-W-DISS
Miller Outlet	L70355-03F	2/26/2006		3/7/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	320	10	mg/L		HARD
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L70355-03E	2/26/2006	2/28/2006	2/28/2006	Aqueous	Iron	7439-89-6	1	3.2	0.05	mg/L		ICP-W
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	1	mg/L		ICP-W-DIS
Miller Outlet	L70355-03E	2/26/2006	2/28/2006	2/28/2006	Aqueous	Manganese	7439-96-5	1	0.22	0.005	mg/L		ICP-W
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.065	0.005	mg/L		6020-W-DISS
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L70355-03A	2/26/2006		2/27/2006	Aqueous	Nitrate (as N)		1	0.69	0.01	mg/L		NO3-W
Miller Outlet	L70355-03A	2/26/2006		2/27/2006	Aqueous	Nitrite (as N)		1	0.042	0.01	mg/L		NO2-W
Miller Outlet	L70355-03D	2/26/2006		2/27/2006	Aqueous	Oil & Grease		1	5.6	3	mg/L		OGB-W
Miller Outlet	L70355-03A	2/26/2006		2/27/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.13	0.05	mg/L		PO4-O
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.7	1	mg/L		ICP-W-DIS
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0.0057	0.005	mg/L		6020-W-DISS
Miller Outlet	L70355-03B	2/26/2006		2/27/2006	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	12	1	mg/L		ICP-W-DIS
Miller Outlet	L70355-03A	2/26/2006		3/1/2006	Aqueous	Sulfate	14808-79-8	10	24	10	mg/L		300.0-W
Miller Outlet	L70355-03B	2/26/2006		3/3/2006	Aqueous	TDS		1	240	10	mg/L		TDS-W
Miller Outlet	L70355-03B	2/26/2006		2/28/2006	Aqueous	TSS		1	100	3	mg/L		TSS-W
Miller Outlet	L70355-03F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.070	0.01	mg/L		6020-W-DISS
Miller Outlet	L70885-04B	3/27/2006		3/30/2006	Aqueous	Bicarbonate (As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	86	10	mg/L		ICP-W-DIS
Miller Outlet	L70885-04B	3/27/2006		3/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L70885-04B	3/27/2006		3/29/2006	Aqueous	Chloride	16887-00-6	10	11	10	mg/L		300.0-W
Miller Outlet	L70885-04B	3/27/2006		3/30/2006	Aqueous	Conductivity		1	550	2	umhos/cm		COND-W
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L70885-04E	3/27/2006		4/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	280	10	mg/L		HARD
Miller Outlet	L70885-04D	3/27/2006	4/6/2006	4/9/2006	Aqueous	Iron	7439-89-6	1	6.5	0.05	mg/L		ICP-W
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0.053	0.05	mg/L		ICP-W-DIS
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	1	mg/L		ICP-W-DIS
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.078	0.005	mg/L		6020-W-DISS
Miller Outlet	L70885-04D	3/27/2006	4/3/2006	4/4/2006	Aqueous	Manganese	7439-96-5	1	0.32	0.005	mg/L		ICP-W
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L70885-04B	3/27/2006		3/29/2006	Aqueous	Nitrate (as N)		1	0.58	0.01	mg/L		NO3-W
Miller Outlet	L70885-04B	3/27/2006		3/29/2006	Aqueous	Nitrite (as N)		1	0.019	0.01	mg/L		NO2-W
Miller Outlet	L70885-04F	3/27/2006		3/28/2006	Aqueous	Oil & Grease		1	3.9	3	mg/L		OGB-W
Miller Outlet	L70885-04B	3/27/2006		3/28/2006	Aqueous	pH @ 25° C		1	8.10	0	pH Units		PH-W
Miller Outlet	L70885-04B	3/27/2006		3/29/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.087	0.05	mg/L		PO4-O
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.8	1	mg/L		ICP-W-DIS
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L70885-04A	3/27/2006		3/28/2006	Aqueous	Settable Solids		1	0.20	0.1	ml/L		SS
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	11	1	mg/L		ICP-W-DIS
Miller Outlet	L70885-04B	3/27/2006		3/29/2006	Aqueous	Sulfate	14808-79-8	10	26	10	mg/L		300.0-W
Miller Outlet	L70885-04A	3/27/2006		3/31/2006	Aqueous	TDS		1	270	10	mg/L		TDS-W
Miller Outlet	L70885-04A	3/27/2006		3/28/2006	Aqueous	TSS		1	260	3	mg/L		TSS-W
Miller Outlet	L70885-04E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.028	0.01	mg/L		6020-W-DISS
Miller Outlet	L71507-01B	4/26/2006		5/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L71507-01B	4/26/2006		5/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L71507-01C	4/26/2006	5/3/2006	5/3/2006	Aqueous	Ammonia (as N)		1	0.16	0.05	mg/L		NH3-W
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L71507-01B	4/26/2006		5/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	100	10	mg/L		ICP-W-dis
Miller Outlet	L71507-01B	4/26/2006		5/2/2006	Aqueous	Carbonate (As CaCO3)		1	21	10	mg/L		2320B-ALK-W
Miller Outlet	L71507-01B	4/26/2006		5/12/2006	Aqueous	Chloride	16887-00-6	1	39	5	mg/L		300.0-W
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L71507-01E	4/26/2006		5/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	330	10	mg/L		HARD
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L71507-01D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Iron	7439-89-6	1	5.7	0.05	mg/L		ICP-W
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	18	10	mg/L		ICP-W-dis
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.074	0.005	mg/L		6020-W-DISS
Miller Outlet	L71507-01D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Manganese	7439-96-5	1	0.34	0.005	mg/L		ICP-W
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L71507-01C	4/26/2006		5/4/2006	Aqueous	Nitrate/Nitrite (as N)		1	0.33	0.01	mg/L		NO2/NO3-W
Miller Outlet	L71507-01F	4/26/2006		5/5/2006	Aqueous	Oil & Grease		1	3.9	3	mg/L		OGB-W
Miller Outlet	L71507-01B	4/26/2006		4/28/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.069	0.05	mg/L	H	PO4-O
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.5	1	mg/L		ICP-W-dis
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L71507-01A	4/26/2006		4/28/2006	Aqueous	Settable Solids		1	0.30	0.1	ml/L		SS
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	10	19	10	mg/L		ICP-W-dis
Miller Outlet	L71507-01B	4/26/2006		5/12/2006	Aqueous	Sulfate	14808-79-8	1	48	5	mg/L		300.0-W
Miller Outlet	L71507-01A	4/26/2006		4/28/2006	Aqueous	TDS		1	360	10	mg/L		TDS-W
Miller Outlet	L71507-01A	4/26/2006		4/28/2006	Aqueous	TSS		1	270	3	mg/L		TSS-W
Miller Outlet	L71507-01E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.023	0.01	mg/L		6020-W-DISS
Miller Outlet	L72071-01B	5/25/2006		5/30/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L72071-01B	5/25/2006		5/30/2006	Aqueous	Alkalinity,(As CaCO3)		1	220	10	mg/L		2320B-ALK-W
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L72071-01C	5/25/2006	5/30/2006	5/31/2006	Aqueous	Ammonia (as N)		1	0.088	0.05	mg/L		NH3-W
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L72071-01B	5/25/2006		5/30/2006	Aqueous	Bicarbonate (As CaCO3)		1	210	10	mg/L		2320B-ALK-W
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	73	10	mg/L		ICP-W-DIS
Miller Outlet	L72071-01B	5/25/2006		5/30/2006	Aqueous	Carbonate (As CaCO3)		1	14	10	mg/L		2320B-ALK-W
Miller Outlet	L72071-01B	5/25/2006		6/1/2006	Aqueous	Chloride	16887-00-6	1	8.5	5	mg/L		300.0-W
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L72071-01E	5/25/2006		6/9/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	180	10	mg/L		HARD
Miller Outlet	L72071-01D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Iron	7439-89-6	1	2.6	0.05	mg/L		ICP-W
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	14	10	mg/L		ICP-W-DIS
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L72071-01D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Manganese	7439-96-5	1	0.16	0.005	mg/L		ICP-W
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L72071-01B	5/25/2006		5/26/2006	Aqueous	Nitrate (as N)		1	0.17	0.01	mg/L		NO3-W
Miller Outlet	L72071-01B	5/25/2006		5/26/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	1	NO2-W
Miller Outlet	L72071-01F	5/25/2006		5/30/2006	Aqueous	Oil & Grease		1	4.1	3	mg/L		OGB-W
Miller Outlet	L72071-01B	5/25/2006		5/26/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.0	1	mg/L		ICP-W-DIS
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L72071-01A	5/25/2006		5/26/2006	Aqueous	Settable Solids		1	0.30	0.1	ml/L		SS
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	15	10	mg/L		ICP-W-DIS
Miller Outlet	L72071-01B	5/25/2006		6/1/2006	Aqueous	Sulfate	14808-79-8	1	19	5	mg/L	1	300.0-W
Miller Outlet	L72071-01A	5/25/2006		5/26/2006	Aqueous	TDS		1	240	10	mg/L		TDS-W
Miller Outlet	L72071-01A	5/25/2006		5/26/2006	Aqueous	TSS		1	170	3	mg/L		TSS-W
Miller Outlet	L72071-01E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Miller Outlet	L72660-01B	6/29/2006		7/3/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L72660-01B	6/29/2006		7/3/2006	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L72660-01C	6/29/2006	7/5/2006	7/7/2006	Aqueous	Ammonia (as N)		1	0.055	0.05	mg/L		NH3-W
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L72660-01B	6/29/2006		7/3/2006	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	67	10	mg/L		ICP-W-DIS
Miller Outlet	L72660-01B	6/29/2006		7/3/2006	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Miller Outlet	L72660-01B	6/29/2006		7/5/2006	Aqueous	Chloride	16887-00-6	1	8.8	1	mg/L		300.0-W
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L72660-01E	6/29/2006		7/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	260	10	mg/L		HARD
Miller Outlet	L72660-01D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Iron	7439-89-6	1	2.4	0.05	mg/L	2	ICP-W
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	16	1	mg/L		ICP-W-DIS
Miller Outlet	L72660-01D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Manganese	7439-96-5	1	0.13	0.005	mg/L		ICP-W
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L72660-01B	6/29/2006		6/30/2006	Aqueous	Nitrate (as N)		1	0.075	0.01	mg/L		NO3-W
Miller Outlet	L72660-01B	6/29/2006		6/30/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L72660-01F	6/29/2006		6/30/2006	Aqueous	Oil & Grease		1	3.9	3	mg/L		OGB-W
Miller Outlet	L72660-01B	6/29/2006		6/30/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.077	0.05	mg/L		PO4-O
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.9	1	mg/L		ICP-W-DIS
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L72660-01A	6/29/2006		6/30/2006	Aqueous	Settable Solids		1	0.20	0.1	ml/L		SS
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	5.4	1	mg/L		ICP-W-DIS
Miller Outlet	L72660-01B	6/29/2006		7/5/2006	Aqueous	Sulfate	14808-79-8	1	20	10	mg/L		300.0-W
Miller Outlet	L72660-01A	6/29/2006		6/30/2006	Aqueous	TDS		1	200	20	mg/L		TDS-W
Miller Outlet	L72660-01A	6/29/2006		6/30/2006	Aqueous	TSS		1	150	3	mg/L		TSS-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L72660-01E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.010	0.01	mg/L		6020-W-DISS
Miller Outlet	L73160-06B	7/31/2006		8/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L73160-06B	7/31/2006		8/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	210	20	mg/L		2320B-ALK-W
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L73160-06C	7/31/2006	8/2/2006	8/4/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L73160-06B	7/31/2006		8/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	210	20	mg/L		2320B-ALK-W
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	67	1	mg/L		ICP-W-DIS
Miller Outlet	L73160-06B	7/31/2006		8/2/2006	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Miller Outlet	L73160-06B	7/31/2006		8/5/2006	Aqueous	Chloride	16887-00-6	1	9.2	1	mg/L		300.0-W
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L73160-06E	7/31/2006		8/14/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	230	10	mg/L		HARD
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L73160-06D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Iron	7439-89-6	1	2.4	0.05	mg/L	1	ICP-W
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	15	1	mg/L		ICP-W-DIS
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L73160-06D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Manganese	7439-96-5	1	0.13	0.005	mg/L		ICP-W
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L73160-06B	7/31/2006		8/2/2006	Aqueous	Nitrate (as N)		1	0.14	0.01	mg/L		NO3-W
Miller Outlet	L73160-06B	7/31/2006		8/2/2006	Aqueous	Nitrite (as N)		1	0.015	0.01	mg/L		NO2-W
Miller Outlet	L73160-06F	7/31/2006		8/8/2006	Aqueous	Oil & Grease		1	3.4	3	mg/L		OGB-W
Miller Outlet	L73160-06B	7/31/2006		8/2/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.078	0.05	mg/L		PO4-O
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.4	1	mg/L		ICP-W-DIS
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L73160-06A	7/31/2006		8/2/2006	Aqueous	Settable Solids		1	0.20	0.1	ml/L		SS
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	5.8	1	mg/L		ICP-W-DIS
Miller Outlet	L73160-06B	7/31/2006		8/5/2006	Aqueous	Sulfate	14808-79-8	1	20	10	mg/L		300.0-W
Miller Outlet	L73160-06A	7/31/2006		8/3/2006	Aqueous	TDS		1	620	20	mg/L		TDS-W
Miller Outlet	L73160-06A	7/31/2006		8/2/2006	Aqueous	TSS		1	100	3	mg/L		TSS-W
Miller Outlet	L73160-06E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.020	0.01	mg/L		6020-W-DISS
Miller Outlet	L73504-06B	8/21/2006		8/23/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L73504-06B	8/21/2006		8/23/2006	Aqueous	Alkalinity,(As CaCO3)		1	210	20	mg/L		2320B-ALK-W
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L73504-06C	8/21/2006	8/23/2006	8/24/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L73504-06B	8/21/2006		8/23/2006	Aqueous	Bicarbonate (As CaCO3)		1	200	20	mg/L		2320B-ALK-W
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	63	10	mg/L		ICP-W-DIS
Miller Outlet	L73504-06B	8/21/2006		8/23/2006	Aqueous	Carbonate (As CaCO3)		1	17	10	mg/L		2320B-ALK-W
Miller Outlet	L73504-06B	8/21/2006		8/24/2006	Aqueous	Chloride	16887-00-6	1	9.4	1	mg/L		300.0-W
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L73504-06E	8/21/2006		9/5/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	220	10	mg/L		HARD
Miller Outlet	L73504-06D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Iron	7439-89-6	1	3.3	0.05	mg/L		ICP-W
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	15	10	mg/L		ICP-W-DIS
Miller Outlet	L73504-06D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Manganese	7439-96-5	1	0.15	0.005	mg/L		ICP-W
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Manganese	7439-96-5	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L73504-06B	8/21/2006		8/23/2006	Aqueous	Nitrate (as N)		1	0.034	0.01	mg/L		NO3-W
Miller Outlet	L73504-06B	8/21/2006		8/23/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L73504-06F	8/21/2006		8/23/2006	Aqueous	Oil & Grease		1	4.8	3	mg/L		OGB-W
Miller Outlet	L73504-06B	8/21/2006		8/23/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.3	1	mg/L		ICP-W-DIS
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L73504-06A	8/21/2006		8/23/2006	Aqueous	Settable Solids		1	0.30	0.1	ml/L		SS
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	6.4	1	mg/L		ICP-W-DIS
Miller Outlet	L73504-06B	8/21/2006		8/24/2006	Aqueous	Sulfate	14808-79-8	1	20	10	mg/L		300.0-W
Miller Outlet	L73504-06A	8/21/2006		8/25/2006	Aqueous	TDS		1	200	20	mg/L		TDS-W
Miller Outlet	L73504-06A	8/21/2006		8/23/2006	Aqueous	TSS		1	150	3	mg/L		TSS-W
Miller Outlet	L73504-06E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Zinc	7440-66-6	5	0	0.01	mg/L		6020-W-DISS
Miller Outlet	L74688-04B	10/30/2006		11/1/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L74688-04B	10/30/2006		11/1/2006	Aqueous	Alkalinity,(As CaCO3)		1	260	20	mg/L		2320B-ALK-W
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L74688-04C	10/30/2006	11/1/2006	11/3/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L74688-04B	10/30/2006		11/1/2006	Aqueous	Bicarbonate (As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	80	10	mg/L	*	ICP-W-DIS
Miller Outlet	L74688-04B	10/30/2006		11/1/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L74688-04B	10/30/2006		11/9/2006	Aqueous	Chloride	16887-00-6	1	9.7	1	mg/L		300.0-W
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L74688-04F	10/30/2006		11/13/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	270	10	mg/L		HARD
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Miller Outlet	L74688-04E	10/30/2006	11/1/2006	11/13/2006	Aqueous	Iron	7439-89-6	1	1.5	0.05	mg/L		ICP-W
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	17	10	mg/L	*	ICP-W-DIS
Miller Outlet	L74688-04E	10/30/2006	11/1/2006	11/13/2006	Aqueous	Manganese	7439-96-5	1	0.077	0.005	mg/L		ICP-W
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.016	0.005	mg/L		6020-W-DISS
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Miller Outlet	L74688-04B	10/30/2006		11/1/2006	Aqueous	Nitrate (as N)		1	0.24	0.01	mg/L		NO3-W
Miller Outlet	L74688-04B	10/30/2006		11/1/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L74688-04D	10/30/2006		11/1/2006	Aqueous	Oil & Grease		1	4.1	3	mg/L		OGB-W
Miller Outlet	L74688-04B	10/30/2006		11/1/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.1	1	mg/L		ICP-W-DIS
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L74688-04A	10/30/2006		11/1/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	6.2	1	mg/L		ICP-W-DIS
Miller Outlet	L74688-04B	10/30/2006		11/9/2006	Aqueous	Sulfate	14808-79-8	1	25	10	mg/L		300.0-W
Miller Outlet	L74688-04A	10/30/2006		11/1/2006	Aqueous	TDS		1	310	20	mg/L		TDS-W
Miller Outlet	L74688-04A	10/30/2006		11/1/2006	Aqueous	TSS		1	51	3	mg/L		TSS-W
Miller Outlet	L74688-04F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Miller Outlet	L75205-01B	11/28/2006		12/4/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L75205-01B	11/28/2006		12/4/2006	Aqueous	Alkalinity,(As CaCO3)		1	260	20	mg/L		2320B-ALK-W
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/13/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L75205-01C	11/28/2006	12/1/2006	12/5/2006	Aqueous	Ammonia (as N)		1	0.097	0.05	mg/L		NH3-W
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/5/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L75205-01B	11/28/2006		12/4/2006	Aqueous	Bicarbonate (As CaCO3)		1	260	20	mg/L		2320B-ALK-W
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/13/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/5/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/13/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	94	10	mg/L	[2] *	ICP-W-dis
Miller Outlet	L75205-01B	11/28/2006		12/4/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L75205-01B	11/28/2006		12/2/2006	Aqueous	Chloride	16887-00-6	1	9.7	5	mg/L		300.0-W
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/5/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L75205-01F	11/28/2006		12/13/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/13/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L75205-01E	11/28/2006	12/4/2006	12/13/2006	Aqueous	Iron	7439-89-6	1	1.4	0.05	mg/L		ICP-W
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/5/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/13/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	18	1	mg/L		ICP-W-dis
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/5/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.024	0.005	mg/L		6020-W-DISS
Miller Outlet	L75205-01E	11/28/2006	12/4/2006	12/13/2006	Aqueous	Manganese	7439-96-5	1	0.082	0.005	mg/L		ICP-W
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/13/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L75205-01B	11/28/2006		12/1/2006	Aqueous	Nitrate (as N)		1	0.65	0.01	mg/L	H	NO3-W
Miller Outlet	L75205-01B	11/28/2006		12/1/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	[1]@H	NO2-W
Miller Outlet	L75205-01D	11/28/2006		12/4/2006	Aqueous	Oil & Grease		1	3.1	3	mg/L		OGB-W
Miller Outlet	L75205-01B	11/28/2006		12/1/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	H	PO4-O
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/13/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.1	1	mg/L		ICP-W-dis
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/5/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L75205-01A	11/28/2006		12/1/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/14/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	6.8	1	mg/L		ICP-W-dis
Miller Outlet	L75205-01B	11/28/2006		12/2/2006	Aqueous	Sulfate	14808-79-8	1	24	5	mg/L		300.0-W
Miller Outlet	L75205-01A	11/28/2006		12/1/2006	Aqueous	TDS		1	280	20	mg/L		TDS-W
Miller Outlet	L75205-01A	11/28/2006		12/1/2006	Aqueous	TSS		1	47	3	mg/L		TSS-W
Miller Outlet	L75205-01F	11/28/2006	12/4/2006	12/5/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.011	0.01	mg/L		6020-W-DISS
Miller Outlet	L75586-03B	12/26/2006		1/2/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L75586-03B	12/26/2006		1/2/2007	Aqueous	Alkalinity,(As CaCO3)		1	280	20	mg/L		2320B-ALK-W
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L75586-03C	12/26/2006	12/28/2006	12/29/2006	Aqueous	Ammonia (as N)		1	0.067	0.05	mg/L		NH3-W
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Arsenic	7440-38-2	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L75586-03B	12/26/2006		1/2/2007	Aqueous	Bicarbonate (As CaCO3)		1	270	20	mg/L		2320B-ALK-W
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Cadmium	7440-43-9	10	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	95	10	mg/L	*	ICP-W-dis
Miller Outlet	L75586-03B	12/26/2006		1/2/2007	Aqueous	Carbonate (As CaCO3)		1	10	10	mg/L		2320B-ALK-W
Miller Outlet	L75586-03B	12/26/2006		1/2/2007	Aqueous	Chloride	16887-00-6	1	11	2	mg/L		300.0-W
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Copper	7440-50-8	10	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L75586-03F	12/26/2006		1/5/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Miller Outlet	L75586-03E	12/26/2006	1/2/2007	1/3/2007	Aqueous	Iron	7439-89-6	1	2.1	0.05	mg/L		ICP-W
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Lead	7439-92-1	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Magnesium	7439-95-4	10	17	10	mg/L	*	ICP-W-dis
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Manganese	7439-96-5	10	0.023	0.005	mg/L		6020-W-DISS
Miller Outlet	L75586-03E	12/26/2006	1/2/2007	1/3/2007	Aqueous	Manganese	7439-96-5	1	0.11	0.005	mg/L		ICP-W
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L75586-03B	12/26/2006		12/28/2006	Aqueous	Nitrate (as N)		1	0.82	0.01	mg/L		NO3-W
Miller Outlet	L75586-03B	12/26/2006		12/28/2006	Aqueous	Nitrite (as N)		1	0.011	0.01	mg/L		NO2-W
Miller Outlet	L75586-03D	12/26/2006		12/29/2006	Aqueous	Oil & Grease		1	4.8	3	mg/L		OGB-W
Miller Outlet	L75586-03B	12/26/2006		12/28/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.05	0.05	mg/L		PO4-O
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	1.8	1	mg/L		ICP-W-dis
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Selenium	7782-49-2	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L75586-03A	12/26/2006		12/28/2006	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	7.1	1	mg/L		ICP-W-dis
Miller Outlet	L75586-03B	12/26/2006		1/2/2007	Aqueous	Sulfate	14808-79-8	1	20	5	mg/L		300.0-W
Miller Outlet	L75586-03A	12/26/2006		12/29/2006	Aqueous	TDS		1	300	20	mg/L		TDS-W
Miller Outlet	L75586-03A	12/26/2006		12/28/2006	Aqueous	TSS		1	75	3	mg/L		TSS-W
Miller Outlet	L75586-03F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Zinc	7440-66-6	10	0.029	0.01	mg/L		6020-W-DISS
Miller Outlet	L76053-03B	1/31/2007		2/5/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L76053-03B	1/31/2007		2/5/2007	Aqueous	Alkalinity,(As CaCO3)		1	280	20	mg/L		2320B-ALK-W
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L76053-03C	1/31/2007	2/2/2007	2/5/2007	Aqueous	Ammonia (as N)		1	0.055	0.05	mg/L		NH3-W
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Arsenic	7440-38-2	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76053-03B	1/31/2007		2/5/2007	Aqueous	Bicarbonate (As CaCO3)		1	260	20	mg/L		2320B-ALK-W
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Cadmium	7440-43-9	10	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	90	10	mg/L	*	ICP-W-dis
Miller Outlet	L76053-03B	1/31/2007		2/5/2007	Aqueous	Carbonate (As CaCO3)		1	10	20	mg/L		2320B-ALK-W
Miller Outlet	L76053-03B	1/31/2007		2/2/2007	Aqueous	Chloride	16887-00-6	1	9.6	2	mg/L		300.0-W
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Copper	7440-50-8	10	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L76053-03F	1/31/2007		2/12/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	290	10	mg/L		HARD
Miller Outlet	L76053-03E	1/31/2007	2/2/2007	2/7/2007	Aqueous	Iron	7439-89-6	1	3.6	0.05	mg/L		ICP-W
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Lead	7439-92-1	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	1	mg/L		ICP-W-dis

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Manganese	7439-96-5	10	0.023	0.005	mg/L		6020-W-DISS
Miller Outlet	L76053-03E	1/31/2007	2/2/2007	2/7/2007	Aqueous	Manganese	7439-96-5	1	0.17	0.005	mg/L		ICP-W
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L76053-03B	1/31/2007		2/2/2007	Aqueous	Nitrate (as N)		1	0.92	0.01	mg/L		NO3-W
Miller Outlet	L76053-03B	1/31/2007		2/2/2007	Aqueous	Nitrite (as N)		1	0.010	0.01	mg/L		NO2-W
Miller Outlet	L76053-03D	1/31/2007		2/9/2007	Aqueous	Oil & Grease		1	3.5	3	mg/L		OGB-W
Miller Outlet	L76053-03B	1/31/2007		2/2/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	1.9	1	mg/L		ICP-W-dis
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Selenium	7782-49-2	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76053-03A	1/31/2007		2/2/2007	Aqueous	Settable Solids		1	0.30	0.1	ml/L		SS
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	6.3	1	mg/L		ICP-W-dis
Miller Outlet	L76053-03B	1/31/2007		2/2/2007	Aqueous	Sulfate	14808-79-8	1	21	5	mg/L	[1]	300.0-W
Miller Outlet	L76053-03A	1/31/2007		2/2/2007	Aqueous	TDS		1	310	20	mg/L		TDS-W
Miller Outlet	L76053-03A	1/31/2007		2/2/2007	Aqueous	TSS		1	200	3	mg/L		TSS-W
Miller Outlet	L76053-03F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Zinc	7440-66-6	10	0.027	0.01	mg/L		6020-W-DISS
Miller Outlet	L76314-03B	2/19/2007		2/21/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L76314-03B	2/19/2007		2/21/2007	Aqueous	Alkalinity,(As CaCO3)		1	280	20	mg/L		2320B-ALK-W
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L76314-03C	2/19/2007	2/21/2007	2/22/2007	Aqueous	Ammonia (as N)		1	0.068	0.05	mg/L		NH3-W
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Arsenic	7440-38-2	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76314-03B	2/19/2007		2/21/2007	Aqueous	Bicarbonate (As CaCO3)		1	260	20	mg/L		2320B-ALK-W
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Cadmium	7440-43-9	10	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	94	10	mg/L	*	ICP-W-dis
Miller Outlet	L76314-03B	2/19/2007		2/21/2007	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Miller Outlet	L76314-03B	2/19/2007		2/21/2007	Aqueous	Chloride	16887-00-6	1	10	2	mg/L		300.0-W
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Copper	7440-50-8	10	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L76314-03F	2/19/2007		2/26/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	300	10	mg/L		HARD
Miller Outlet	L76314-03E	2/19/2007	2/21/2007	2/23/2007	Aqueous	Iron	7439-89-6	1	4.3	0.05	mg/L		ICP-W
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Lead	7439-92-1	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	1	mg/L		ICP-W-dis
Miller Outlet	L76314-03E	2/19/2007	2/21/2007	2/23/2007	Aqueous	Manganese	7439-96-5	1	0.23	0.005	mg/L		ICP-W
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Manganese	7439-96-5	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L76314-03B	2/19/2007		2/21/2007	Aqueous	Nitrate (as N)		1	0.83	0.01	mg/L		NO3-W
Miller Outlet	L76314-03B	2/19/2007		2/21/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L76314-03D	2/19/2007		2/27/2007	Aqueous	Oil & Grease		1	4.3	3	mg/L		OGB-W
Miller Outlet	L76314-03B	2/19/2007		2/21/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	1.7	1	mg/L		ICP-W-dis
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Selenium	7782-49-2	10	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	5.5	1	mg/L		ICP-W-dis
Miller Outlet	L76314-03B	2/19/2007		2/21/2007	Aqueous	Sulfate	14808-79-8	1	23	5	mg/L		300.0-W
Miller Outlet	L76314-03A	2/19/2007		2/22/2007	Aqueous	TDS		1	260	10	mg/L		TDS-W
Miller Outlet	L76314-03A	2/19/2007		2/21/2007	Aqueous	TSS		1	100	3	mg/L		TSS-W
Miller Outlet	L76314-03F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Zinc	7440-66-6	10	0.021	0.01	mg/L		6020-W-DISS
Miller Outlet	L76981-04B	3/29/2007		4/2/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L76981-04B	3/29/2007		4/2/2007	Aqueous	Alkalinity,(As CaCO3)		1	270	20	mg/L		2320B-ALK-W
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L76981-04C	3/29/2007	3/30/2007	4/2/2007	Aqueous	Ammonia (as N)		1	0.056	0.05	mg/L		NH3-W
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76981-04B	3/29/2007		4/2/2007	Aqueous	Bicarbonate (As CaCO3)		1	270	20	mg/L		2320B-ALK-W
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	93	10	mg/L	*	ICP-W-dis
Miller Outlet	L76981-04B	3/29/2007		4/2/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L76981-04B	3/29/2007		3/31/2007	Aqueous	Chloride	16887-00-6	2	11	2	mg/L		300.0-W
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L76981-04F	3/29/2007		4/11/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	300	10	mg/L		HARD
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L76981-04E	3/29/2007	4/2/2007	4/9/2007	Aqueous	Iron	7439-89-6	1	5.8	0.05	mg/L		ICP-W
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	1	mg/L		ICP-W-dis
Miller Outlet	L76981-04E	3/29/2007	4/2/2007	4/9/2007	Aqueous	Manganese	7439-96-5	1	0.28	0.005	mg/L		ICP-W
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Manganese	7439-96-5	1	0.040	0.005	mg/L		6020-W-DISS
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L76981-04B	3/29/2007		3/30/2007	Aqueous	Nitrate (as N)		1	0.43	0.01	mg/L		NO3-W
Miller Outlet	L76981-04B	3/29/2007		3/30/2007	Aqueous	Nitrite (as N)		1	0.025	0.01	mg/L		NO2-W
Miller Outlet	L76981-04D	3/29/2007		3/30/2007	Aqueous	Oil & Grease		1	3.7	3	mg/L		OGB-W
Miller Outlet	L76981-04B	3/29/2007		3/30/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	2.8	1	mg/L		ICP-W-dis
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	14	1	mg/L		ICP-W-dis
Miller Outlet	L76981-04B	3/29/2007		3/31/2007	Aqueous	Sulfate	14808-79-8	5	34	5	mg/L		300.0-W
Miller Outlet	L76981-04A	3/29/2007		3/30/2007	Aqueous	TDS		1	300	20	mg/L		TDS-W
Miller Outlet	L76981-04A	3/29/2007		3/30/2007	Aqueous	TSS		1	340	3	mg/L		TSS-W
Miller Outlet	L76981-04F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Zinc	7440-66-6	1	0.012	0.01	mg/L		6020-W-DISS
Miller Outlet	L77519-04B	4/25/2007		4/30/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Miller Outlet	L77519-04B	4/25/2007		4/30/2007	Aqueous	Alkalinity,(As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L77519-04C	4/25/2007	5/1/2007	5/2/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L77519-04B	4/25/2007		4/30/2007	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	83	10	mg/L	*	ICP-W-dis
Miller Outlet	L77519-04B	4/25/2007		4/30/2007	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Miller Outlet	L77519-04B	4/25/2007		4/29/2007	Aqueous	Chloride	16887-00-6	10	11	10	mg/L		300.0-W
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L77519-04F	4/25/2007		5/9/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	280	10	mg/L		HARD
Miller Outlet	L77519-04E	4/25/2007	5/4/2007	5/9/2007	Aqueous	Iron	7439-89-6	1	2.1	0.05	mg/L		ICP-W
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	16	1	mg/L		ICP-W-dis
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Manganese	7439-96-5	1	0.0090	0.005	mg/L		6020-W-DISS
Miller Outlet	L77519-04E	4/25/2007	5/4/2007	5/9/2007	Aqueous	Manganese	7439-96-5	1	0.092	0.005	mg/L		ICP-W
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L77519-04B	4/25/2007		4/27/2007	Aqueous	Nitrate (as N)		1	0.22	0.01	mg/L		NO3-W
Miller Outlet	L77519-04B	4/25/2007		4/27/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L77519-04D	4/25/2007		5/3/2007	Aqueous	Oil & Grease		1	3.0	3	mg/L		OGB-W
Miller Outlet	L77519-04B	4/25/2007		4/27/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	2.0	1	mg/L		ICP-W-dis
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	15	1	mg/L		ICP-W-dis
Miller Outlet	L77519-04B	4/25/2007		4/29/2007	Aqueous	Sulfate	14808-79-8	10	30	10	mg/L		300.0-W
Miller Outlet	L77519-04A	4/25/2007		4/30/2007	Aqueous	TDS		1	290	20	mg/L		TDS-W
Miller Outlet	L77519-04A	4/25/2007		4/27/2007	Aqueous	TSS		1	72	3	mg/L		TSS-W
Miller Outlet	L77519-04F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Miller Outlet	L78061-01B	5/29/2007		6/4/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	L78061-01B	5/29/2007		6/4/2007	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L78061-01C	5/29/2007	6/1/2007	6/6/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L78061-01B	5/29/2007		6/4/2007	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	75	10	mg/L	*	ICP-W-dis
Miller Outlet	L78061-01B	5/29/2007		6/4/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L78061-01B	5/29/2007		5/30/2007	Aqueous	Chloride	16887-00-6	5	9.7	5	mg/L		300.0-W
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/8/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L78061-01F	5/29/2007		6/12/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	260	10	mg/L		HARD
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L78061-01E	5/29/2007	6/5/2007	6/12/2007	Aqueous	Iron	7439-89-6	1	2.8	0.05	mg/L	[1]	ICP-W
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	1	mg/L		ICP-W-dis
Miller Outlet	L78061-01E	5/29/2007	6/5/2007	6/12/2007	Aqueous	Manganese	7439-96-5	1	0.12	0.005	mg/L		ICP-W
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L78061-01B	5/29/2007		5/30/2007	Aqueous	Nitrate (as N)		1	0.025	0.01	mg/L	[1]	NO3-W
Miller Outlet	L78061-01B	5/29/2007		5/30/2007	Aqueous	Nitrite (as N)		1	0.015	0.01	mg/L		NO2-W
Miller Outlet	L78061-01D	5/29/2007		6/1/2007	Aqueous	Oil & Grease		1	3.4	3	mg/L		OGB-W
Miller Outlet	L78061-01B	5/29/2007		5/31/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	1.1	1	mg/L		ICP-W-dis
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L78061-01A	5/29/2007		5/30/2007	Aqueous	Settleable Solids		1	0.20	0.1	ml/L		SS-W-2540F
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	14	1	mg/L	[1] @	ICP-W-dis
Miller Outlet	L78061-01B	5/29/2007		5/30/2007	Aqueous	Sulfate	14808-79-8	5	23	5	mg/L		300.0-W
Miller Outlet	L78061-01A	5/29/2007		6/1/2007	Aqueous	TDS		1	270	20	mg/L		TDS-W
Miller Outlet	L78061-01A	5/29/2007		5/30/2007	Aqueous	TSS		1	120	3	mg/L		TSS-W-2540D
Miller Outlet	L78061-01F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0.016	0.01	mg/L		6020-W-DISS
Miller Outlet	L78574-04B	6/25/2007		6/28/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	L78574-04B	6/25/2007		6/28/2007	Aqueous	Alkalinity,(As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L78574-04C	6/25/2007	6/28/2007	6/29/2007	Aqueous	Ammonia (as N)		1	0.084	0.05	mg/L		NH3-W
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L78574-04B	6/25/2007		6/28/2007	Aqueous	Bicarbonate (As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	66	10	mg/L	*	ICP-W-dis
Miller Outlet	L78574-04B	6/25/2007		6/28/2007	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Miller Outlet	L78574-04B	6/25/2007		7/9/2007	Aqueous	Chloride	16887-00-6	5	12	5	mg/L		300.0-W
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0.0068	0.004	mg/L		6020-W-DISS
Miller Outlet	L78574-04F	6/25/2007		7/2/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	230	10	mg/L		HARD
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L78574-04E	6/25/2007	6/27/2007	7/2/2007	Aqueous	Iron	7439-89-6	1	3.5	0.05	mg/L		ICP-W
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	16	1	mg/L		ICP-W-dis
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.011	0.005	mg/L		6020-W-DISS
Miller Outlet	L78574-04E	6/25/2007	6/27/2007	7/2/2007	Aqueous	Manganese	7439-96-5	1	0.17	0.005	mg/L		ICP-W
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L78574-04B	6/25/2007		6/28/2007	Aqueous	Nitrate (as N)		1	0.090	0.01	mg/L	H	NO3-W
Miller Outlet	L78574-04B	6/25/2007		6/28/2007	Aqueous	Nitrite (as N)		1	0.028	0.01	mg/L	H	NO2-W
Miller Outlet	L78574-04D	6/25/2007		7/5/2007	Aqueous	Oil & Grease		1	6.2	3	mg/L		OGB-W
Miller Outlet	L78574-04B	6/25/2007		6/27/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.052	0.05	mg/L	H	PO4-O
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	2.3	1	mg/L		ICP-W-dis
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L78574-04A	6/25/2007		6/27/2007	Aqueous	Settleable Solids		1	0.10	0.1	mL/L		SS-W-2540F
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	15	1	mg/L		ICP-W-dis
Miller Outlet	L78574-04B	6/25/2007		7/7/2007	Aqueous	Sulfate	14808-79-8	10	27	10	mg/L		300.0-W
Miller Outlet	L78574-04A	6/25/2007		6/27/2007	Aqueous	TDS		1	280	20	mg/L		TDS-W
Miller Outlet	L78574-04A	6/25/2007		6/27/2007	Aqueous	TSS		1	150	3	mg/L		TSS-W-2540D
Miller Outlet	L78574-04F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0.020	0.01	mg/L		6020-W-DISS
Miller Outlet	L79128-01B	7/30/2007		8/2/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	L79128-01B	7/30/2007		8/2/2007	Aqueous	Alkalinity,(As CaCO3)		1	210	20	mg/L		2320B-ALK-W
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L79128-01C	7/30/2007	8/1/2007	8/3/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L79128-01B	7/30/2007		8/2/2007	Aqueous	Bicarbonate (As CaCO3)		1	210	20	mg/L		2320B-ALK-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	64	10	mg/L	*	ICP-W-dis
Miller Outlet	L79128-01B	7/30/2007		8/2/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L79128-01B	7/30/2007		8/11/2007	Aqueous	Chloride	16887-00-6	5	9.4	5	mg/L	*	300.0-W
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
Miller Outlet	L79128-01F	7/30/2007		8/10/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	230	10	mg/L		HARD
Miller Outlet	L79128-01E	7/30/2007	8/2/2007	8/7/2007	Aqueous	Iron	7439-89-6	1	2.6	0.05	mg/L		ICP-W
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Magnesium	7439-95-4	10	16	10	mg/L	*	ICP-W-dis
Miller Outlet	L79128-01E	7/30/2007	8/2/2007	8/7/2007	Aqueous	Manganese	7439-96-5	1	0.086	0.005	mg/L		ICP-W
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L79128-01B	7/30/2007		8/1/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Miller Outlet	L79128-01B	7/30/2007		8/1/2007	Aqueous	Nitrite (as N)		1	0.025	0.01	mg/L		NO2-W
Miller Outlet	L79128-01D	7/30/2007		8/2/2007	Aqueous	Oil & Grease		1	4.3	3	mg/L		OGB-W
Miller Outlet	L79128-01B	7/30/2007		8/1/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.11	0.05	mg/L	[1]	PO4-O
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	2.5	1	mg/L		ICP-W-dis
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Miller Outlet	L79128-01A	7/30/2007		8/1/2007	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Sodium	7440-23-5	10	16	10	mg/L	*	ICP-W-dis
Miller Outlet	L79128-01B	7/30/2007		8/11/2007	Aqueous	Sulfate	14808-79-8	5	19	5	mg/L	*	300.0-W
Miller Outlet	L79128-01A	7/30/2007		8/3/2007	Aqueous	TDS		1	280	10	mg/L		TDS-W
Miller Outlet	L79128-01A	7/30/2007		8/1/2007	Aqueous	TSS		1	110	3	mg/L		TSS-W-2540D
Miller Outlet	L79128-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0	0.01	mg/L		6020-W-DISS
Miller Outlet	L81026-04B	11/12/2007		11/15/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	L81026-04B	11/12/2007		11/15/2007	Aqueous	Alkalinity,(As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L81026-04C	11/12/2007	11/15/2007	11/15/2007	Aqueous	Ammonia (as N)		1	0.054	0.05	mg/L		NH3-W
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Miller Outlet	L81026-04B	11/12/2007		11/15/2007	Aqueous	Bicarbonate (As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	74	10	mg/L	#	ICP-W-dis
Miller Outlet	L81026-04B	11/12/2007		11/15/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L81026-04B	11/12/2007		11/21/2007	Aqueous	Chloride	16887-00-6	5	9.7	5	mg/L		300.0-W
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Copper	7440-50-8	20	0.0012	0.0008	mg/L		6020-W-DISS
Miller Outlet	L81026-04F	11/12/2007		11/27/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	250	10	mg/L		HARD
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L81026-04E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Iron	7439-89-6	1	0.64	0.05	mg/L		ICP-W
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0001	mg/L		6020-W-DISS
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	1	mg/L		ICP-W-dis
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Manganese	7439-96-5	20	0.0070	0.0012	mg/L		6020-W-DISS
Miller Outlet	L81026-04E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Manganese	7439-96-5	1	0.031	0.005	mg/L		ICP-W
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L81026-04B	11/12/2007		11/14/2007	Aqueous	Nitrate (as N)		1	0.078	0.01	mg/L		NO3-W
Miller Outlet	L81026-04B	11/12/2007		11/14/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L81026-04D	11/12/2007		11/18/2007	Aqueous	Oil & Grease		1	3.2	3	mg/L		OGB-W
Miller Outlet	L81026-04B	11/12/2007		11/14/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	H	PO4-O
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	1.7	1	mg/L		ICP-W-dis
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Miller Outlet	L81026-04A	11/12/2007		11/14/2007	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	6.3	1	mg/L		ICP-W-dis
Miller Outlet	L81026-04B	11/12/2007		11/21/2007	Aqueous	Sulfate	14808-79-8	5	25	5	mg/L		300.0-W
Miller Outlet	L81026-04A	11/12/2007		11/14/2007	Aqueous	TDS		1	320	20	mg/L		TDS-W
Miller Outlet	L81026-04A	11/12/2007		11/14/2007	Aqueous	TSS		1	26	3	mg/L		TSS-W-2540D
Miller Outlet	L81026-04F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Miller Outlet	L83169-03B	3/25/2008		3/28/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	L83169-03B	3/25/2008		3/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L83169-03C	3/25/2008	4/1/2008	4/1/2008	Aqueous	Ammonia (as N)		1	0.095	0.05	mg/L		NH3-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Miller Outlet	L83169-03B	3/25/2008		3/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	82	10	mg/L	#	ICP-W-dis
Miller Outlet	L83169-03B	3/25/2008		3/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L83169-03B	3/25/2008		3/30/2008	Aqueous	Chloride	16887-00-6	10	9.4	1	mg/L		300.0-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0017	0.0008	mg/L		6020-W-DISS
Miller Outlet	L83169-03F	3/25/2008		4/2/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	270	10	mg/L		HARD
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L83169-03E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Iron	7439-89-6	1	1.6	0.05	mg/L		ICP-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	15	1	mg/L		ICP-W-dis
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.043	0.0012	mg/L		6020-W-DISS
Miller Outlet	L83169-03E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Manganese	7439-96-5	1	0.25	0.005	mg/L		ICP-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L83169-03B	3/25/2008		3/27/2008	Aqueous	Nitrate (as N)		1	0.64	0.01	mg/L		NO3-W
Miller Outlet	L83169-03B	3/25/2008		3/27/2008	Aqueous	Nitrite (as N)		1	0.014	0.01	mg/L		NO2-W
Miller Outlet	L83169-03D	3/25/2008		3/31/2008	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Miller Outlet	L83169-03B	3/25/2008		3/27/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	2.1	1	mg/L		ICP-W-dis
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Miller Outlet	L83169-03A	3/25/2008		3/27/2008	Aqueous	Settleable Solids		1	0.50	0.1	ml/L		SS-W-2540F
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	6.6	1	mg/L		ICP-W-dis
Miller Outlet	L83169-03B	3/25/2008		3/30/2008	Aqueous	Sulfate	14808-79-8	10	29	7.5	mg/L		300.0-W
Miller Outlet	L83169-03A	3/25/2008		3/28/2008	Aqueous	TDS		1	330	20	mg/L		TDS-W
Miller Outlet	L83169-03A	3/25/2008		3/27/2008	Aqueous	TSS		1	430	3	mg/L		TSS-W-2540D

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Miller Outlet	L83169-03B	3/25/2008		3/28/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	L83169-03B	3/25/2008		3/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L83169-03C	3/25/2008	4/1/2008	4/1/2008	Aqueous	Ammonia (as N)		1	0.095	0.05	mg/L		NH3-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Miller Outlet	L83169-03B	3/25/2008		3/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	82	10	mg/L	#	ICP-W-dis
Miller Outlet	L83169-03B	3/25/2008		3/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L83169-03B	3/25/2008		3/30/2008	Aqueous	Chloride	16887-00-6	10	9.4	1	mg/L		300.0-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0017	0.0008	mg/L		6020-W-DISS
Miller Outlet	L83169-03F	3/25/2008		4/2/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	270	10	mg/L		HARD
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L83169-03E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Iron	7439-89-6	1	1.6	0.05	mg/L		ICP-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	15	1	mg/L		ICP-W-dis
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.043	0.0012	mg/L		6020-W-DISS
Miller Outlet	L83169-03E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Manganese	7439-96-5	1	0.25	0.005	mg/L		ICP-W
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L83169-03B	3/25/2008		3/27/2008	Aqueous	Nitrate (as N)		1	0.64	0.01	mg/L		NO3-W
Miller Outlet	L83169-03B	3/25/2008		3/27/2008	Aqueous	Nitrite (as N)		1	0.014	0.01	mg/L		NO2-W
Miller Outlet	L83169-03D	3/25/2008		3/31/2008	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Miller Outlet	L83169-03B	3/25/2008		3/27/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	2.1	1	mg/L		ICP-W-dis
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Miller Outlet	L83169-03A	3/25/2008		3/27/2008	Aqueous	Settleable Solids		1	0.50	0.1	ml/L		SS-W-2540F
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	6.6	1	mg/L		ICP-W-dis
Miller Outlet	L83169-03B	3/25/2008		3/30/2008	Aqueous	Sulfate	14808-79-8	10	29	7.5	mg/L		300.0-W
Miller Outlet	L83169-03A	3/25/2008		3/28/2008	Aqueous	TDS		1	330	20	mg/L		TDS-W
Miller Outlet	L83169-03A	3/25/2008		3/27/2008	Aqueous	TSS		1	430	3	mg/L		TSS-W-2540D
Miller Outlet	L83169-03F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Miller Outlet	L84608-04B	6/16/2008		6/20/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	L84608-04B	6/16/2008		6/20/2008	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L84608-04C	6/16/2008	6/20/2008	6/25/2008	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Miller Outlet	L84608-04B	6/16/2008		6/20/2008	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Calcium	7440-70-2	10	66	10	mg/L	~	ICP-W-dis
Miller Outlet	L84608-04B	6/16/2008		6/20/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L84608-04B	6/16/2008		6/26/2008	Aqueous	Chloride	16887-00-6	5	8.1	0.5	mg/L		300.0-W
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Copper	7440-50-8	20	0.0016	0.0008	mg/L		6020-W-DISS
Miller Outlet	L84608-04F	6/16/2008		6/18/2008	Aqueous Dissolved	Hardness (as CaCO3)	471-34-1	1	220	10	mg/L		HARD
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L84608-04E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Iron	7439-89-6	1	1.6	0.05	mg/L		ICP-W
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Magnesium	7439-95-4	1	14	1	mg/L		ICP-W-dis
Miller Outlet	L84608-04E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Manganese	7439-96-5	1	0.089	0.005	mg/L		ICP-W
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Manganese	7439-96-5	20	0	0.0012	mg/L		6020-W-DISS
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L84608-04B	6/16/2008		6/18/2008	Aqueous	Nitrate (as N)		1	0.14	0.01	mg/L		NO3-W
Miller Outlet	L84608-04B	6/16/2008		6/18/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L84608-04D	6/16/2008		6/18/2008	Aqueous	Oil & Grease		1	460	3	mg/L	*	OGB-W
Miller Outlet	L84608-04B	6/16/2008		6/18/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Potassium	7440-09-7	1	1.8	1	mg/L		ICP-W-dis
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Miller Outlet	L84608-04A	6/16/2008		6/18/2008	Aqueous	Settleable Solids		1	0.10	0.1	ml/L		SS-W-2540F
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Sodium	7440-23-5	1	17	1	mg/L		ICP-W-dis
Miller Outlet	L84608-04B	6/16/2008		6/26/2008	Aqueous	Sulfate	14808-79-8	5	23	3.8	mg/L		300.0-W
Miller Outlet	L84608-04A	6/16/2008		6/19/2008	Aqueous	TDS		1	240	100	mg/L		TDS-W
Miller Outlet	L84608-04A	6/16/2008		6/18/2008	Aqueous	TSS		1	85	3	mg/L		TSS-W-2540D
Miller Outlet	L84608-04F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Miller Outlet	L85972-04B	8/26/2008		8/29/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	L85972-04B	8/26/2008		8/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L85972-04D	8/26/2008	8/28/2008	8/29/2008	Aqueous	Ammonia (as N)		1	0.056	0.05	mg/L		NH3-W
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0.0010	0.0006	mg/L		6020-W-DISS
Miller Outlet	L85972-04B	8/26/2008		8/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	63	10	mg/L	~	ICP-W-dis
Miller Outlet	L85972-04B	8/26/2008		8/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Outlet	L85972-04B	8/26/2008		8/28/2008	Aqueous	Chloride	16887-00-6	1	12	0.1	mg/L		300.0-W
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0016	0.0008	mg/L		6020-W-DISS
Miller Outlet	L85972-04E	8/26/2008		9/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	220	10	mg/L		HARD
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L85972-04F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Iron	7439-89-6	1	1.3	0.05	mg/L		ICP-W
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	15	1	mg/L		ICP-W-dis
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0	0.0012	mg/L		6020-W-DISS
Miller Outlet	L85972-04F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Manganese	7439-96-5	1	0.058	0.005	mg/L		ICP-W
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L85972-04B	8/26/2008		8/28/2008	Aqueous	Nitrate (as N)		1	0.025	0.01	mg/L		NO3-W
Miller Outlet	L85972-04B	8/26/2008		8/28/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L85972-04C	8/26/2008		9/5/2008	Aqueous	Oil & Grease		1	3.0	3	mg/L		OGB-W
Miller Outlet	L85972-04B	8/26/2008		8/28/2008	Aqueous	Phosphorus, Orthophosphate (as P	7723-14-0	1	0	0.1	mg/L		300.0-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	2.0	1	mg/L		ICP-W-dis
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Miller Outlet	L85972-04A	8/26/2008		8/28/2008	Aqueous	Settleable Solids		1	0.20	0.1	ml/L		SS-W-2540F
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	6.6	1	mg/L		ICP-W-dis
Miller Outlet	L85972-04B	8/26/2008		8/28/2008	Aqueous	Sulfate	14808-79-8	1	22	0.75	mg/L		300.0-W
Miller Outlet	L85972-04A	8/26/2008		8/28/2008	Aqueous	TDS		1	310	20	mg/L		TDS-W
Miller Outlet	L85972-04A	8/26/2008		8/28/2008	Aqueous	TSS		1	88	3	mg/L		TSS-W-2540D
Miller Outlet	L85972-04E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Miller Outlet	L87283-04B	10/29/2008		10/31/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	L87283-04B	10/29/2008		10/31/2008	Aqueous	Alkalinity,(As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L87283-04D	10/29/2008	11/6/2008	11/7/2008	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0.00063	0.0006	mg/L		6020-W-DISS
Miller Outlet	L87283-04B	10/29/2008		10/31/2008	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	74	10	mg/L	~	ICP-W-dis
Miller Outlet	L87283-04B	10/29/2008		10/31/2008	Aqueous	Carbonate (As CaCO3)		1	18	10	mg/L		2320B-ALK-W
Miller Outlet	L87283-04B	10/29/2008		11/11/2008	Aqueous	Chloride	16887-00-6	5	9.8	0.5	mg/L		300.0-W
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0	0.0008	mg/L		6020-W-DISS
Miller Outlet	L87283-04E	10/29/2008		11/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	250	10	mg/L		HARD
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Miller Outlet	L87283-04F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Iron	7439-89-6	1	0.67	0.05	mg/L		ICP-W
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	17	1	mg/L		ICP-W-dis
Miller Outlet	L87283-04F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Manganese	7439-96-5	1	0.026	0.005	mg/L		ICP-W
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.0054	0.0012	mg/L		6020-W-DISS
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Outlet	L87283-04B	10/29/2008		10/31/2008	Aqueous	Nitrate (as N)		1	0.15	0.01	mg/L		NO3-W
Miller Outlet	L87283-04B	10/29/2008		10/31/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Miller Outlet	L87283-04C	10/29/2008		11/2/2008	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Miller Outlet	L87283-04B	10/29/2008		10/31/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	2.0	1	mg/L		ICP-W-dis
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Miller Outlet	L87283-04A	10/29/2008		10/30/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	6.4	1	mg/L		ICP-W-dis
Miller Outlet	L87283-04B	10/29/2008		11/11/2008	Aqueous	Sulfate	14808-79-8	5	23	3.8	mg/L		300.0-W
Miller Outlet	L87283-04A	10/29/2008		10/31/2008	Aqueous	TDS		1	290	20	mg/L		TDS-W
Miller Outlet	L87283-04A	10/29/2008		10/30/2008	Aqueous	TSS		1	18	3	mg/L		TSS-W-2540D
Miller Outlet	L87283-04E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0.010	0.0054	mg/L		6020-W-DISS
Miller Outlet	1006480-004	6/23/2010		6/25/2010	Aqueous	Settleable Solids		1	0.20	0.10	mL/L		SS-W-2540F
Miller Outlet	1006480-004	6/23/2010		6/25/2010	Aqueous	Total Dissolved Solids		2	240	20	mg/L		TDS-W-2540C
Miller Outlet	1006480-004	6/23/2010		6/25/2010	Aqueous	Total Suspended Solids	TSS	1	86	3.0	mg/L		TSS-W-2540D
Miller Outlet	1006480-004	6/23/2010		6/30/2010	Aqueous	Chloride	16887-00-6	10	10	1.0	mg/L		300.0-W
Miller Outlet	1006480-004	6/23/2010		6/30/2010	Aqueous	Sulfate	14808-79-8	10	22	7.5	mg/L		300.0-W
Miller Outlet	1006480-004	6/23/2010		6/28/2010	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Outlet	1006480-004	6/23/2010		6/28/2010	Aqueous	Alkalinity (as CaCO3)		2	210	20	mg/L		ALK-W-2320B
Miller Outlet	1006480-004	6/23/2010		6/28/2010	Aqueous	Bicarbonate (as CaCO3)		2	210	20	mg/L		ALK-W-2320B
Miller Outlet	1006480-004	6/23/2010		6/28/2010	Aqueous	Carbonate (as CaCO3)		2	0	10	mg/L		ALK-W-2320B
Miller Outlet	1006480-004	6/23/2010		6/25/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0	0.010	mg/L		NO2-W-353.2
Miller Outlet	1006480-004	6/23/2010		6/25/2010	Aqueous	Nitrate (as N)	14797-55-8	1	0.048	0.010	mg/L		NO3-W-353.2
Miller Outlet	1006480-004	6/23/2010		6/25/2010	Aqueous	pH @ 25° C		1	8.29	1.00	pH Units	H	PH-4500H+B
Miller Outlet	1006480-004	6/23/2010		6/25/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0	0.050	mg/L		PO4-O-365.1
Miller Outlet	1006480-004	6/23/2010		6/30/2010	Aqueous	Oil & Grease		1	0	3.0	mg/L		OGB-W-1664A
Miller Outlet	1006480-004	6/23/2010	6/28/2010	6/29/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0.084	0.050	mg/L		NH3-W-350.1
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Aluminum	7429-90-5	1	0	0.10	mg/L		6010C-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Boron	7440-42-8	1	0	0.50	mg/L		6010C-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Calcium	7440-70-2	10	66	10	mg/L		6010C-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	0	0.10	mg/L		6010C-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Magnesium	7439-95-4	1	16	1.0	mg/L		6010C-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.020	mg/L		6010C-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Potassium	7440-09-7	1	2.3	1.0	mg/L		6010C-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Sodium	7440-23-5	1	6.5	1.0	mg/L		6010C-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Arsenic	7440-38-2	20	0.00071	0.00060	mg/L		6020-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Copper	7440-50-8	20	0.0014	0.00080	mg/L		6020-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Lead	7439-92-1	20	0	0.00040	mg/L		6020-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Manganese	7439-96-5	20	0.0013	0.0012	mg/L		6020-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Selenium	7782-49-2	20	0	0.00080	mg/L		6020-DIS
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Zinc	7440-66-6	20	0	0.0050	mg/L		6020-DIS
Miller Outlet	1006480-004	6/23/2010		6/28/2010	Aqueous	Hardness (as CaCO3)		10	230	100	mg/L		HARD-2340B
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	1.4	0.10	mg/L		6010C-W
Miller Outlet	1006480-004	6/23/2010	6/25/2010	6/25/2010	Aqueous	Manganese	7439-96-5	20	0.075	0.0012	mg/L		6020-W
Miller Spring	L84608-05B	6/16/2008		6/20/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Miller Spring	L84608-05B	6/16/2008		6/20/2008	Aqueous	Alkalinity,(As CaCO3)		1	36	20	mg/L		2320B-ALK-W
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Aluminum	7429-90-5	1	3.9	0.1	mg/L		ICP-W-dis
Miller Spring	L84608-05C	6/16/2008	6/20/2008	6/25/2008	Aqueous	Ammonia (as N)		1	0.070	0.05	mg/L		NH3-W
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Arsenic	7440-38-2	20	0.0014	0.0006	mg/L		6020-W-DISS
Miller Spring	L84608-05B	6/16/2008		6/20/2008	Aqueous	Bicarbonate (As CaCO3)		1	36	20	mg/L		2320B-ALK-W
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Calcium	7440-70-2	1	11	1	mg/L		ICP-W-dis
Miller Spring	L84608-05B	6/16/2008		6/20/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Miller Spring	L84608-05B	6/16/2008		6/26/2008	Aqueous	Chloride	16887-00-6	5	4.7	0.5	mg/L		300.0-W
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Copper	7440-50-8	20	0.0062	0.0008	mg/L		6020-W-DISS
Miller Spring	L84608-05F	6/16/2008		6/18/2008	Aqueous Dissolved	Hardness (as CaCO3)	471-34-1	1	38	10	mg/L		HARD
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Iron	7439-89-6	1	1.3	0.05	mg/L		ICP-W-dis
Miller Spring	L84608-05E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Iron	7439-89-6	1	2.7	0.05	mg/L		ICP-W
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Lead	7439-92-1	20	0.0021	0.0004	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Magnesium	7439-95-4	1	2.7	1	mg/L		ICP-W-dis
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Manganese	7439-96-5	20	0.0060	0.0012	mg/L		6020-W-DISS
Miller Spring	L84608-05E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Manganese	7439-96-5	1	0.012	0.005	mg/L		ICP-W
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Miller Spring	L84608-05B	6/16/2008		6/18/2008	Aqueous	Nitrate (as N)		1	0.011	0.01	mg/L		NO3-W
Miller Spring	L84608-05B	6/16/2008		6/18/2008	Aqueous	Nitrite (as N)		1	0.039	0.01	mg/L		NO2-W
Miller Spring	L84608-05D	6/16/2008		6/18/2008	Aqueous	Oil & Grease		1	5.4	3	mg/L	*	OGB-W
Miller Spring	L84608-05B	6/16/2008		6/18/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.055	0.05	mg/L		PO4-O
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Potassium	7440-09-7	1	1.7	1	mg/L		ICP-W-dis
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Selenium	7782-49-2	20	0.00089	0.0008	mg/L		6020-W-DISS
Miller Spring	L84608-05A	6/16/2008		6/18/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Sodium	7440-23-5	1	15	1	mg/L		ICP-W-dis
Miller Spring	L84608-05B	6/16/2008		6/26/2008	Aqueous	Sulfate	14808-79-8	5	5.9	3.8	mg/L		300.0-W
Miller Spring	L84608-05A	6/16/2008		6/19/2008	Aqueous	TDS		1	200	100	mg/L		TDS-W
Miller Spring	L84608-05A	6/16/2008		6/18/2008	Aqueous	TSS		1	13	3	mg/L		TSS-W-2540D
Miller Spring	L84608-05F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Zinc	7440-66-6	20	0.032	0.0054	mg/L		6020-W-DISS
Mud Creek	L65736-04B	5/9/2005		5/11/2005	Aqueous	Acidity		1	68	15	mg/L		ACIDITY-W
Mud Creek	L65736-04B	5/9/2005		5/11/2005	Aqueous	Alkalinity,(As CaCO3)		1	230	10	mg/L		2320B-ALK-W
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L65736-04F	5/9/2005	5/11/2005	5/12/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L65736-04B	5/9/2005		5/11/2005	Aqueous	Bicarbonate (As CaCO3)		1	220	10	mg/L		2320B-ALK-W
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0.1	0.5	mg/L		ICP-W-dis
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	81	10	mg/L		ICP-W-dis
Mud Creek	L65736-04B	5/9/2005		5/11/2005	Aqueous	Carbonate (As CaCO3)		1	11	10	mg/L		2320B-ALK-W
Mud Creek	L65736-04B	5/9/2005		5/18/2005	Aqueous	Chloride	16887-00-6	1	27	10	mg/L		300.0-W
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0.002	0.004	mg/L		6020-W-DISS
Mud Creek	L65736-04D	5/9/2005		5/20/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	350	10	mg/L		HARD
Mud Creek	L65736-04C	5/9/2005	5/11/2005	5/19/2005	Aqueous	Iron	7439-89-6	1	0.84	0.05	mg/L		ICP-W
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	10	mg/L		ICP-W-dis
Mud Creek	L65736-04C	5/9/2005	5/11/2005	5/19/2005	Aqueous	Manganese	7439-96-5	1	0.094	0.005	mg/L		6020-W
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.089	0.005	mg/L		6020-W-DISS
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L65736-04B	5/9/2005		5/11/2005	Aqueous	Nitrate (as N)		1	0.70	0.01	mg/L		NO3-W
Mud Creek	L65736-04B	5/9/2005		5/11/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L65736-04E	5/9/2005		5/11/2005	Aqueous	Oil & Grease		1	3.9	3	mg/L		OGB-W
Mud Creek	L65736-04B	5/9/2005		5/11/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	5.2	1	mg/L		ICP-W-dis
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0.002	0.005	mg/L		6020-W-DISS
Mud Creek	L65736-04A	5/9/2005		5/10/2005	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	37	10	mg/L		ICP-W-dis
Mud Creek	L65736-04B	5/9/2005		5/17/2005	Aqueous	Sulfate	14808-79-8	1	120	100	mg/L		300.0-W
Mud Creek	L65736-04A	5/9/2005		5/10/2005	Aqueous	TDS		1	500	10	mg/L		TDS-W
Mud Creek	L65736-04A	5/9/2005		5/10/2005	Aqueous	TSS		1	52	3	mg/L		TSS-W
Mud Creek	L65736-04D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Mud Creek	L67580-04B	9/6/2005		9/9/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L67580-04B	9/6/2005		9/8/2005	Aqueous	Alkalinity,(As CaCO3)		1	230	10	mg/L		2320B-ALK-W
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L67580-04F	9/6/2005	9/7/2005	9/8/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L67580-04B	9/6/2005		9/8/2005	Aqueous	Bicarbonate (As CaCO3)		1	230	10	mg/L		2320B-ALK-W
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	83	10	mg/L		ICP-W-DIS
Mud Creek	L67580-04B	9/6/2005		9/8/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L67580-04B	9/6/2005		9/14/2005	Aqueous	Chloride	16887-00-6	10	17	10	mg/L		300.0-W
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	410	10	mg/L		HARD
Mud Creek	L67580-04C	9/6/2005	9/8/2005	9/13/2005	Aqueous	Iron	7439-89-6	1	0.15	0.05	mg/L		ICP-W
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0.066	0.05	mg/L		ICP-W-DIS
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	49	10	mg/L		ICP-W-DIS
Mud Creek	L67580-04C	9/6/2005	9/8/2005	9/15/2005	Aqueous	Manganese	7439-96-5	1	0.023	0.005	mg/L		6020-W
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.020	0.005	mg/L		6020-W-DISS
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L67580-04B	9/6/2005		8/7/2005	Aqueous	Nitrate (as N)		1	0.22	0.01	mg/L		NO3-W
Mud Creek	L67580-04B	9/6/2005		9/7/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L67580-04E	9/6/2005		9/7/2005	Aqueous	Oil & Grease		1	4.8	3	mg/L		OGB-W
Mud Creek	L67580-04B	9/6/2005		9/8/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.06	mg/L		PO4-O
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	7.3	1	mg/L		ICP-W-DIS
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L67580-04A	9/6/2005		9/7/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	34	10	mg/L		ICP-W-DIS
Mud Creek	L67580-04B	9/6/2005		9/14/2005	Aqueous	Sulfate	14808-79-8	10	250	100	mg/L		300.0-W
Mud Creek	L67580-04A	9/6/2005		9/7/2005	Aqueous	TSS		1	8.0	3	mg/L		TSS-W
Mud Creek	L67580-04D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Mud Creek	L68520-04B	10/31/2005		11/2/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Alkalinity,(As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L68520-04F	10/31/2005	11/7/2005	11/9/2005	Aqueous	Ammonia (as N)		1	0.077	0.05	mg/L		NH3-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Bicarbonate (As CaCO3)		1	260	10	mg/L		2320B-ALK-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	92	5	mg/L		ICP-W-DIS
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Carbonate (As CaCO3)		1	33	10	mg/L		2320B-ALK-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L68520-04B	10/31/2005		11/9/2005	Aqueous	Chloride	16887-00-6	1	15	5	mg/L		CL-W-LAT
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	460	10	mg/L		HARD
Mud Creek	L68520-04C	10/31/2005	11/1/2005	11/9/2005	Aqueous	Iron	7439-89-6	1	0.24	0.05	mg/L		ICP-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	56	1	mg/L		ICP-W-DIS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.024	0.005	mg/L		6020-W-DISS
Mud Creek	L68520-04C	10/31/2005	11/1/2005	11/10/2005	Aqueous	Manganese	7439-96-5	1	0.033	0.005	mg/L		6020-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Nitrate (as N)		1	0.35	0.01	mg/L		NO3-W
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L68520-04E	10/31/2005		11/2/2005	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	9.4	1	mg/L		ICP-W-DIS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L68520-04A	10/31/2005		11/1/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	51	5	mg/L		ICP-W-DIS
Mud Creek	L68520-04B	10/31/2005		11/10/2005	Aqueous	Sulfate	14808-79-8	1	250	5	mg/L		SO4-W
Mud Creek	L68520-04A	10/31/2005		11/1/2005	Aqueous	TDS		1	720	10	mg/L		TDS-W
Mud Creek	L68520-04A	10/31/2005		11/1/2005	Aqueous	TSS		1	10	3	mg/L		TSS-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.024	0.01	mg/L		6020-W-DISS
Mud Creek	L68520-04B	10/31/2005		11/2/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Alkalinity,(As CaCO3)		1	300	10	mg/L		2320B-ALK-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L68520-04F	10/31/2005	11/7/2005	11/9/2005	Aqueous	Ammonia (as N)		1	0.077	0.05	mg/L		NH3-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Bicarbonate (As CaCO3)		1	260	10	mg/L		2320B-ALK-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	92	5	mg/L		ICP-W-DIS
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Carbonate (As CaCO3)		1	33	10	mg/L		2320B-ALK-W
Mud Creek	L68520-04B	10/31/2005		11/9/2005	Aqueous	Chloride	16887-00-6	1	15	5	mg/L		CL-W-LAT
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	460	10	mg/L		HARD
Mud Creek	L68520-04C	10/31/2005	11/1/2005	11/9/2005	Aqueous	Iron	7439-89-6	1	0.24	0.05	mg/L		ICP-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	56	1	mg/L		ICP-W-DIS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.024	0.005	mg/L		6020-W-DISS
Mud Creek	L68520-04C	10/31/2005	11/1/2005	11/10/2005	Aqueous	Manganese	7439-96-5	1	0.033	0.005	mg/L		6020-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Nitrate (as N)		1	0.35	0.01	mg/L		NO3-W
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L68520-04E	10/31/2005		11/2/2005	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Mud Creek	L68520-04B	10/31/2005		11/1/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	9.4	1	mg/L		ICP-W-DIS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L68520-04A	10/31/2005		11/1/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	51	5	mg/L		ICP-W-DIS
Mud Creek	L68520-04B	10/31/2005		11/10/2005	Aqueous	Sulfate	14808-79-8	1	250	5	mg/L		SO4-W
Mud Creek	L68520-04A	10/31/2005		11/1/2005	Aqueous	TDS		1	720	10	mg/L		TDS-W
Mud Creek	L68520-04A	10/31/2005		11/1/2005	Aqueous	TSS		1	10	3	mg/L		TSS-W
Mud Creek	L68520-04D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.024	0.01	mg/L		6020-W-DISS
Mud Creek	L68977-03C	11/28/2005		12/1/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L68977-03C	11/28/2005		11/29/2005	Aqueous	Alkalinity,(As CaCO3)		1	270	10	mg/L		2320B-ALK-W
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L68977-03F	11/28/2005	12/6/2005	12/7/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L68977-03C	11/28/2005		11/29/2005	Aqueous	Bicarbonate (As CaCO3)		1	250	10	mg/L		2320B-ALK-W
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	98	5	mg/L		ICP-W-DIS
Mud Creek	L68977-03C	11/28/2005		11/29/2005	Aqueous	Carbonate (As CaCO3)		1	24	10	mg/L		2320B-ALK-W
Mud Creek	L68977-03C	11/28/2005		12/3/2005	Aqueous	Chloride	16887-00-6	10	15	10	mg/L		300.0-W
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	490	10	mg/L		HARD
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L68977-03E	11/28/2005	11/30/2005	12/6/2005	Aqueous	Iron	7439-89-6	1	0.25	0.05	mg/L		ICP-W
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	59	1	mg/L		ICP-W-DIS
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.022	0.005	mg/L		6020-W-DISS
Mud Creek	L68977-03E	11/28/2005	11/30/2005	12/2/2005	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		6020-W
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L68977-03C	11/28/2005		11/29/2005	Aqueous	Nitrate (as N)		1	0.40	0.01	mg/L		NO3-W
Mud Creek	L68977-03C	11/28/2005		11/29/2005	Aqueous	Nitrite (as N)		1	0.013	0.01	mg/L		NO2-W
Mud Creek	L68977-03G	11/28/2005		11/30/2005	Aqueous	Oil & Grease		1	4.1	3	mg/L		OGB-W
Mud Creek	L68977-03C	11/28/2005		11/29/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	9.2	1	mg/L		ICP-W-DIS
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L68977-03A	11/28/2005		11/29/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	53	5	mg/L		ICP-W-DIS
Mud Creek	L68977-03C	11/28/2005		12/3/2005	Aqueous	Sulfate	14808-79-8	100	260	100	mg/L		300.0-W
Mud Creek	L68977-03B	11/28/2005		12/2/2005	Aqueous	TDS		1	700	10	mg/L		TDS-W
Mud Creek	L68977-03A	11/28/2005		11/29/2005	Aqueous	TSS		1	23	3	mg/L		TSS-W
Mud Creek	L68977-03D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.015	0.01	mg/L		6020-W-DISS
Mud Creek	L69428-01B	12/22/2005		12/23/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L69428-01B	12/22/2005		12/23/2005	Aqueous	Alkalinity,(As CaCO3)		1	250	10	mg/L		2320B-ALK-W
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L69428-01E	12/22/2005	12/23/2005	12/28/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L	1	NH3-W
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Arsenic	7440-38-2	2	0	0.005	mg/L		6020-W-DISS
Mud Creek	L69428-01B	12/22/2005		12/23/2005	Aqueous	Bicarbonate (As CaCO3)		1	250	10	mg/L		2320B-ALK-W
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Cadmium	7440-43-9	2	0	0.004	mg/L		6020-W-DISS
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	91	10	mg/L	2	ICP-W-DIS
Mud Creek	L69428-01B	12/22/2005		12/23/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L69428-01B	12/22/2005		12/28/2005	Aqueous	Chloride	16887-00-6	10	17	10	mg/L		300.0-W
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Copper	7440-50-8	2	0	0.004	mg/L		6020-W-DISS
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	430	10	mg/L		HARD
Mud Creek	L69428-01D	12/22/2005	12/23/2005	12/27/2005	Aqueous	Iron	7439-89-6	1	0.28	0.05	mg/L		ICP-W
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Lead	7439-92-1	2	0	0.005	mg/L		6020-W-DISS
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	50	1	mg/L		ICP-W-DIS
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Manganese	7439-96-5	2	0.021	0.005	mg/L		6020-W-DISS
Mud Creek	L69428-01D	12/22/2005	12/23/2005	12/28/2005	Aqueous	Manganese	7439-96-5	1	0.028	0.005	mg/L		6020-W
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L69428-01B	12/22/2005		12/23/2005	Aqueous	Nitrate (as N)		1	0.28	0.01	mg/L	1	NO3-W
Mud Creek	L69428-01B	12/22/2005		12/23/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	1	NO2-W
Mud Creek	L69428-01F	12/22/2005		12/28/2005	Aqueous	Oil & Grease		1	3.1	3	mg/L		OGB-W
Mud Creek	L69428-01B	12/22/2005		12/23/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	1@	PO4-O
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	7.6	1	mg/L		ICP-W-DIS
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Selenium	7782-49-2	2	0	0.005	mg/L		6020-W-DISS
Mud Creek	L69428-01A	12/22/2005		12/23/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	35	1	mg/L		ICP-W-DIS
Mud Creek	L69428-01B	12/22/2005		12/28/2005	Aqueous	Sulfate	14808-79-8	100	190	100	mg/L		300.0-W
Mud Creek	L69428-01A	12/22/2005		12/23/2005	Aqueous	TDS		1	600	10	mg/L		TDS-W
Mud Creek	L69428-01A	12/22/2005		12/23/2005	Aqueous	TSS		1	13	3	mg/L		TSS-W
Mud Creek	L69428-01C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Zinc	7440-66-6	2	0	0.01	mg/L		6020-W-DISS
Mud Creek	L69847-04B	1/23/2006		1/24/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L69847-04B	1/23/2006		1/24/2006	Aqueous	Alkalinity,(As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Mud Creek	L69847-04F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L69847-04C	1/23/2006	1/31/2006	2/1/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L69847-04F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L69847-04B	1/23/2006		1/24/2006	Aqueous	Bicarbonate (As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Mud Creek	L69847-04F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L69847-04F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0.053	0.004	mg/L	1	6020-W-DISS
Mud Creek	L69847-04F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	100	10	mg/L		ICP-W-DIS
Mud Creek	L69847-04B	1/23/2006		1/24/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L69847-04B	1/23/2006		1/27/2006	Aqueous	Chloride	16887-00-6	1	16	5	mg/L		300.0-W
Mud Creek	L69847-04F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.0070	0.004	mg/L		6020-W-DISS
Mud Creek	L69847-04F	1/23/2006		1/27/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	480	10	mg/L		HARD
Mud Creek	L69847-04E	1/23/2006	1/24/2006	1/27/2006	Aqueous	Iron	7439-89-6	1	0.11	0.05	mg/L		ICP-W
Mud Creek	L69847-04F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L69847-04F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L69847-04F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	58	10	mg/L		ICP-W-DIS
Mud Creek	L69847-04F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.037	0.005	mg/L		6020-W-DISS
Mud Creek	L69847-04E	1/23/2006	1/24/2006	1/30/2006	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		6020-W
Mud Creek	L69847-04F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L69847-04B	1/23/2006		1/24/2006	Aqueous	Nitrate (as N)		1	0.44	0.01	mg/L		NO3-W
Mud Creek	L69847-04B	1/23/2006		1/24/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L69847-04D	1/23/2006		1/24/2006	Aqueous	Oil & Grease		1	4.8	3	mg/L		OGB-W
Mud Creek	L69847-04B	1/23/2006		1/24/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L69847-04F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	9.1	1	mg/L		ICP-W-DIS
Mud Creek	L69847-04F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0.033	0.005	mg/L		6020-W-DISS
Mud Creek	L69847-04A	1/23/2006		1/24/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L69847-04F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	50	1	mg/L		ICP-W-DIS
Mud Creek	L69847-04B	1/23/2006		1/27/2006	Aqueous	Sulfate	14808-79-8	1	290	50	mg/L		300.0-W
Mud Creek	L69847-04A	1/23/2006		1/24/2006	Aqueous	TDS		1	720	10	mg/L		TDS-W
Mud Creek	L69847-04A	1/23/2006		1/24/2006	Aqueous	TSS		1	4.0	3	mg/L	*	TSS-W
Mud Creek	L69847-04F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.063	0.01	mg/L		6020-W-DISS
Mud Creek	L70355-02A	2/26/2006		2/28/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L70355-02A	2/26/2006		2/28/2006	Aqueous	Alkalinity,(As CaCO3)		1	260	10	mg/L		2320B-ALK-W
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L70355-02C	2/26/2006	3/2/2006	3/2/2006	Aqueous	Ammonia (as N)		1	0.57	0.05	mg/L		NH3-W
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L70355-02A	2/26/2006		2/28/2006	Aqueous	Bicarbonate (As CaCO3)		1	260	10	mg/L		2320B-ALK-W
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	97	10	mg/L		ICP-W-DIS
Mud Creek	L70355-02A	2/26/2006		2/28/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L70355-02A	2/26/2006		3/1/2006	Aqueous	Chloride	16887-00-6	5	22	5	mg/L		300.0-W
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L70355-02F	2/26/2006		3/7/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	470	10	mg/L		HARD
Mud Creek	L70355-02E	2/26/2006	2/28/2006	2/28/2006	Aqueous	Iron	7439-89-6	1	0.25	0.05	mg/L		ICP-W
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	55	1	mg/L		ICP-W-DIS
Mud Creek	L70355-02E	2/26/2006	2/28/2006	2/28/2006	Aqueous	Manganese	7439-96-5	1	0.031	0.005	mg/L		ICP-W
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.028	0.005	mg/L		6020-W-DISS
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L70355-02A	2/26/2006		2/27/2006	Aqueous	Nitrate (as N)		1	0.38	0.01	mg/L		NO3-W
Mud Creek	L70355-02A	2/26/2006		2/27/2006	Aqueous	Nitrite (as N)		1	0.018	0.01	mg/L		NO2-W
Mud Creek	L70355-02D	2/26/2006		2/27/2006	Aqueous	Oil & Grease		1	5.1	3	mg/L		OGB-W
Mud Creek	L70355-02A	2/26/2006		2/27/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	9.3	1	mg/L		ICP-W-DIS
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L70355-02B	2/26/2006		2/27/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	56	1	mg/L		ICP-W-DIS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L70355-02A	2/26/2006		3/1/2006	Aqueous	Sulfate	14808-79-8	50	250	50	mg/L		300.0-W
Mud Creek	L70355-02B	2/26/2006		3/3/2006	Aqueous	TDS		1	570	10	mg/L		TDS-W
Mud Creek	L70355-02B	2/26/2006		2/28/2006	Aqueous	TSS		1	10	3	mg/L		TSS-W
Mud Creek	L70355-02F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.16	0.01	mg/L		6020-W-DISS
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	88	10	mg/L		ICP-W-DIS
Mud Creek	L70885-02B	3/27/2006		3/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L70885-02B	3/27/2006		3/29/2006	Aqueous	Chloride	16887-00-6	10	34	10	mg/L		300.0-W
Mud Creek	L70885-02B	3/27/2006		3/30/2006	Aqueous	Conductivity		1	1000	2	umhos/cm		COND-W
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L70885-02E	3/27/2006		4/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	440	10	mg/L		HARD
Mud Creek	L70885-02D	3/27/2006	4/6/2006	4/9/2006	Aqueous	Iron	7439-89-6	1	0.47	0.05	mg/L		ICP-W
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	54	1	mg/L		ICP-W-DIS
Mud Creek	L70885-02D	3/27/2006	4/3/2006	4/4/2006	Aqueous	Manganese	7439-96-5	1	0.042	0.005	mg/L		ICP-W
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.025	0.005	mg/L		6020-W-DISS
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L70885-02B	3/27/2006		3/29/2006	Aqueous	Nitrate (as N)		1	0.44	0.01	mg/L		NO3-W
Mud Creek	L70885-02B	3/27/2006		3/29/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L70885-02F	3/27/2006		3/28/2006	Aqueous	Oil & Grease		1	4.1	3	mg/L		OGB-W
Mud Creek	L70885-02B	3/27/2006		3/28/2006	Aqueous	pH @ 25° C		1	8.18	0	pH Units		PH-W
Mud Creek	L70885-02B	3/27/2006		3/29/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	9.7	1	mg/L		ICP-W-DIS
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L70885-02A	3/27/2006		3/28/2006	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Sodium	7440-23-5	10	57	10	mg/L		ICP-W-DIS
Mud Creek	L70885-02B	3/27/2006		3/29/2006	Aqueous	Sulfate	14808-79-8	100	250	100	mg/L		300.0-W
Mud Creek	L70885-02A	3/27/2006		3/31/2006	Aqueous	TDS		1	510	10	mg/L		TDS-W
Mud Creek	L70885-02A	3/27/2006		3/28/2006	Aqueous	TSS		1	28	3	mg/L		TSS-W
Mud Creek	L70885-02E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.026	0.01	mg/L		6020-W-DISS
Mud Creek	L71507-04B	4/26/2006		5/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L71507-04B	4/26/2006		5/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L71507-04C	4/26/2006	5/3/2006	5/3/2006	Aqueous	Ammonia (as N)		1	0.11	0.05	mg/L		NH3-W
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L71507-04B	4/26/2006		5/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	280	10	mg/L		2320B-ALK-W
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	76	10	mg/L		ICP-W-dis
Mud Creek	L71507-04B	4/26/2006		5/2/2006	Aqueous	Carbonate (As CaCO3)		1	7	10	mg/L		2320B-ALK-W
Mud Creek	L71507-04B	4/26/2006		5/12/2006	Aqueous	Chloride	16887-00-6	1	30	10	mg/L		300.0-W
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L71507-04E	4/26/2006		5/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Mud Creek	L71507-04D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Iron	7439-89-6	1	2.7	0.05	mg/L		ICP-W
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	30	10	mg/L		ICP-W-dis
Mud Creek	L71507-04D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Manganese	7439-96-5	1	0.15	0.005	mg/L		ICP-W
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.022	0.005	mg/L		6020-W-DISS
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L71507-04C	4/26/2006		5/4/2006	Aqueous	Nitrate/Nitrite (as N)		1	0.36	0.01	mg/L		NO2/NO3-W
Mud Creek	L71507-04F	4/26/2006		5/5/2006	Aqueous	Oil & Grease		1	3.8	3	mg/L		OGB-W
Mud Creek	L71507-04B	4/26/2006		4/28/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.04	0.05	mg/L		PO4-O
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	3.8	1	mg/L		ICP-W-dis
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L71507-04A	4/26/2006		4/28/2006	Aqueous	Settable Solids		1	0.60	0.1	ml/L		SS
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	10	48	10	mg/L		ICP-W-dis
Mud Creek	L71507-04B	4/26/2006		5/12/2006	Aqueous	Sulfate	14808-79-8	1	88	10	mg/L		300.0-W
Mud Creek	L71507-04A	4/26/2006		4/28/2006	Aqueous	TDS		1	410	10	mg/L		TDS-W
Mud Creek	L71507-04A	4/26/2006		4/28/2006	Aqueous	TSS		1	270	3	mg/L		TSS-W
Mud Creek	L71507-04E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.023	0.01	mg/L		6020-W-DISS
Mud Creek	L72071-04B	5/25/2006		5/30/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L72071-04B	5/25/2006		5/30/2006	Aqueous	Alkalinity,(As CaCO3)		1	160	10	mg/L		2320B-ALK-W
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L72071-04C	5/25/2006	5/30/2006	5/31/2006	Aqueous	Ammonia (as N)		1	0.061	0.05	mg/L		NH3-W
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L72071-04B	5/25/2006		5/30/2006	Aqueous	Bicarbonate (As CaCO3)		1	150	10	mg/L		2320B-ALK-W
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	48	10	mg/L		ICP-W-DIS
Mud Creek	L72071-04B	5/25/2006		5/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L72071-04B	5/25/2006		6/1/2006	Aqueous	Chloride	16887-00-6	1	10	10	mg/L		300.0-W
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L72071-04E	5/25/2006		6/9/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	120	10	mg/L		HARD
Mud Creek	L72071-04D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Iron	7439-89-6	1	2.5	0.05	mg/L		ICP-W
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0.052	0.05	mg/L		ICP-W-DIS
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	14	10	mg/L		ICP-W-DIS
Mud Creek	L72071-04D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Manganese	7439-96-5	1	0.096	0.005	mg/L		ICP-W
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.012	0.005	mg/L		6020-W-DISS
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L72071-04B	5/25/2006		5/26/2006	Aqueous	Nitrate (as N)		1	0.74	0.01	mg/L		NO3-W
Mud Creek	L72071-04B	5/25/2006		5/26/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L72071-04F	5/25/2006		5/30/2006	Aqueous	Oil & Grease		1	3.2	3	mg/L		OGB-W
Mud Creek	L72071-04B	5/25/2006		5/26/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.9	1	mg/L		ICP-W-DIS
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L72071-04A	5/25/2006		5/26/2006	Aqueous	Settable Solids		1	0.50	0.1	ml/L		SS
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	18	10	mg/L		ICP-W-DIS
Mud Creek	L72071-04B	5/25/2006		6/1/2006	Aqueous	Sulfate	14808-79-8	1	42	10	mg/L		300.0-W
Mud Creek	L72071-04A	5/25/2006		5/26/2006	Aqueous	TDS		1	230	10	mg/L		TDS-W
Mud Creek	L72071-04A	5/25/2006		5/26/2006	Aqueous	TSS		1	320	3	mg/L		TSS-W
Mud Creek	L72071-04E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.014	0.01	mg/L		6020-W-DISS
Mud Creek	L72660-04B	6/29/2006		7/3/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L72660-04B	6/29/2006		7/3/2006	Aqueous	Alkalinity,(As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L72660-04C	6/29/2006	7/5/2006	7/7/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L72660-04B	6/29/2006		7/3/2006	Aqueous	Bicarbonate (As CaCO3)		1	180	20	mg/L		2320B-ALK-W
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	71	10	mg/L		ICP-W-DIS
Mud Creek	L72660-04B	6/29/2006		7/3/2006	Aqueous	Carbonate (As CaCO3)		1	55	20	mg/L		2320B-ALK-W
Mud Creek	L72660-04B	6/29/2006		7/5/2006	Aqueous	Chloride	16887-00-6	1	14	10	mg/L		300.0-W
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L72660-04E	6/29/2006		7/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	380	10	mg/L		HARD
Mud Creek	L72660-04D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Iron	7439-89-6	1	0.25	0.05	mg/L		ICP-W
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	39	10	mg/L		ICP-W-DIS
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.019	0.005	mg/L		6020-W-DISS
Mud Creek	L72660-04D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		ICP-W
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L72660-04B	6/29/2006		6/30/2006	Aqueous	Nitrate (as N)		1	0.22	0.01	mg/L		NO3-W
Mud Creek	L72660-04B	6/29/2006		6/30/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L72660-04F	6/29/2006		6/30/2006	Aqueous	Oil & Grease		1	4.4	3	mg/L		OGB-W
Mud Creek	L72660-04B	6/29/2006		6/30/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	6.0	1	mg/L		ICP-W-DIS
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L72660-04A	6/29/2006		6/30/2006	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	28	1	mg/L		ICP-W-DIS
Mud Creek	L72660-04B	6/29/2006		7/5/2006	Aqueous	Sulfate	14808-79-8	1	160	100	mg/L		300.0-W
Mud Creek	L72660-04A	6/29/2006		6/30/2006	Aqueous	TDS		1	380	20	mg/L		TDS-W
Mud Creek	L72660-04A	6/29/2006		6/30/2006	Aqueous	TSS		1	21	3	mg/L		TSS-W
Mud Creek	L72660-04E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Mud Creek	L73160-03B	7/31/2006		8/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L73160-03B	7/31/2006		8/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L73160-03C	7/31/2006	8/2/2006	8/4/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L73160-03B	7/31/2006		8/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	70	10	mg/L		ICP-W-DIS
Mud Creek	L73160-03B	7/31/2006		8/2/2006	Aqueous	Carbonate (As CaCO3)		1	10	20	mg/L		2320B-ALK-W
Mud Creek	L73160-03B	7/31/2006		8/8/2006	Aqueous	Chloride	16887-00-6	1	63	10	mg/L		300.0-W
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L73160-03E	7/31/2006		8/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	330	10	mg/L		HARD
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L73160-03D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Iron	7439-89-6	1	0.24	0.05	mg/L		ICP-W
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	38	1	mg/L		ICP-W-DIS
Mud Creek	L73160-03D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Manganese	7439-96-5	1	0.033	0.005	mg/L		ICP-W
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.019	0.005	mg/L		6020-W-DISS
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L73160-03B	7/31/2006		8/2/2006	Aqueous	Nitrate (as N)		1	0.14	0.01	mg/L		NO3-W
Mud Creek	L73160-03B	7/31/2006		8/2/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L73160-03F	7/31/2006		8/8/2006	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Mud Creek	L73160-03B	7/31/2006		8/2/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	6.1	1	mg/L		ICP-W-DIS
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L73160-03A	7/31/2006		8/2/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	27	1	mg/L		ICP-W-DIS
Mud Creek	L73160-03B	7/31/2006		8/8/2006	Aqueous	Sulfate	14808-79-8	1	160	100	mg/L		300.0-W
Mud Creek	L73160-03A	7/31/2006		8/3/2006	Aqueous	TDS		1	380	20	mg/L		TDS-W
Mud Creek	L73160-03A	7/31/2006		8/2/2006	Aqueous	TSS		1	11	3	mg/L		TSS-W
Mud Creek	L73160-03E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.019	0.01	mg/L		6020-W-DISS
Mud Creek	L73504-03B	8/21/2006		8/23/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L73504-03B	8/21/2006		8/23/2006	Aqueous	Alkalinity,(As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L73504-03E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L73504-03C	8/21/2006	8/23/2006	8/24/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L73504-03E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L73504-03B	8/21/2006		8/23/2006	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Mud Creek	L73504-03E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L73504-03E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Mud Creek	L73504-03E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	74	10	mg/L		ICP-W-DIS
Mud Creek	L73504-03B	8/21/2006		8/23/2006	Aqueous	Carbonate (As CaCO3)		1	14	10	mg/L		2320B-ALK-W
Mud Creek	L73504-03B	8/21/2006		8/24/2006	Aqueous	Chloride	16887-00-6	1	22	10	mg/L		300.0-W
Mud Creek	L73504-03E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
Mud Creek	L73504-03E	8/21/2006		9/5/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	360	10	mg/L		HARD
Mud Creek	L73504-03E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L73504-03D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Iron	7439-89-6	1	0.24	0.05	mg/L		ICP-W
Mud Creek	L73504-03E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L73504-03E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	42	10	mg/L		ICP-W-DIS
Mud Creek	L73504-03D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Manganese	7439-96-5	1	0.028	0.005	mg/L		ICP-W
Mud Creek	L73504-03E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Manganese	7439-96-5	5	0.016	0.005	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L73504-03E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L73504-03B	8/21/2006		8/23/2006	Aqueous	Nitrate (as N)		1	0.16	0.01	mg/L		NO3-W
Mud Creek	L73504-03B	8/21/2006		8/23/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L73504-03F	8/21/2006		8/23/2006	Aqueous	Oil & Grease		1	3.8	3	mg/L		OGB-W
Mud Creek	L73504-03B	8/21/2006		8/23/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L73504-03E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	7.6	1	mg/L		ICP-W-DIS
Mud Creek	L73504-03E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L73504-03A	8/21/2006		8/23/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L73504-03E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	37	1	mg/L		ICP-W-DIS
Mud Creek	L73504-03B	8/21/2006		8/28/2006	Aqueous	Sulfate	14808-79-8	1	130	1	mg/L		300.0-W
Mud Creek	L73504-03A	8/21/2006		8/25/2006	Aqueous	TDS		1	420	20	mg/L		TDS-W
Mud Creek	L73504-03A	8/21/2006		8/23/2006	Aqueous	TSS		1	9.0	3	mg/L		TSS-W
Mud Creek	L73504-03E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Zinc	7440-66-6	5	0	0.01	mg/L		6020-W-DISS
Mud Creek	L74688-01B	10/30/2006		11/1/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L74688-01B	10/30/2006		11/1/2006	Aqueous	Alkalinity,(As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L74688-01C	10/30/2006	11/1/2006	11/3/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L	[1]	NH3-W
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L74688-01B	10/30/2006		11/1/2006	Aqueous	Bicarbonate (As CaCO3)		1	210	20	mg/L		2320B-ALK-W
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	67	10	mg/L	[2] *	ICP-W-DIS
Mud Creek	L74688-01B	10/30/2006		11/1/2006	Aqueous	Carbonate (As CaCO3)		1	28	20	mg/L		2320B-ALK-W
Mud Creek	L74688-01B	10/30/2006		11/9/2006	Aqueous	Chloride	16887-00-6	1	17	10	mg/L		300.0-W
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L74688-01F	10/30/2006		11/13/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	340	10	mg/L		HARD
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Mud Creek	L74688-01E	10/30/2006	11/1/2006	11/13/2006	Aqueous	Iron	7439-89-6	1	0.34	0.05	mg/L		ICP-W
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	42	10	mg/L	*	ICP-W-DIS
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.019	0.005	mg/L		6020-W-DISS
Mud Creek	L74688-01E	10/30/2006	11/1/2006	11/13/2006	Aqueous	Manganese	7439-96-5	1	0.031	0.005	mg/L		ICP-W
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Mud Creek	L74688-01B	10/30/2006		11/1/2006	Aqueous	Nitrate (as N)		1	0.13	0.01	mg/L	[1]	NO3-W
Mud Creek	L74688-01B	10/30/2006		11/1/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L74688-01D	10/30/2006		11/1/2006	Aqueous	Oil & Grease		1	3.3	3	mg/L		OGB-W
Mud Creek	L74688-01B	10/30/2006		11/1/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	6.9	1	mg/L		ICP-W-DIS
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L74688-01A	10/30/2006		11/1/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	36	1	mg/L	[1]	ICP-W-DIS
Mud Creek	L74688-01B	10/30/2006		11/9/2006	Aqueous	Sulfate	14808-79-8	1	160	100	mg/L		300.0-W
Mud Creek	L74688-01A	10/30/2006		11/1/2006	Aqueous	TDS		1	460	20	mg/L		TDS-W
Mud Creek	L74688-01A	10/30/2006		11/1/2006	Aqueous	TSS		1	14	3	mg/L		TSS-W
Mud Creek	L74688-01F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.020	0.01	mg/L		6020-W-DISS
Mud Creek	L75142-01B	11/27/2006		11/29/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L75142-01B	11/27/2006		11/29/2006	Aqueous	Alkalinity,(As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Mud Creek	L75142-01F	11/27/2006	11/29/2006	12/13/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L75142-01C	11/27/2006	11/30/2006	12/1/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L75142-01F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L75142-01B	11/27/2006		11/29/2006	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Mud Creek	L75142-01F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L75142-01F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L75142-01F	11/27/2006	11/29/2006	12/13/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	89	10	mg/L	*	ICP-W-DIS
Mud Creek	L75142-01B	11/27/2006		11/29/2006	Aqueous	Carbonate (As CaCO3)		1	31	20	mg/L		2320B-ALK-W
Mud Creek	L75142-01B	11/27/2006		11/29/2006	Aqueous	Chloride	16887-00-6	1	15	10	mg/L		300.0-W
Mud Creek	L75142-01F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L75142-01F	11/27/2006		12/13/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	400	10	mg/L		HARD
Mud Creek	L75142-01F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L75142-01E	11/27/2006	11/29/2006	12/11/2006	Aqueous	Iron	7439-89-6	1	0.30	0.05	mg/L		ICP-W
Mud Creek	L75142-01F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L75142-01F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	44	1	mg/L		ICP-W-dis
Mud Creek	L75142-01F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.023	0.005	mg/L		6020-W-DISS
Mud Creek	L75142-01E	11/27/2006	11/29/2006	12/11/2006	Aqueous	Manganese	7439-96-5	1	0.026	0.005	mg/L		ICP-W
Mud Creek	L75142-01F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L75142-01B	11/27/2006		11/29/2006	Aqueous	Nitrate (as N)		1	0.26	0.01	mg/L	[1]@	NO3-W
Mud Creek	L75142-01B	11/27/2006		11/29/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	[1]@	NO2-W
Mud Creek	L75142-01D	11/27/2006		11/29/2006	Aqueous	Oil & Grease		1	3.4	3	mg/L		OGB-W
Mud Creek	L75142-01B	11/27/2006		11/29/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L75142-01F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	7.6	1	mg/L		ICP-W-dis
Mud Creek	L75142-01F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L75142-01F	11/27/2006	11/29/2006	12/13/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	42	1	mg/L		ICP-W-dis
Mud Creek	L75142-01B	11/27/2006		11/29/2006	Aqueous	Sulfate	14808-79-8	1	160	100	mg/L		300.0-W
Mud Creek	L75142-01A	11/27/2006		12/1/2006	Aqueous	TDS		1	490	20	mg/L		TDS-W
Mud Creek	L75142-01A	11/27/2006		11/29/2006	Aqueous	TSS		1	13	3	mg/L		TSS-W
Mud Creek	L75142-01F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Mud Creek	L75586-01B	12/26/2006		1/2/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L75586-01B	12/26/2006		1/2/2007	Aqueous	Alkalinity,(As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L75586-01C	12/26/2006	12/28/2006	12/29/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Arsenic	7440-38-2	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L75586-01B	12/26/2006		1/2/2007	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Cadmium	7440-43-9	10	0	0.004	mg/L		6020-W-DISS
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	76	10	mg/L	*	ICP-W-dis
Mud Creek	L75586-01B	12/26/2006		1/2/2007	Aqueous	Carbonate (As CaCO3)		1	21	20	mg/L		2320B-ALK-W
Mud Creek	L75586-01B	12/26/2006		1/2/2007	Aqueous	Chloride	16887-00-6	1	16	5	mg/L		300.0-W
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Copper	7440-50-8	10	0	0.004	mg/L		6020-W-DISS
Mud Creek	L75586-01F	12/26/2006		1/5/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	370	10	mg/L		HARD

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L75586-01E	12/26/2006	1/2/2007	1/3/2007	Aqueous	Iron	7439-89-6	1	0.58	0.05	mg/L		ICP-W
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Lead	7439-92-1	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Magnesium	7439-95-4	10	44	10	mg/L	*	ICP-W-dis
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Manganese	7439-96-5	10	0.016	0.005	mg/L		6020-W-DISS
Mud Creek	L75586-01E	12/26/2006	1/2/2007	1/3/2007	Aqueous	Manganese	7439-96-5	1	0.040	0.005	mg/L		ICP-W
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L75586-01B	12/26/2006		12/28/2006	Aqueous	Nitrate (as N)		1	0.30	0.01	mg/L	[1]	NO3-W
Mud Creek	L75586-01B	12/26/2006		12/28/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	[1]	NO2-W
Mud Creek	L75586-01D	12/26/2006		12/29/2006	Aqueous	Oil & Grease		1	3.5	3	mg/L		OGB-W
Mud Creek	L75586-01B	12/26/2006		12/28/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	[1]	PO4-O
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	7.6	1	mg/L		ICP-W-dis
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Selenium	7782-49-2	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L75586-01A	12/26/2006		12/28/2006	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Sodium	7440-23-5	10	45	10	mg/L	*	ICP-W-dis
Mud Creek	L75586-01B	12/26/2006		1/2/2007	Aqueous	Sulfate	14808-79-8	1	150	50	mg/L	[1]	300.0-W
Mud Creek	L75586-01A	12/26/2006		12/29/2006	Aqueous	TDS		1	490	20	mg/L		TDS-W
Mud Creek	L75586-01A	12/26/2006		12/28/2006	Aqueous	TSS		1	33	3	mg/L		TSS-W
Mud Creek	L75586-01F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Zinc	7440-66-6	10	0	0.01	mg/L		6020-W-DISS
Mud Creek	L76053-01B	1/31/2007		2/5/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L76053-01B	1/31/2007		2/5/2007	Aqueous	Alkalinity,(As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L76053-01C	1/31/2007	2/2/2007	2/5/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Arsenic	7440-38-2	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76053-01B	1/31/2007		2/5/2007	Aqueous	Bicarbonate (As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Cadmium	7440-43-9	10	0	0.004	mg/L		6020-W-DISS
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	72	10	mg/L	*	ICP-W-dis
Mud Creek	L76053-01B	1/31/2007		2/5/2007	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Mud Creek	L76053-01B	1/31/2007		2/2/2007	Aqueous	Chloride	16887-00-6	1	15	5	mg/L		300.0-W
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Copper	7440-50-8	10	0	0.004	mg/L		6020-W-DISS
Mud Creek	L76053-01F	1/31/2007		2/12/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	350	10	mg/L		HARD
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L76053-01E	1/31/2007	2/2/2007	2/7/2007	Aqueous	Iron	7439-89-6	1	0.43	0.05	mg/L		ICP-W
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Lead	7439-92-1	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	41	1	mg/L		ICP-W-dis
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Manganese	7439-96-5	10	0.013	0.005	mg/L		6020-W-DISS
Mud Creek	L76053-01E	1/31/2007	2/2/2007	2/7/2007	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		ICP-W
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L76053-01B	1/31/2007		2/2/2007	Aqueous	Nitrate (as N)		1	0.27	0.01	mg/L	[1] @	NO3-W
Mud Creek	L76053-01B	1/31/2007		2/2/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L76053-01D	1/31/2007		2/9/2007	Aqueous	Oil & Grease		1	3.4	3	mg/L		OGB-W
Mud Creek	L76053-01B	1/31/2007		2/2/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	[1]	PO4-O
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	7.1	1	mg/L		ICP-W-dis
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Selenium	7782-49-2	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76053-01A	1/31/2007		2/2/2007	Aqueous	Settable Solids		1	0.15	0.1	ml/L		SS
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	28	1	mg/L		ICP-W-dis
Mud Creek	L76053-01B	1/31/2007		2/2/2007	Aqueous	Sulfate	14808-79-8	1	120	50	mg/L		300.0-W
Mud Creek	L76053-01A	1/31/2007		2/2/2007	Aqueous	TDS		1	420	20	mg/L		TDS-W
Mud Creek	L76053-01A	1/31/2007		2/2/2007	Aqueous	TSS		1	30	3	mg/L		TSS-W
Mud Creek	L76053-01F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Zinc	7440-66-6	10	0	0.01	mg/L		6020-W-DISS
Mud Creek	L76314-01B	2/19/2007		2/21/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L76314-01B	2/19/2007		2/21/2007	Aqueous	Alkalinity,(As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L76314-01C	2/19/2007	2/21/2007	2/22/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Arsenic	7440-38-2	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76314-01B	2/19/2007		2/21/2007	Aqueous	Bicarbonate (As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Cadmium	7440-43-9	10	0	0.004	mg/L		6020-W-DISS
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	77	10	mg/L	*	ICP-W-dis
Mud Creek	L76314-01B	2/19/2007		2/21/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L76314-01B	2/19/2007		2/21/2007	Aqueous	Chloride	16887-00-6	1	18	5	mg/L		300.0-W
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Copper	7440-50-8	10	0	0.004	mg/L		6020-W-DISS
Mud Creek	L76314-01F	2/19/2007		2/26/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	360	10	mg/L		HARD
Mud Creek	L76314-01E	2/19/2007	2/21/2007	2/23/2007	Aqueous	Iron	7439-89-6	1	0.29	0.05	mg/L		ICP-W
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Lead	7439-92-1	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	40	1	mg/L		ICP-W-dis
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Manganese	7439-96-5	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76314-01E	2/19/2007	2/21/2007	2/23/2007	Aqueous	Manganese	7439-96-5	1	0.026	0.005	mg/L		ICP-W
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L76314-01B	2/19/2007		2/21/2007	Aqueous	Nitrate (as N)		1	0.30	0.01	mg/L		NO3-W
Mud Creek	L76314-01B	2/19/2007		2/21/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L76314-01D	2/19/2007		2/27/2007	Aqueous	Oil & Grease		1	3.7	3	mg/L		OGB-W
Mud Creek	L76314-01B	2/19/2007		2/21/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	6.9	1	mg/L		ICP-W-dis
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Selenium	7782-49-2	10	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	38	1	mg/L		ICP-W-dis
Mud Creek	L76314-01B	2/19/2007		2/21/2007	Aqueous	Sulfate	14808-79-8	1	150	50	mg/L		300.0-W
Mud Creek	L76314-01A	2/19/2007		2/22/2007	Aqueous	TDS		1	440	10	mg/L		TDS-W
Mud Creek	L76314-01A	2/19/2007		2/21/2007	Aqueous	TSS		1	14	3	mg/L		TSS-W
Mud Creek	L76314-01F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Zinc	7440-66-6	10	0.015	0.01	mg/L		6020-W-DISS
Mud Creek	L76981-01B	3/29/2007		4/2/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L76981-01B	3/29/2007		4/2/2007	Aqueous	Alkalinity,(As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L76981-01C	3/29/2007	3/30/2007	4/2/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76981-01B	3/29/2007		4/2/2007	Aqueous	Bicarbonate (As CaCO3)		1	240	20	mg/L		2320B-ALK-W
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	69	10	mg/L	2 *	ICP-W-dis
Mud Creek	L76981-01B	3/29/2007		4/2/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L76981-01B	3/29/2007		3/31/2007	Aqueous	Chloride	16887-00-6	20	24	20	mg/L		300.0-W
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L76981-01F	3/29/2007		4/11/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	320	10	mg/L		HARD
Mud Creek	L76981-01E	3/29/2007	4/2/2007	4/9/2007	Aqueous	Iron	7439-89-6	1	0.80	0.05	mg/L		ICP-W
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	1	mg/L		ICP-W-dis
Mud Creek	L76981-01E	3/29/2007	4/2/2007	4/9/2007	Aqueous	Manganese	7439-96-5	1	0.068	0.005	mg/L		ICP-W
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Manganese	7439-96-5	1	0.039	0.005	mg/L		6020-W-DISS
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L76981-01B	3/29/2007		3/30/2007	Aqueous	Nitrate (as N)		1	0.34	0.01	mg/L		NO3-W
Mud Creek	L76981-01B	3/29/2007		3/30/2007	Aqueous	Nitrate/Nitrite (as N)		1	0.34	0.01	mg/L		NO2/NO3-W
Mud Creek	L76981-01B	3/29/2007		3/30/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	1@	NO2-W
Mud Creek	L76981-01D	3/29/2007		3/30/2007	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Mud Creek	L76981-01B	3/29/2007		3/30/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.069	0.05	mg/L		PO4-O
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	6.3	1	mg/L		ICP-W-dis
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	32	1	mg/L		ICP-W-dis
Mud Creek	L76981-01B	3/29/2007		3/31/2007	Aqueous	Sulfate	14808-79-8	20	120	20	mg/L		300.0-W
Mud Creek	L76981-01A	3/29/2007		3/30/2007	Aqueous	TDS		1	380	20	mg/L		TDS-W
Mud Creek	L76981-01A	3/29/2007		3/30/2007	Aqueous	TSS		1	36	3	mg/L		TSS-W
Mud Creek	L76981-01F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Mud Creek	L77519-01B	4/25/2007		4/30/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Mud Creek	L77519-01B	4/25/2007		4/30/2007	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L77519-01C	4/25/2007	5/1/2007	5/2/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L77519-01B	4/25/2007		4/30/2007	Aqueous	Bicarbonate (As CaCO3)		1	210	20	mg/L		2320B-ALK-W
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	63	10	mg/L	*	ICP-W-dis
Mud Creek	L77519-01B	4/25/2007		4/30/2007	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Mud Creek	L77519-01B	4/25/2007		4/29/2007	Aqueous	Chloride	16887-00-6	5	24	5	mg/L		300.0-W
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Mud Creek	L77519-01F	4/25/2007		5/9/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	300	10	mg/L		HARD
Mud Creek	L77519-01E	4/25/2007	5/4/2007	5/9/2007	Aqueous	Iron	7439-89-6	1	0.53	0.05	mg/L		ICP-W
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	33	1	mg/L		ICP-W-dis
Mud Creek	L77519-01E	4/25/2007	5/4/2007	5/9/2007	Aqueous	Manganese	7439-96-5	1	0.043	0.005	mg/L		ICP-W
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Manganese	7439-96-5	1	0.016	0.005	mg/L		6020-W-DISS
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L77519-01B	4/25/2007		4/27/2007	Aqueous	Nitrate (as N)		1	0.19	0.01	mg/L		NO3-W
Mud Creek	L77519-01B	4/25/2007		4/27/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L77519-01D	4/25/2007		5/3/2007	Aqueous	Oil & Grease		1	3.4	3	mg/L		OGB-W
Mud Creek	L77519-01B	4/25/2007		4/27/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	5.3	1	mg/L		ICP-W-dis
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	40	1	mg/L		ICP-W-dis
Mud Creek	L77519-01B	4/25/2007		4/29/2007	Aqueous	Sulfate	14808-79-8	50	120	50	mg/L		300.0-W
Mud Creek	L77519-01A	4/25/2007		4/30/2007	Aqueous	TDS		1	360	20	mg/L		TDS-W
Mud Creek	L77519-01A	4/25/2007		4/27/2007	Aqueous	TSS		1	30	3	mg/L		TSS-W
Mud Creek	L77519-01F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Mud Creek	L78061-03B	5/29/2007		6/4/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Mud Creek	L78061-03B	5/29/2007		6/4/2007	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L78061-03C	5/29/2007	6/1/2007	6/6/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L78061-03B	5/29/2007		6/4/2007	Aqueous	Bicarbonate (As CaCO3)		1	210	20	mg/L		2320B-ALK-W
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	69	10	mg/L	*	ICP-W-dis
Mud Creek	L78061-03B	5/29/2007		6/4/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L78061-03B	5/29/2007		5/31/2007	Aqueous	Chloride	16887-00-6	5	13	5	mg/L		300.0-W
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
Mud Creek	L78061-03F	5/29/2007		6/12/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	290	10	mg/L		HARD
Mud Creek	L78061-03E	5/29/2007	6/5/2007	6/12/2007	Aqueous	Iron	7439-89-6	1	0.47	0.05	mg/L		ICP-W
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	29	1	mg/L		ICP-W-dis
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.012	0.005	mg/L		6020-W-DISS
Mud Creek	L78061-03E	5/29/2007	6/5/2007	6/12/2007	Aqueous	Manganese	7439-96-5	1	0.032	0.005	mg/L		ICP-W
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L78061-03B	5/29/2007		5/30/2007	Aqueous	Nitrate (as N)		1	0.57	0.01	mg/L		NO3-W
Mud Creek	L78061-03B	5/29/2007		5/30/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L78061-03D	5/29/2007		6/1/2007	Aqueous	Oil & Grease		1	3.4	3	mg/L		OGB-W
Mud Creek	L78061-03B	5/29/2007		5/31/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	3.8	1	mg/L		ICP-W-dis
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L78061-03A	5/29/2007		5/30/2007	Aqueous	Settleable Solids		1	0.10	0.1	ml/L		SS-W-2540F
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	27	1	mg/L		ICP-W-dis
Mud Creek	L78061-03B	5/29/2007		5/31/2007	Aqueous	Sulfate	14808-79-8	50	87	50	mg/L		300.0-W
Mud Creek	L78061-03A	5/29/2007		6/1/2007	Aqueous	TDS		1	360	20	mg/L		TDS-W
Mud Creek	L78061-03A	5/29/2007		5/30/2007	Aqueous	TSS		1	48	3	mg/L		TSS-W-2540D
Mud Creek	L78061-03F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0.012	0.01	mg/L		6020-W-DISS
Mud Creek	L78574-01B	6/25/2007		6/28/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L78574-01B	6/25/2007		6/28/2007	Aqueous	Alkalinity,(As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L78574-01C	6/25/2007	6/28/2007	6/29/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L78574-01B	6/25/2007		6/28/2007	Aqueous	Bicarbonate (As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	62	10	mg/L	*	ICP-W-dis
Mud Creek	L78574-01B	6/25/2007		6/28/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L78574-01B	6/25/2007		7/9/2007	Aqueous	Chloride	16887-00-6	5	14	5	mg/L		300.0-W
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0.0061	0.004	mg/L		6020-W-DISS
Mud Creek	L78574-01F	6/25/2007		7/2/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	290	10	mg/L		HARD
Mud Creek	L78574-01E	6/25/2007	6/27/2007	7/2/2007	Aqueous	Iron	7439-89-6	1	0.19	0.05	mg/L		ICP-W
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Magnesium	7439-95-4	10	33	10	mg/L	*	ICP-W-dis
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.022	0.005	mg/L		6020-W-DISS
Mud Creek	L78574-01E	6/25/2007	6/27/2007	7/2/2007	Aqueous	Manganese	7439-96-5	1	0.020	0.005	mg/L		ICP-W
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L78574-01B	6/25/2007		6/28/2007	Aqueous	Nitrate (as N)		1	0.10	0.01	mg/L	H	NO3-W
Mud Creek	L78574-01B	6/25/2007		6/28/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	H	NO2-W
Mud Creek	L78574-01D	6/25/2007		7/5/2007	Aqueous	Oil & Grease		1	4.5	3	mg/L		OGB-W
Mud Creek	L78574-01B	6/25/2007		6/27/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	H	PO4-O
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	5.8	1	mg/L		ICP-W-dis
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L78574-01A	6/25/2007		6/27/2007	Aqueous	Settleable Solids		1	0	0.1	mL/L		SS-W-2540F
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Sodium	7440-23-5	10	55	10	mg/L	2 *	ICP-W-dis
Mud Creek	L78574-01B	6/25/2007		7/7/2007	Aqueous	Sulfate	14808-79-8	50	140	50	mg/L		300.0-W
Mud Creek	L78574-01A	6/25/2007		6/27/2007	Aqueous	TDS		1	440	20	mg/L		TDS-W
Mud Creek	L78574-01A	6/25/2007		6/27/2007	Aqueous	TSS		1	10	3	mg/L		TSS-W-2540D
Mud Creek	L78574-01F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0.027	0.01	mg/L		6020-W-DISS
Mud Creek	L79156-02B	7/30/2007		8/6/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Mud Creek	L79156-02B	7/30/2007		8/3/2007	Aqueous	Alkalinity,(As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L79156-02C	7/30/2007	8/2/2007	8/3/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L79156-02B	7/30/2007		8/3/2007	Aqueous	Bicarbonate (As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	63	10	mg/L	*	ICP-W-dis
Mud Creek	L79156-02B	7/30/2007		8/3/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L79156-02B	7/30/2007		8/11/2007	Aqueous	Chloride	16887-00-6	10	12	10	mg/L		300.0-W
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
Mud Creek	L79156-02F	7/30/2007		8/10/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L79156-02E	7/30/2007	8/2/2007	8/7/2007	Aqueous	Iron	7439-89-6	1	0.34	0.05	mg/L		ICP-W
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Magnesium	7439-95-4	10	38	10	mg/L	*	ICP-W-dis
Mud Creek	L79156-02E	7/30/2007	8/2/2007	8/7/2007	Aqueous	Manganese	7439-96-5	1	0.028	0.005	mg/L		ICP-W
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.0090	0.005	mg/L		6020-W-DISS
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L79156-02B	7/30/2007		8/2/2007	Aqueous	Nitrate (as N)		1	0.15	0.01	mg/L	H	NO3-W
Mud Creek	L79156-02B	7/30/2007		8/2/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	H	NO2-W
Mud Creek	L79156-02D	7/30/2007		8/6/2007	Aqueous	Oil & Grease		1	4.9	3	mg/L		OGB-W
Mud Creek	L79156-02B	7/30/2007		8/2/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	H	PO4-O
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	6.8	1	mg/L		ICP-W-dis
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Mud Creek	L79156-02A	7/30/2007		8/2/2007	Aqueous	Settleable Solids		1	0.10	0.1	ml/L	H	SS-W-2540F
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Sodium	7440-23-5	10	34	10	mg/L	*	ICP-W-dis
Mud Creek	L79156-02B	7/30/2007		8/11/2007	Aqueous	Sulfate	14808-79-8	20	140	20	mg/L		300.0-W
Mud Creek	L79156-02A	7/30/2007		8/3/2007	Aqueous	TDS		1	440	10	mg/L		TDS-W
Mud Creek	L79156-02A	7/30/2007		8/2/2007	Aqueous	TSS		1	28	3	mg/L		TSS-W-2540D
Mud Creek	L79156-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0	0.01	mg/L		6020-W-DISS
Mud Creek	L81026-01B	11/12/2007		11/15/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Mud Creek	L81026-01B	11/12/2007		11/15/2007	Aqueous	Alkalinity,(As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L	1	ICP-W-dis
Mud Creek	L81026-01C	11/12/2007	11/15/2007	11/15/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Mud Creek	L81026-01B	11/12/2007		11/15/2007	Aqueous	Bicarbonate (As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	62	10	mg/L	#	ICP-W-dis
Mud Creek	L81026-01B	11/12/2007		11/15/2007	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Mud Creek	L81026-01B	11/12/2007		11/21/2007	Aqueous	Chloride	16887-00-6	5	6.9	5	mg/L		300.0-W
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Copper	7440-50-8	20	0.0020	0.0008	mg/L		6020-W-DISS
Mud Creek	L81026-01F	11/12/2007		11/27/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	320	10	mg/L		HARD
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L81026-01E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Iron	7439-89-6	1	0.24	0.05	mg/L		ICP-W
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Lead	7439-92-1	20	0.00025	0.0001	mg/L		6020-W-DISS
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	40	1	mg/L		ICP-W-dis
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Manganese	7439-96-5	20	0.011	0.0012	mg/L		6020-W-DISS
Mud Creek	L81026-01E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Manganese	7439-96-5	1	0.022	0.005	mg/L		ICP-W
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L81026-01B	11/12/2007		11/14/2007	Aqueous	Nitrate (as N)		1	0.16	0.01	mg/L	1	NO3-W
Mud Creek	L81026-01B	11/12/2007		11/14/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	1@	NO2-W
Mud Creek	L81026-01D	11/12/2007		11/18/2007	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Mud Creek	L81026-01B	11/12/2007		11/14/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	1H	PO4-O
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	5.2	1	mg/L		ICP-W-dis
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L81026-01A	11/12/2007		11/14/2007	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Sodium	7440-23-5	10	31	10	mg/L	#	ICP-W-dis
Mud Creek	L81026-01B	11/12/2007		11/21/2007	Aqueous	Sulfate	14808-79-8	5	64	5	mg/L		300.0-W
Mud Creek	L81026-01A	11/12/2007		11/14/2007	Aqueous	TDS		1	450	20	mg/L		TDS-W
Mud Creek	L81026-01A	11/12/2007		11/14/2007	Aqueous	TSS		1	12	3	mg/L		TSS-W-2540D
Mud Creek	L81026-01F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Zinc	7440-66-6	20	0.0055	0.0054	mg/L		6020-W-DISS
Mud Creek	L83169-01B	3/25/2008		3/28/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Mud Creek	L83169-01B	3/25/2008		3/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L83169-01C	3/25/2008	4/1/2008	4/1/2008	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Mud Creek	L83169-01B	3/25/2008		3/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	68	10	mg/L	#	ICP-W-dis
Mud Creek	L83169-01B	3/25/2008		3/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L83169-01B	3/25/2008		3/29/2008	Aqueous	Chloride	16887-00-6	10	45	1	mg/L		300.0-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0034	0.0008	mg/L		6020-W-DISS
Mud Creek	L83169-01F	3/25/2008		4/2/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	320	10	mg/L		HARD
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L83169-01E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Iron	7439-89-6	1	2.4	0.05	mg/L	[1]	ICP-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	1	mg/L		ICP-W-dis
Mud Creek	L83169-01E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Manganese	7439-96-5	1	0.024	0.005	mg/L	[1] @	ICP-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.030	0.0012	mg/L		6020-W-DISS
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L83169-01B	3/25/2008		3/27/2008	Aqueous	Nitrate (as N)		1	0.12	0.01	mg/L		NO3-W
Mud Creek	L83169-01B	3/25/2008		3/27/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	[1]	NO2-W
Mud Creek	L83169-01D	3/25/2008		3/31/2008	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Mud Creek	L83169-01B	3/25/2008		3/27/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	6.4	1	mg/L		ICP-W-dis
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Mud Creek	L83169-01A	3/25/2008		3/27/2008	Aqueous	Settleable Solids		1	0.10	0.1	ml/L		SS-W-2540F
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	49	1	mg/L		ICP-W-dis
Mud Creek	L83169-01B	3/25/2008		3/29/2008	Aqueous	Sulfate	14808-79-8	10	130	7.5	mg/L	[1]	300.0-W
Mud Creek	L83169-01A	3/25/2008		3/28/2008	Aqueous	TDS		1	490	20	mg/L		TDS-W
Mud Creek	L83169-01A	3/25/2008		3/27/2008	Aqueous	TSS		1	26	3	mg/L		TSS-W-2540D
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0.0076	0.0054	mg/L		6020-W-DISS
Mud Creek	L83169-01B	3/25/2008		3/28/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Mud Creek	L83169-01B	3/25/2008		3/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L83169-01C	3/25/2008	4/1/2008	4/1/2008	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Mud Creek	L83169-01B	3/25/2008		3/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	230	20	mg/L		2320B-ALK-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	68	10	mg/L	#	ICP-W-dis
Mud Creek	L83169-01B	3/25/2008		3/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L83169-01B	3/25/2008		3/29/2008	Aqueous	Chloride	16887-00-6	10	45	1	mg/L		300.0-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0034	0.0008	mg/L		6020-W-DISS
Mud Creek	L83169-01F	3/25/2008		4/2/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	320	10	mg/L		HARD
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L83169-01E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Iron	7439-89-6	1	2.4	0.05	mg/L	[1]	ICP-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	1	mg/L		ICP-W-dis
Mud Creek	L83169-01E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Manganese	7439-96-5	1	0.024	0.005	mg/L	[1] @	ICP-W
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.030	0.0012	mg/L		6020-W-DISS
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L83169-01B	3/25/2008		3/27/2008	Aqueous	Nitrate (as N)		1	0.12	0.01	mg/L		NO3-W
Mud Creek	L83169-01B	3/25/2008		3/27/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	[1]	NO2-W
Mud Creek	L83169-01D	3/25/2008		3/31/2008	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Mud Creek	L83169-01B	3/25/2008		3/27/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	6.4	1	mg/L		ICP-W-dis
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Mud Creek	L83169-01A	3/25/2008		3/27/2008	Aqueous	Settleable Solids		1	0.10	0.1	ml/L		SS-W-2540F
Mud Creek	L83169-01F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	49	1	mg/L		ICP-W-dis
Mud Creek	L83169-01B	3/25/2008		3/29/2008	Aqueous	Sulfate	14808-79-8	10	130	7.5	mg/L	[1]	300.0-W
Mud Creek	L83169-01A	3/25/2008		3/28/2008	Aqueous	TDS		1	490	20	mg/L		TDS-W
Mud Creek	L83169-01A	3/25/2008		3/27/2008	Aqueous	TSS		1	26	3	mg/L		TSS-W-2540D
Mud Creek	L83169-01F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0.0076	0.0054	mg/L		6020-W-DISS
Mud Creek	L84608-01B	6/16/2008		6/20/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Mud Creek	L84608-01B	6/16/2008		6/20/2008	Aqueous	Alkalinity,(As CaCO3)		1	160	20	mg/L		2320B-ALK-W
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L84608-01C	6/16/2008	6/20/2008	6/25/2008	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Mud Creek	L84608-01B	6/16/2008		6/20/2008	Aqueous	Bicarbonate (As CaCO3)		1	160	20	mg/L		2320B-ALK-W
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Calcium	7440-70-2	10	49	10	mg/L	~	ICP-W-dis
Mud Creek	L84608-01B	6/16/2008		6/20/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L84608-01B	6/16/2008		6/26/2008	Aqueous	Chloride	16887-00-6	5	8.1	0.5	mg/L		300.0-W
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Copper	7440-50-8	20	0.0026	0.0008	mg/L		6020-W-DISS
Mud Creek	L84608-01F	6/16/2008		6/18/2008	Aqueous Dissolved	Hardness (as CaCO3)	471-34-1	1	180	10	mg/L		HARD
Mud Creek	L84608-01E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Iron	7439-89-6	1	1.9	0.05	mg/L		ICP-W
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Magnesium	7439-95-4	1	14	1	mg/L		ICP-W-dis
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Manganese	7439-96-5	20	0.0069	0.0012	mg/L		6020-W-DISS
Mud Creek	L84608-01E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Manganese	7439-96-5	1	0.073	0.005	mg/L		ICP-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L84608-01B	6/16/2008		6/18/2008	Aqueous	Nitrate (as N)		1	1.5	0.01	mg/L		NO3-W
Mud Creek	L84608-01B	6/16/2008		6/18/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L84608-01D	6/16/2008		6/18/2008	Aqueous	Oil & Grease		1	360	3	mg/L	*	OGB-W
Mud Creek	L84608-01B	6/16/2008		6/18/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Potassium	7440-09-7	1	2.0	1	mg/L		ICP-W-dis
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Mud Creek	L84608-01A	6/16/2008		6/18/2008	Aqueous	Settleable Solids		1	0.20	0.1	ml/L		SS-W-2540F
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Sodium	7440-23-5	10	21	10	mg/L	~	ICP-W-dis
Mud Creek	L84608-01B	6/16/2008		6/26/2008	Aqueous	Sulfate	14808-79-8	5	38	3.8	mg/L		300.0-W
Mud Creek	L84608-01A	6/16/2008		6/19/2008	Aqueous	TDS		1	300	100	mg/L		TDS-W
Mud Creek	L84608-01A	6/16/2008		6/18/2008	Aqueous	TSS		1	190	3	mg/L		TSS-W-2540D
Mud Creek	L84608-01F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Zinc	7440-66-6	20	0.0084	0.0054	mg/L		6020-W-DISS
Mud Creek	L85972-05B	8/26/2008		8/29/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Mud Creek	L85972-05B	8/26/2008		8/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Mud Creek	L85972-05E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L85972-05D	8/26/2008	8/28/2008	8/29/2008	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Mud Creek	L85972-05E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Mud Creek	L85972-05B	8/26/2008		8/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Mud Creek	L85972-05E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L85972-05E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Mud Creek	L85972-05E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	63	10	mg/L	~	ICP-W-dis
Mud Creek	L85972-05B	8/26/2008		8/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L85972-05B	8/26/2008		8/28/2008	Aqueous	Chloride	16887-00-6	20	16	2	mg/L		300.0-W
Mud Creek	L85972-05E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0019	0.0008	mg/L		6020-W-DISS
Mud Creek	L85972-05E	8/26/2008		9/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	300	10	mg/L		HARD
Mud Creek	L85972-05F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Iron	7439-89-6	1	0.11	0.05	mg/L		ICP-W
Mud Creek	L85972-05E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L85972-05E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Mud Creek	L85972-05E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	34	1	mg/L		ICP-W-dis
Mud Creek	L85972-05F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Manganese	7439-96-5	1	0.016	0.005	mg/L		ICP-W
Mud Creek	L85972-05E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.011	0.0012	mg/L		6020-W-DISS
Mud Creek	L85972-05E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L85972-05B	8/26/2008		8/28/2008	Aqueous	Nitrate (as N)		1	0.066	0.01	mg/L		NO3-W
Mud Creek	L85972-05B	8/26/2008		8/28/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L85972-05C	8/26/2008		9/5/2008	Aqueous	Oil & Grease		1	3.1	3	mg/L		OGB-W
Mud Creek	L85972-05B	8/26/2008		8/28/2008	Aqueous	Phosphorus, Orthophosphate (as I	7723-14-0	1	0	0.1	mg/L		300.0-W
Mud Creek	L85972-05E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	6.1	1	mg/L		ICP-W-dis
Mud Creek	L85972-05E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Mud Creek	L85972-05A	8/26/2008		8/28/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Mud Creek	L85972-05E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	10	33	10	mg/L	~	ICP-W-dis
Mud Creek	L85972-05B	8/26/2008		8/28/2008	Aqueous	Sulfate	14808-79-8	20	120	15	mg/L		300.0-W
Mud Creek	L85972-05A	8/26/2008		8/28/2008	Aqueous	TDS		1	490	20	mg/L		TDS-W
Mud Creek	L85972-05A	8/26/2008		8/28/2008	Aqueous	TSS		1	5.0	3	mg/L		TSS-W-2540D
Mud Creek	L85972-05E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0.020	0.0054	mg/L		6020-W-DISS
Mud Creek	L87283-01B	10/29/2008		10/31/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Mud Creek	L87283-01B	10/29/2008		10/31/2008	Aqueous	Alkalinity,(As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Mud Creek	L87283-01E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L87283-01D	10/29/2008	11/6/2008	11/7/2008	Aqueous	Ammonia (as N)		1	0	0.05	mg/L	1	NH3-W
Mud Creek	L87283-01E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Mud Creek	L87283-01B	10/29/2008		10/31/2008	Aqueous	Bicarbonate (As CaCO3)		1	250	20	mg/L		2320B-ALK-W
Mud Creek	L87283-01E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Mud Creek	L87283-01E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Mud Creek	L87283-01E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	66	10	mg/L	~	ICP-W-dis
Mud Creek	L87283-01B	10/29/2008		10/31/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Mud Creek	L87283-01B	10/29/2008		11/11/2008	Aqueous	Chloride	16887-00-6	5	14	0.5	mg/L		300.0-W
Mud Creek	L87283-01E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0	0.0008	mg/L		6020-W-DISS
Mud Creek	L87283-01E	10/29/2008		11/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	320	10	mg/L		HARD
Mud Creek	L87283-01F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Iron	7439-89-6	1	0.25	0.05	mg/L		ICP-W
Mud Creek	L87283-01E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Mud Creek	L87283-01E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Mud Creek	L87283-01E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	38	1	mg/L		ICP-W-dis
Mud Creek	L87283-01E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.012	0.0012	mg/L		6020-W-DISS
Mud Creek	L87283-01F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Manganese	7439-96-5	1	0.020	0.005	mg/L		ICP-W
Mud Creek	L87283-01E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Mud Creek	L87283-01B	10/29/2008		10/31/2008	Aqueous	Nitrate (as N)		1	0.20	0.01	mg/L		NO3-W
Mud Creek	L87283-01B	10/29/2008		10/31/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Mud Creek	L87283-01C	10/29/2008		11/2/2008	Aqueous	Oil & Grease		1	6.2	3	mg/L		OGB-W
Mud Creek	L87283-01B	10/29/2008		10/30/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	1	PO4-O
Mud Creek	L87283-01E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	6.9	1	mg/L		ICP-W-dis
Mud Creek	L87283-01E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Mud Creek	L87283-01A	10/29/2008		10/30/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Mud Creek	L87283-01E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	37	1	mg/L		ICP-W-dis
Mud Creek	L87283-01B	10/29/2008		11/11/2008	Aqueous	Sulfate	14808-79-8	100	130	75	mg/L		300.0-W
Mud Creek	L87283-01A	10/29/2008		10/31/2008	Aqueous	TDS		1	460	20	mg/L		TDS-W
Mud Creek	L87283-01A	10/29/2008		10/30/2008	Aqueous	TSS		1	15	3	mg/L		TSS-W-2540D
Mud Creek	L87283-01E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Mud Creek	1006480-005	6/23/2010		6/25/2010	Aqueous	Settleable Solids		1	0	0.10	mL/L		SS-W-2540F
Mud Creek	1006480-005	6/23/2010		6/25/2010	Aqueous	Total Dissolved Solids		2	300	20	mg/L		TDS-W-2540C
Mud Creek	1006480-005	6/23/2010		6/25/2010	Aqueous	Total Suspended Solids	TSS	1	29	3.0	mg/L		TSS-W-2540D
Mud Creek	1006480-005	6/23/2010		6/30/2010	Aqueous	Chloride	16887-00-6	10	13	1.0	mg/L		300.0-W
Mud Creek	1006480-005	6/23/2010		6/30/2010	Aqueous	Sulfate	14808-79-8	10	69	7.5	mg/L		300.0-W
Mud Creek	1006480-005	6/23/2010		6/28/2010	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Mud Creek	1006480-005	6/23/2010		6/28/2010	Aqueous	Alkalinity (as CaCO3)		2	200	20	mg/L		ALK-W-2320B
Mud Creek	1006480-005	6/23/2010		6/28/2010	Aqueous	Bicarbonate (as CaCO3)		2	190	20	mg/L		ALK-W-2320B
Mud Creek	1006480-005	6/23/2010		6/28/2010	Aqueous	Carbonate (as CaCO3)		2	0	20	mg/L		ALK-W-2320B
Mud Creek	1006480-005	6/23/2010		6/25/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0	0.010	mg/L		NO2-W-353.2
Mud Creek	1006480-005	6/23/2010		6/25/2010	Aqueous	Nitrate (as N)	14797-55-8	1	0.17	0.010	mg/L		NO3-W-353.2
Mud Creek	1006480-005	6/23/2010		6/25/2010	Aqueous	pH @ 25° C		1	8.49	1.00	pH Units	H	PH-4500H+B

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Mud Creek	1006480-005	6/23/2010		6/25/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0	0.050	mg/L		PO4-O-365.1
Mud Creek	1006480-005	6/23/2010		6/30/2010	Aqueous	Oil & Grease		1	0	3.0	mg/L		OGB-W-1664A
Mud Creek	1006480-005	6/23/2010	6/28/2010	6/29/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0.12	0.050	mg/L		NH3-W-350.1
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Aluminum	7429-90-5	1	0	0.10	mg/L		6010C-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Boron	7440-42-8	1	0	0.50	mg/L		6010C-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Calcium	7440-70-2	1	50	1.0	mg/L		6010C-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	0	0.10	mg/L		6010C-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Magnesium	7439-95-4	1	23	1.0	mg/L		6010C-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.020	mg/L		6010C-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Potassium	7440-09-7	1	4.2	1.0	mg/L		6010C-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Sodium	7440-23-5	1	24	1.0	mg/L		6010C-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Arsenic	7440-38-2	20	0	0.00060	mg/L		6020-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Copper	7440-50-8	20	0.0011	0.00080	mg/L		6020-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Lead	7439-92-1	20	0	0.00040	mg/L		6020-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Manganese	7439-96-5	20	0.010	0.0012	mg/L		6020-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Selenium	7782-49-2	20	0	0.00080	mg/L		6020-DIS
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Zinc	7440-66-6	20	0	0.0050	mg/L		6020-DIS
Mud Creek	1006480-005	6/23/2010		6/28/2010	Aqueous	Hardness (as CaCO3)		1	220	10	mg/L		HARD-2340B
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	0.28	0.10	mg/L		6010C-W
Mud Creek	1006480-005	6/23/2010	6/25/2010	6/25/2010	Aqueous	Manganese	7439-96-5	20	0.023	0.0012	mg/L		6020-W
RES. 1	L72109-01B	5/30/2006		6/1/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
RES. 1	L72109-01B	5/30/2006		6/1/2006	Aqueous	Alkalinity,(As CaCO3)		1	170	10	mg/L		2320B-ALK-W
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L	@	ICP-W-DIS
RES. 1	L72109-01C	5/30/2006	5/31/2006	6/5/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L72109-01B	5/30/2006		6/1/2006	Aqueous	Bicarbonate (As CaCO3)		1	170	10	mg/L		2320B-ALK-W
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	53	1	mg/L		ICP-W-DIS
RES. 1	L72109-01B	5/30/2006		6/1/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
RES. 1	L72109-01B	5/30/2006		6/2/2006	Aqueous	Chloride	16887-00-6	1	3.6	1	mg/L		300.0-W
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L72109-01E	5/30/2006		6/12/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	200	10	mg/L		HARD
RES. 1	L72109-01D	5/30/2006	6/2/2006	6/8/2006	Aqueous	Iron	7439-89-6	1	0.35	0.05	mg/L		ICP-W
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	16	1	mg/L		ICP-W-DIS
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/13/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L72109-01D	5/30/2006	6/2/2006	6/7/2006	Aqueous	Manganese	7439-96-5	1	0.092	0.005	mg/L		ICP-W
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
RES. 1	L72109-01B	5/30/2006		5/31/2006	Aqueous	Nitrate (as N)		1	0.056	0.01	mg/L		NO3-W
RES. 1	L72109-01B	5/30/2006		5/31/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES. 1	L72109-01F	5/30/2006		6/6/2006	Aqueous	Oil & Grease		1	4.3	3	mg/L	* #	OGB-W
RES. 1	L72109-01B	5/30/2006		6/1/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	[1]@	PO4-O
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.1	1	mg/L		ICP-W-DIS
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L72109-01A	5/30/2006		5/31/2006	Aqueous	Settable Solids		1	0.10	0.1	ml/L		SS
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.1	1	mg/L		ICP-W-DIS
RES. 1	L72109-01B	5/30/2006		6/2/2006	Aqueous	Sulfate	14808-79-8	1	34	10	mg/L	[1]	300.0-W
RES. 1	L72109-01A	5/30/2006		5/31/2006	Aqueous	TDS		1	230	10	mg/L		TDS-W
RES. 1	L72109-01A	5/30/2006		5/31/2006	Aqueous	TSS		1	14	3	mg/L		TSS-W
RES. 1	L72109-01E	5/30/2006	6/2/2006	6/12/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.013	0.01	mg/L		6020-W-DISS
RES. 1	L72660-07B	6/29/2006		7/3/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
RES. 1	L72660-07B	6/29/2006		7/3/2006	Aqueous	Alkalinity,(As CaCO3)		1	160	20	mg/L		2320B-ALK-W
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
RES. 1	L72660-07C	6/29/2006	7/5/2006	7/7/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L72660-07B	6/29/2006		7/3/2006	Aqueous	Bicarbonate (As CaCO3)		1	120	20	mg/L		2320B-ALK-W
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	32	10	mg/L		ICP-W-DIS
RES. 1	L72660-07B	6/29/2006		7/3/2006	Aqueous	Carbonate (As CaCO3)		1	31	20	mg/L		2320B-ALK-W
RES. 1	L72660-07B	6/29/2006		7/5/2006	Aqueous	Chloride	16887-00-6	1	6.9	1	mg/L		300.0-W
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L72660-07E	6/29/2006		7/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	170	10	mg/L		HARD
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
RES. 1	L72660-07D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Iron	7439-89-6	1	0.37	0.05	mg/L		ICP-W
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	16	1	mg/L		ICP-W-DIS
RES. 1	L72660-07D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Manganese	7439-96-5	1	0.058	0.005	mg/L		ICP-W
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
RES. 1	L72660-07B	6/29/2006		6/30/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
RES. 1	L72660-07B	6/29/2006		6/30/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES. 1	L72660-07F	6/29/2006		6/30/2006	Aqueous	Oil & Grease		1	3.2	3	mg/L		OGB-W
RES. 1	L72660-07B	6/29/2006		6/30/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	1.3	1	mg/L		ICP-W-DIS
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L72660-07A	6/29/2006		6/30/2006	Aqueous	Settable Solids		1	0.70	0.1	ml/L		SS
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	8.4	1	mg/L		ICP-W-DIS
RES. 1	L72660-07B	6/29/2006		7/5/2006	Aqueous	Sulfate	14808-79-8	1	34	10	mg/L		300.0-W
RES. 1	L72660-07A	6/29/2006		6/30/2006	Aqueous	TDS		1	96	20	mg/L		TDS-W
RES. 1	L72660-07A	6/29/2006		6/30/2006	Aqueous	TSS		1	34	3	mg/L		TSS-W
RES. 1	L72660-07E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
RES. 1	L73160-05B	7/31/2006		8/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
RES. 1	L73160-05B	7/31/2006		8/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	170	20	mg/L		2320B-ALK-W
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
RES. 1	L73160-05C	7/31/2006	8/2/2006	8/4/2006	Aqueous	Ammonia (as N)		1	0.055	0.05	mg/L		NH3-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L73160-05B	7/31/2006		8/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	26	20	mg/L		2320B-ALK-W
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	28	1	mg/L		ICP-W-DIS
RES. 1	L73160-05B	7/31/2006		8/2/2006	Aqueous	Carbonate (As CaCO3)		1	140	20	mg/L		2320B-ALK-W
RES. 1	L73160-05B	7/31/2006		8/5/2006	Aqueous	Chloride	16887-00-6	1	9.9	1	mg/L		300.0-W
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L73160-05E	7/31/2006		8/14/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	150	10	mg/L		HARD
RES. 1	L73160-05D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Iron	7439-89-6	1	0.096	0.05	mg/L		ICP-W
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	20	1	mg/L		ICP-W-DIS
RES. 1	L73160-05D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Manganese	7439-96-5	1	0.068	0.005	mg/L		ICP-W
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.014	0.005	mg/L		6020-W-DISS
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
RES. 1	L73160-05B	7/31/2006		8/2/2006	Aqueous	Nitrate (as N)		1	0.081	0.01	mg/L		NO3-W
RES. 1	L73160-05B	7/31/2006		8/2/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES. 1	L73160-05F	7/31/2006		8/8/2006	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
RES. 1	L73160-05B	7/31/2006		8/2/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.12	0.05	mg/L		PO4-O
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	2.8	1	mg/L		ICP-W-DIS
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0.0056	0.005	mg/L		6020-W-DISS
RES. 1	L73160-05A	7/31/2006		8/2/2006	Aqueous	Settable Solids		1	0.50	0.1	ml/L		SS
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	11	1	mg/L		ICP-W-DIS
RES. 1	L73160-05B	7/31/2006		8/5/2006	Aqueous	Sulfate	14808-79-8	1	24	10	mg/L		300.0-W
RES. 1	L73160-05A	7/31/2006		8/3/2006	Aqueous	TDS		1	170	20	mg/L		TDS-W
RES. 1	L73160-05A	7/31/2006		8/2/2006	Aqueous	TSS		1	26	3	mg/L		TSS-W
RES. 1	L73160-05E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.018	0.01	mg/L		6020-W-DISS
RES. 1	L73504-05B	8/21/2006		8/23/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
RES. 1	L73504-05B	8/21/2006		8/23/2006	Aqueous	Alkalinity,(As CaCO3)		1	130	20	mg/L		2320B-ALK-W
RES. 1	L73504-05E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
RES. 1	L73504-05C	8/21/2006	8/23/2006	8/24/2006	Aqueous	Ammonia (as N)		1	0.080	0.05	mg/L		NH3-W
RES. 1	L73504-05E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
RES. 1	L73504-05B	8/21/2006		8/23/2006	Aqueous	Bicarbonate (As CaCO3)		1	14	10	mg/L		2320B-ALK-W
RES. 1	L73504-05E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
RES. 1	L73504-05E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
RES. 1	L73504-05E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	29	10	mg/L		ICP-W-DIS
RES. 1	L73504-05B	8/21/2006		8/23/2006	Aqueous	Carbonate (As CaCO3)		1	120	20	mg/L		2320B-ALK-W
RES. 1	L73504-05B	8/21/2006		8/24/2006	Aqueous	Chloride	16887-00-6	1	32	10	mg/L		300.0-W
RES. 1	L73504-05E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
RES. 1	L73504-05E	8/21/2006		9/5/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	170	10	mg/L		HARD
RES. 1	L73504-05D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Iron	7439-89-6	1	0.67	0.05	mg/L		ICP-W
RES. 1	L73504-05E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0.14	0.05	mg/L		ICP-W-DIS
RES. 1	L73504-05E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
RES. 1	L73504-05E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	24	10	mg/L		ICP-W-DIS
RES. 1	L73504-05D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Manganese	7439-96-5	1	0.17	0.005	mg/L		ICP-W
RES. 1	L73504-05E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Manganese	7439-96-5	5	0.045	0.005	mg/L		6020-W-DISS
RES. 1	L73504-05E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
RES. 1	L73504-05B	8/21/2006		8/23/2006	Aqueous	Nitrate (as N)		1	0.070	0.01	mg/L		NO3-W
RES. 1	L73504-05B	8/21/2006		8/23/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES. 1	L73504-05F	8/21/2006		8/23/2006	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
RES. 1	L73504-05B	8/21/2006		8/23/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.060	0.05	mg/L		PO4-O
RES. 1	L73504-05E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	7.8	1	mg/L		ICP-W-DIS
RES. 1	L73504-05E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
RES. 1	L73504-05A	8/21/2006		8/23/2006	Aqueous	Settable Solids		1	0.60	0.1	ml/L		SS
RES. 1	L73504-05E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	22	1	mg/L		ICP-W-DIS
RES. 1	L73504-05B	8/21/2006		8/24/2006	Aqueous	Sulfate	14808-79-8	1	24	10	mg/L		300.0-W
RES. 1	L73504-05A	8/21/2006		8/25/2006	Aqueous	TDS		1	200	20	mg/L		TDS-W
RES. 1	L73504-05A	8/21/2006		8/23/2006	Aqueous	TSS		1	40	3	mg/L		TSS-W
RES. 1	L73504-05E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Zinc	7440-66-6	5	0	0.01	mg/L		6020-W-DISS
RES. 1	L74688-03B	10/30/2006		11/1/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
RES. 1	L74688-03B	10/30/2006		11/1/2006	Aqueous	Alkalinity,(As CaCO3)		1	260	20	mg/L		2320B-ALK-W
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
RES. 1	L74688-03C	10/30/2006	11/1/2006	11/3/2006	Aqueous	Ammonia (as N)		1	0.073	0.05	mg/L		NH3-W
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L74688-03B	10/30/2006		11/1/2006	Aqueous	Bicarbonate (As CaCO3)		1	260	20	mg/L		2320B-ALK-W
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	71	10	mg/L	*	ICP-W-DIS
RES. 1	L74688-03B	10/30/2006		11/1/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
RES. 1	L74688-03B	10/30/2006		11/9/2006	Aqueous	Chloride	16887-00-6	1	20	10	mg/L		300.0-W
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L74688-03F	10/30/2006		11/13/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
RES. 1	L74688-03E	10/30/2006	11/1/2006	11/13/2006	Aqueous	Iron	7439-89-6	1	10	0.05	mg/L		ICP-W
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	33	10	mg/L	*	ICP-W-DIS
RES. 1	L74688-03E	10/30/2006	11/1/2006	11/13/2006	Aqueous	Manganese	7439-96-5	1	1.1	0.005	mg/L		ICP-W
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.29	0.005	mg/L		6020-W-DISS
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
RES. 1	L74688-03B	10/30/2006		11/1/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
RES. 1	L74688-03B	10/30/2006		11/1/2006	Aqueous	Nitrite (as N)		1	0.024	0.01	mg/L		NO2-W
RES. 1	L74688-03D	10/30/2006		11/1/2006	Aqueous	Oil & Grease		1	3.9	3	mg/L		OGB-W
RES. 1	L74688-03B	10/30/2006		11/1/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.059	0.05	mg/L		PO4-O
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	4.8	1	mg/L		ICP-W-DIS
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L74688-03A	10/30/2006		11/1/2006	Aqueous	Settable Solids		1	1.5	0.1	ml/L		SS
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	26	1	mg/L		ICP-W-DIS
RES. 1	L74688-03B	10/30/2006		11/9/2006	Aqueous	Sulfate	14808-79-8	1	74	10	mg/L		300.0-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
RES. 1	L74688-03A	10/30/2006		11/1/2006	Aqueous	TDS		1	400	20	mg/L		TDS-W
RES. 1	L74688-03A	10/30/2006		11/1/2006	Aqueous	TSS		1	430	3	mg/L		TSS-W
RES. 1	L74688-03F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
RES. 1	L76981-03B	3/29/2007		4/2/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
RES. 1	L76981-03B	3/29/2007		4/2/2007	Aqueous	Alkalinity,(As CaCO3)		1	250	20	mg/L		2320B-ALK-W
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
RES. 1	L76981-03C	3/29/2007	3/30/2007	4/2/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L76981-03B	3/29/2007		4/2/2007	Aqueous	Bicarbonate (As CaCO3)		1	250	20	mg/L		2320B-ALK-W
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	70	10	mg/L	*	ICP-W-dis
RES. 1	L76981-03B	3/29/2007		4/2/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
RES. 1	L76981-03B	3/29/2007		3/31/2007	Aqueous	Chloride	16887-00-6	10	20	10	mg/L		300.0-W
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L76981-03F	3/29/2007		4/11/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	260	10	mg/L		HARD
RES. 1	L76981-03E	3/29/2007	4/2/2007	4/9/2007	Aqueous	Iron	7439-89-6	1	0.50	0.05	mg/L		ICP-W
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	20	1	mg/L		ICP-W-dis
RES. 1	L76981-03E	3/29/2007	4/2/2007	4/9/2007	Aqueous	Manganese	7439-96-5	1	0.17	0.005	mg/L		ICP-W
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Manganese	7439-96-5	1	0.033	0.005	mg/L		6020-W-DISS
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
RES. 1	L76981-03B	3/29/2007		3/30/2007	Aqueous	Nitrate (as N)		1	0.017	0.01	mg/L		NO3-W
RES. 1	L76981-03B	3/29/2007		3/30/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES. 1	L76981-03D	3/29/2007		3/30/2007	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
RES. 1	L76981-03B	3/29/2007		3/30/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	4.2	1	mg/L		ICP-W-dis
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	13	1	mg/L		ICP-W-dis
RES. 1	L76981-03B	3/29/2007		3/31/2007	Aqueous	Sulfate	14808-79-8	50	97	50	mg/L		300.0-W
RES. 1	L76981-03A	3/29/2007		3/30/2007	Aqueous	TDS		1	290	20	mg/L		TDS-W
RES. 1	L76981-03A	3/29/2007		3/30/2007	Aqueous	TSS		1	27	3	mg/L		TSS-W
RES. 1	L76981-03F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
RES. 1	L77519-03B	4/25/2007		4/30/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
RES. 1	L77519-03B	4/25/2007		4/30/2007	Aqueous	Alkalinity,(As CaCO3)		1	180	20	mg/L		2320B-ALK-W
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
RES. 1	L77519-03C	4/25/2007	5/1/2007	5/2/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L77519-03B	4/25/2007		4/30/2007	Aqueous	Bicarbonate (As CaCO3)		1	180	20	mg/L		2320B-ALK-W
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	54	10	mg/L	*	ICP-W-dis
RES. 1	L77519-03B	4/25/2007		4/30/2007	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
RES. 1	L77519-03B	4/25/2007		4/29/2007	Aqueous	Chloride	16887-00-6	5	12	5	mg/L		300.0-W
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
RES. 1	L77519-03F	4/25/2007		5/9/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	220	10	mg/L		HARD
RES. 1	L77519-03E	4/25/2007	5/4/2007	5/9/2007	Aqueous	Iron	7439-89-6	1	4.6	0.05	mg/L		ICP-W
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	21	1	mg/L		ICP-W-dis
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Manganese	7439-96-5	1	0.013	0.005	mg/L		6020-W-DISS
RES. 1	L77519-03E	4/25/2007	5/4/2007	5/9/2007	Aqueous	Manganese	7439-96-5	1	0.18	0.005	mg/L		ICP-W
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
RES. 1	L77519-03B	4/25/2007		4/27/2007	Aqueous	Nitrate (as N)		1	0.032	0.01	mg/L		NO3-W
RES. 1	L77519-03B	4/25/2007		4/27/2007	Aqueous	Nitrite (as N)		1	0.039	0.01	mg/L		NO2-W
RES. 1	L77519-03D	4/25/2007		5/3/2007	Aqueous	Oil & Grease		1	3.4	3	mg/L		OGB-W
RES. 1	L77519-03B	4/25/2007		4/27/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.092	0.05	mg/L		PO4-O
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	2.8	1	mg/L		ICP-W-dis
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	22	1	mg/L		ICP-W-dis
RES. 1	L77519-03B	4/25/2007		4/29/2007	Aqueous	Sulfate	14808-79-8	50	60	50	mg/L		300.0-W
RES. 1	L77519-03A	4/25/2007		4/30/2007	Aqueous	TDS		1	210	20	mg/L		TDS-W
RES. 1	L77519-03A	4/25/2007		4/27/2007	Aqueous	TSS		1	200	8	mg/L		TSS-W
RES. 1	L77519-03F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
RES. 1	L78061-04B	5/29/2007		6/4/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
RES. 1	L78061-04B	5/29/2007		6/4/2007	Aqueous	Alkalinity,(As CaCO3)		1	190	20	mg/L		2320B-ALK-W
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
RES. 1	L78061-04C	5/29/2007	6/1/2007	6/6/2007	Aqueous	Ammonia (as N)		1	0.077	0.05	mg/L		NH3-W
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
RES. 1	L78061-04B	5/29/2007		6/4/2007	Aqueous	Bicarbonate (As CaCO3)		1	190	20	mg/L		2320B-ALK-W
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	47	10	mg/L	*	ICP-W-dis
RES. 1	L78061-04B	5/29/2007		6/4/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
RES. 1	L78061-04B	5/29/2007		5/31/2007	Aqueous	Chloride	16887-00-6	5	10	5	mg/L		300.0-W
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
RES. 1	L78061-04F	5/29/2007		6/12/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	210	10	mg/L		HARD
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
RES. 1	L78061-04E	5/29/2007	6/5/2007	6/12/2007	Aqueous	Iron	7439-89-6	1	7.1	0.05	mg/L		ICP-W
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	22	1	mg/L		ICP-W-dis
RES. 1	L78061-04E	5/29/2007	6/5/2007	6/12/2007	Aqueous	Manganese	7439-96-5	1	0.46	0.005	mg/L		ICP-W
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.042	0.005	mg/L		6020-W-DISS
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
RES. 1	L78061-04B	5/29/2007		5/30/2007	Aqueous	Nitrate (as N)		1	0.37	0.01	mg/L		NO3-W
RES. 1	L78061-04B	5/29/2007		5/30/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES. 1	L78061-04D	5/29/2007		6/1/2007	Aqueous	Oil & Grease		1	3.8	3	mg/L		OGB-W
RES. 1	L78061-04B	5/29/2007		5/31/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	2.0	1	mg/L		ICP-W-dis
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
RES. 1	L78061-04A	5/29/2007		5/30/2007	Aqueous	Settleable Solids		1	5.5	0.1	ml/L		SS-W-2540F
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	18	1	mg/L		ICP-W-dis
RES. 1	L78061-04B	5/29/2007		5/31/2007	Aqueous	Sulfate	14808-79-8	10	56	10	mg/L		300.0-W
RES. 1	L78061-04A	5/29/2007		6/1/2007	Aqueous	TDS		1	250	20	mg/L		TDS-W
RES. 1	L78061-04A	5/29/2007		5/30/2007	Aqueous	TSS		1	1600	8	mg/L		TSS-W-2540D
RES. 1	L78061-04F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0.010	0.01	mg/L		6020-W-DISS
RES. 1	L78574-03B	6/25/2007		6/28/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
RES. 1	L78574-03B	6/25/2007		6/28/2007	Aqueous	Alkalinity,(As CaCO3)		1	120	20	mg/L		2320B-ALK-W
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
RES. 1	L78574-03C	6/25/2007	6/28/2007	6/29/2007	Aqueous	Ammonia (as N)		1	0.050	0.05	mg/L		NH3-W
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
RES. 1	L78574-03B	6/25/2007		6/28/2007	Aqueous	Bicarbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Calcium	7440-70-2	1	21	1	mg/L		ICP-W-dis
RES. 1	L78574-03B	6/25/2007		6/28/2007	Aqueous	Carbonate (As CaCO3)		1	110	20	mg/L		2320B-ALK-W
RES. 1	L78574-03B	6/25/2007		7/9/2007	Aqueous	Chloride	16887-00-6	10	41	10	mg/L		300.0-W
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0.0082	0.004	mg/L		6020-W-DISS
RES. 1	L78574-03F	6/25/2007		7/2/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	130	10	mg/L		HARD
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
RES. 1	L78574-03E	6/25/2007	6/27/2007	7/2/2007	Aqueous	Iron	7439-89-6	1	0.63	0.05	mg/L		ICP-W
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	19	1	mg/L		ICP-W-dis
RES. 1	L78574-03E	6/25/2007	6/27/2007	7/2/2007	Aqueous	Manganese	7439-96-5	1	0.12	0.005	mg/L		ICP-W
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.019	0.005	mg/L		6020-W-DISS
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
RES. 1	L78574-03B	6/25/2007		6/28/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L	H	NO3-W
RES. 1	L78574-03B	6/25/2007		6/28/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	H	NO2-W
RES. 1	L78574-03D	6/25/2007		7/5/2007	Aqueous	Oil & Grease		1	4.7	3	mg/L		OGB-W
RES. 1	L78574-03B	6/25/2007		6/27/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	2.2	1	mg/L		ICP-W-dis
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
RES. 1	L78574-03A	6/25/2007		6/27/2007	Aqueous	Settleable Solids		1	0.50	0.1	mL/L		SS-W-2540F
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Sodium	7440-23-5	10	30	10	mg/L	*	ICP-W-dis
RES. 1	L78574-03B	6/25/2007		7/7/2007	Aqueous	Sulfate	14808-79-8	5	25	5	mg/L		300.0-W
RES. 1	L78574-03A	6/25/2007		6/27/2007	Aqueous	TDS		1	190	20	mg/L		TDS-W
RES. 1	L78574-03A	6/25/2007		6/27/2007	Aqueous	TSS		1	40	3	mg/L		TSS-W-2540D
RES. 1	L78574-03F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0.037	0.01	mg/L		6020-W-DISS
RES-1	L79128-02B	7/30/2007		8/2/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
RES-1	L79128-02B	7/30/2007		8/2/2007	Aqueous	Alkalinity,(As CaCO3)		1	330	20	mg/L		2320B-ALK-W
RES-1	L79128-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
RES-1	L79128-02C	7/30/2007	8/1/2007	8/3/2007	Aqueous	Ammonia (as N)		1	0.11	0.05	mg/L		NH3-W
RES-1	L79128-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
RES-1	L79128-02B	7/30/2007		8/2/2007	Aqueous	Bicarbonate (As CaCO3)		1	330	20	mg/L		2320B-ALK-W
RES-1	L79128-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
RES-1	L79128-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
RES-1	L79128-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	71	10	mg/L	*	ICP-W-dis
RES-1	L79128-02B	7/30/2007		8/2/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
RES-1	L79128-02B	7/30/2007		8/11/2007	Aqueous	Chloride	16887-00-6	10	86	10	mg/L		300.0-W
RES-1	L79128-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
RES-1	L79128-02F	7/30/2007		8/10/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	420	10	mg/L		HARD
RES-1	L79128-02E	7/30/2007	8/2/2007	8/7/2007	Aqueous	Iron	7439-89-6	1	0.40	0.05	mg/L		ICP-W
RES-1	L79128-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0.15	0.05	mg/L		ICP-W-dis
RES-1	L79128-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
RES-1	L79128-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Magnesium	7439-95-4	10	58	10	mg/L	*	ICP-W-dis
RES-1	L79128-02E	7/30/2007	8/2/2007	8/7/2007	Aqueous	Manganese	7439-96-5	1	0.38	0.005	mg/L		ICP-W
RES-1	L79128-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.43	0.005	mg/L		6020-W-DISS
RES-1	L79128-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
RES-1	L79128-02B	7/30/2007		8/1/2007	Aqueous	Nitrate (as N)		1	0.017	0.01	mg/L		NO3-W
RES-1	L79128-02B	7/30/2007		8/1/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES-1	L79128-02D	7/30/2007		8/2/2007	Aqueous	Oil & Grease		1	4.0	3	mg/L		OGB-W
RES-1	L79128-02B	7/30/2007		8/1/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.098	0.05	mg/L		PO4-O
RES-1	L79128-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	15	1	mg/L		ICP-W-dis
RES-1	L79128-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
RES-1	L79128-02A	7/30/2007		8/1/2007	Aqueous	Settleable Solids		1	0.50	0.1	ml/L		SS-W-2540F
RES-1	L79128-02F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Sodium	7440-23-5	10	42	10	mg/L	*	ICP-W-dis
RES-1	L79128-02B	7/30/2007		8/11/2007	Aqueous	Sulfate	14808-79-8	10	48	10	mg/L		300.0-W
RES-1	L79128-02A	7/30/2007		8/3/2007	Aqueous	TDS		1	590	10	mg/L		TDS-W
RES-1	L79128-02A	7/30/2007		8/1/2007	Aqueous	TSS		1	38	3	mg/L		TSS-W-2540D
RES-1	L79128-02F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0	0.01	mg/L		6020-W-DISS
RES-1	L81026-03B	11/12/2007		11/15/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
RES-1	L81026-03B	11/12/2007		11/15/2007	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
RES-1	L81026-03F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
RES-1	L81026-03C	11/12/2007	11/15/2007	11/15/2007	Aqueous	Ammonia (as N)		1	0.055	0.05	mg/L		NH3-W
RES-1	L81026-03F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
RES-1	L81026-03B	11/12/2007		11/15/2007	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
RES-1	L81026-03F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
RES-1	L81026-03F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
RES-1	L81026-03F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	63	10	mg/L	#	ICP-W-dis
RES-1	L81026-03B	11/12/2007		11/15/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
RES-1	L81026-03B	11/12/2007		11/21/2007	Aqueous	Chloride	16887-00-6	5	19	5	mg/L		300.0-W
RES-1	L81026-03F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Copper	7440-50-8	20	0.0018	0.0008	mg/L		6020-W-DISS
RES-1	L81026-03F	11/12/2007		11/27/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	310	10	mg/L		HARD
RES-1	L81026-03F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
RES-1	L81026-03E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Iron	7439-89-6	1	0.77	0.05	mg/L		ICP-W
RES-1	L81026-03F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0001	mg/L		6020-W-DISS
RES-1	L81026-03F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	38	1	mg/L		ICP-W-dis

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
RES-1	L81026-03E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Manganese	7439-96-5	1	0.11	0.005	mg/L		ICP-W
RES-1	L81026-03F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Manganese	7439-96-5	20	0.052	0.0012	mg/L		6020-W-DISS
RES-1	L81026-03F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
RES-1	L81026-03B	11/12/2007		11/14/2007	Aqueous	Nitrate (as N)		1	0.011	0.01	mg/L		NO3-W
RES-1	L81026-03B	11/12/2007		11/14/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES-1	L81026-03D	11/12/2007		11/18/2007	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
RES-1	L81026-03B	11/12/2007		11/14/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
RES-1	L81026-03F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	6.4	1	mg/L		ICP-W-dis
RES-1	L81026-03F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
RES-1	L81026-03A	11/12/2007		11/14/2007	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
RES-1	L81026-03F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Sodium	7440-23-5	10	32	10	mg/L	#	ICP-W-dis
RES-1	L81026-03B	11/12/2007		11/21/2007	Aqueous	Sulfate	14808-79-8	5	120	5	mg/L		300.0-W
RES-1	L81026-03A	11/12/2007		11/14/2007	Aqueous	TDS		1	470	20	mg/L		TDS-W
RES-1	L81026-03A	11/12/2007		11/14/2007	Aqueous	TSS		1	18	3	mg/L		TSS-W-2540D
RES-1	L81026-03F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Res-1	L83169-04B	3/25/2008		3/28/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Res-1	L83169-04B	3/25/2008		3/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Res-1	L83169-04C	3/25/2008	4/1/2008	4/1/2008	Aqueous	Ammonia (as N)		1	0.20	0.05	mg/L		NH3-W
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0.00072	0.0006	mg/L		6020-W-DISS
Res-1	L83169-04B	3/25/2008		3/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	70	10	mg/L	#	ICP-W-dis
Res-1	L83169-04B	3/25/2008		3/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Res-1	L83169-04B	3/25/2008		3/30/2008	Aqueous	Chloride	16887-00-6	10	40	1	mg/L		300.0-W
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0029	0.0008	mg/L		6020-W-DISS
Res-1	L83169-04F	3/25/2008		4/2/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	320	10	mg/L		HARD
Res-1	L83169-04E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0.072	0.05	mg/L		ICP-W-dis
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-dis
Res-1	L83169-04E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Manganese	7439-96-5	1	0.033	0.005	mg/L		ICP-W
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.14	0.0012	mg/L		6020-W-DISS
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Res-1	L83169-04B	3/25/2008		3/27/2008	Aqueous	Nitrate (as N)		1	0.15	0.01	mg/L		NO3-W
Res-1	L83169-04B	3/25/2008		3/27/2008	Aqueous	Nitrite (as N)		1	0.011	0.01	mg/L		NO2-W
Res-1	L83169-04D	3/25/2008		3/31/2008	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Res-1	L83169-04B	3/25/2008		3/27/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	6.0	1	mg/L		ICP-W-dis
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Res-1	L83169-04A	3/25/2008		3/27/2008	Aqueous	Settleable Solids		1	0.30	0.1	ml/L		SS-W-2540F
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	41	1	mg/L		ICP-W-dis
Res-1	L83169-04B	3/25/2008		3/30/2008	Aqueous	Sulfate	14808-79-8	10	110	7.5	mg/L		300.0-W
Res-1	L83169-04A	3/25/2008		3/28/2008	Aqueous	TDS		1	470	20	mg/L		TDS-W
Res-1	L83169-04A	3/25/2008		3/27/2008	Aqueous	TSS		1	180	3	mg/L		TSS-W-2540D
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0.0065	0.0054	mg/L		6020-W-DISS
Res-1	L83169-04B	3/25/2008		3/28/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Res-1	L83169-04B	3/25/2008		3/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Res-1	L83169-04C	3/25/2008	4/1/2008	4/1/2008	Aqueous	Ammonia (as N)		1	0.20	0.05	mg/L		NH3-W
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0.00072	0.0006	mg/L		6020-W-DISS
Res-1	L83169-04B	3/25/2008		3/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	220	20	mg/L		2320B-ALK-W
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	70	10	mg/L	#	ICP-W-dis
Res-1	L83169-04B	3/25/2008		3/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Res-1	L83169-04B	3/25/2008		3/30/2008	Aqueous	Chloride	16887-00-6	10	40	1	mg/L		300.0-W
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0029	0.0008	mg/L		6020-W-DISS
Res-1	L83169-04F	3/25/2008		4/2/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	320	10	mg/L		HARD
Res-1	L83169-04E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0.072	0.05	mg/L		ICP-W-dis
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-dis
Res-1	L83169-04E	3/25/2008	3/28/2008	4/2/2008	Aqueous	Manganese	7439-96-5	1	0.033	0.005	mg/L		ICP-W
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.14	0.0012	mg/L		6020-W-DISS
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Res-1	L83169-04B	3/25/2008		3/27/2008	Aqueous	Nitrate (as N)		1	0.15	0.01	mg/L		NO3-W
Res-1	L83169-04B	3/25/2008		3/27/2008	Aqueous	Nitrite (as N)		1	0.011	0.01	mg/L		NO2-W
Res-1	L83169-04D	3/25/2008		3/31/2008	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Res-1	L83169-04B	3/25/2008		3/27/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	6.0	1	mg/L		ICP-W-dis
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Res-1	L83169-04A	3/25/2008		3/27/2008	Aqueous	Settleable Solids		1	0.30	0.1	ml/L		SS-W-2540F
Res-1	L83169-04F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	41	1	mg/L		ICP-W-dis
Res-1	L83169-04B	3/25/2008		3/30/2008	Aqueous	Sulfate	14808-79-8	10	110	7.5	mg/L		300.0-W
Res-1	L83169-04A	3/25/2008		3/28/2008	Aqueous	TDS		1	470	20	mg/L		TDS-W
Res-1	L83169-04A	3/25/2008		3/27/2008	Aqueous	TSS		1	180	3	mg/L		TSS-W-2540D
Res-1	L83169-04F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0.0065	0.0054	mg/L		6020-W-DISS
Res-1	L84608-03B	6/16/2008		6/20/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Res-1	L84608-03B	6/16/2008		6/20/2008	Aqueous	Alkalinity,(As CaCO3)		1	160	20	mg/L		2320B-ALK-W
Res-1	L84608-03F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Res-1	L84608-03C	6/16/2008	6/20/2008	6/25/2008	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Res-1	L84608-03F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Res-1	L84608-03B	6/16/2008		6/20/2008	Aqueous	Bicarbonate (As CaCO3)		1	160	20	mg/L		2320B-ALK-W
Res-1	L84608-03F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Res-1	L84608-03F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Res-1	L84608-03F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Calcium	7440-70-2	10	42	10	mg/L	~	ICP-W-dis
Res-1	L84608-03B	6/16/2008		6/20/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Res-1	L84608-03B	6/16/2008		6/26/2008	Aqueous	Chloride	16887-00-6	5	7.5	0.5	mg/L		300.0-W
Res-1	L84608-03F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Copper	7440-50-8	20	0.0014	0.0008	mg/L		6020-W-DISS
Res-1	L84608-03F	6/16/2008		6/18/2008	Aqueous Dissolved	Hardness (as CaCO3)	471-34-1	1	160	10	mg/L		HARD
Res-1	L84608-03F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Res-1	L84608-03E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Iron	7439-89-6	1	0.11	0.05	mg/L		ICP-W
Res-1	L84608-03F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Lead	7439-92-1	20	0.00040	0.0004	mg/L		6020-W-DISS
Res-1	L84608-03F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Magnesium	7439-95-4	1	14	1	mg/L		ICP-W-dis
Res-1	L84608-03F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Manganese	7439-96-5	20	0.0015	0.0012	mg/L		6020-W-DISS
Res-1	L84608-03E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Manganese	7439-96-5	1	0.024	0.005	mg/L		ICP-W
Res-1	L84608-03F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Res-1	L84608-03B	6/16/2008		6/18/2008	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Res-1	L84608-03B	6/16/2008		6/18/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Res-1	L84608-03D	6/16/2008		6/18/2008	Aqueous	Oil & Grease		1	340	3	mg/L	*	OGB-W
Res-1	L84608-03B	6/16/2008		6/18/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Res-1	L84608-03F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Potassium	7440-09-7	1	1.9	1	mg/L		ICP-W-dis
Res-1	L84608-03F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Res-1	L84608-03A	6/16/2008		6/18/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Res-1	L84608-03F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Sodium	7440-23-5	1	8.3	1	mg/L		ICP-W-dis
Res-1	L84608-03B	6/16/2008		6/26/2008	Aqueous	Sulfate	14808-79-8	5	29	3.8	mg/L		300.0-W
Res-1	L84608-03A	6/16/2008		6/19/2008	Aqueous	TDS		1	200	50	mg/L		TDS-W
Res-1	L84608-03A	6/16/2008		6/18/2008	Aqueous	TSS		1	24	3	mg/L		TSS-W-2540D
Res-1	L84608-03F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Zinc	7440-66-6	20	0.020	0.0054	mg/L		6020-W-DISS
RES-1	L85972-03B	8/26/2008		8/29/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
RES-1	L85972-03B	8/26/2008		8/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	240	20	mg/L		2320B-ALK-W
RES-1	L85972-03E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
RES-1	L85972-03D	8/26/2008	8/28/2008	8/29/2008	Aqueous	Ammonia (as N)		1	0.11	0.05	mg/L		NH3-W
RES-1	L85972-03E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0.0023	0.0006	mg/L		6020-W-DISS
RES-1	L85972-03B	8/26/2008		8/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	240	20	mg/L		2320B-ALK-W
RES-1	L85972-03E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
RES-1	L85972-03E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
RES-1	L85972-03E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	81	10	mg/L	~	ICP-W-dis
RES-1	L85972-03B	8/26/2008		8/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
RES-1	L85972-03B	8/26/2008		8/28/2008	Aqueous	Chloride	16887-00-6	20	61	2	mg/L		300.0-W
RES-1	L85972-03E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0031	0.0008	mg/L		6020-W-DISS
RES-1	L85972-03E	8/26/2008		9/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	430	10	mg/L		HARD
RES-1	L85972-03F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Iron	7439-89-6	1	1.1	0.05	mg/L		ICP-W
RES-1	L85972-03E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
RES-1	L85972-03E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
RES-1	L85972-03E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	10	56	10	mg/L	~	ICP-W-dis
RES-1	L85972-03F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Manganese	7439-96-5	1	0.55	0.005	mg/L		ICP-W
RES-1	L85972-03E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.11	0.0012	mg/L		6020-W-DISS
RES-1	L85972-03E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
RES-1	L85972-03B	8/26/2008		8/28/2008	Aqueous	Nitrate (as N)		1	0.054	0.01	mg/L		NO3-W
RES-1	L85972-03B	8/26/2008		8/28/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES-1	L85972-03C	8/26/2008		9/5/2008	Aqueous	Oil & Grease		1	3.2	3	mg/L		OGB-W
RES-1	L85972-03B	8/26/2008		8/28/2008	Aqueous	Phosphorus, Orthophosphate (as I	7723-14-0	1	0	0.1	mg/L		300.0-W
RES-1	L85972-03E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	2.5	1	mg/L		ICP-W-dis
RES-1	L85972-03E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
RES-1	L85972-03A	8/26/2008		8/28/2008	Aqueous	Settleable Solids		1	2.5	0.1	ml/L		SS-W-2540F
RES-1	L85972-03E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	10	41	10	mg/L	~	ICP-W-dis
RES-1	L85972-03B	8/26/2008		8/28/2008	Aqueous	Sulfate	14808-79-8	20	140	15	mg/L		300.0-W
RES-1	L85972-03A	8/26/2008		8/28/2008	Aqueous	TDS		1	620	20	mg/L		TDS-W
RES-1	L85972-03A	8/26/2008		8/28/2008	Aqueous	TSS		1	200	3	mg/L		TSS-W-2540D
RES-1	L85972-03E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0.0066	0.0054	mg/L		6020-W-DISS
RES-1	L87283-03B	10/29/2008		10/31/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
RES-1	L87283-03B	10/29/2008		10/31/2008	Aqueous	Alkalinity,(As CaCO3)		1	300	20	mg/L		2320B-ALK-W
RES-1	L87283-03E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
RES-1	L87283-03D	10/29/2008	11/6/2008	11/7/2008	Aqueous	Ammonia (as N)		1	0.12	0.05	mg/L		NH3-W
RES-1	L87283-03E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0.0013	0.0006	mg/L		6020-W-DISS
RES-1	L87283-03B	10/29/2008		10/31/2008	Aqueous	Bicarbonate (As CaCO3)		1	300	20	mg/L		2320B-ALK-W
RES-1	L87283-03E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
RES-1	L87283-03E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
RES-1	L87283-03E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	79	10	mg/L	~	ICP-W-dis
RES-1	L87283-03B	10/29/2008		10/31/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
RES-1	L87283-03B	10/29/2008		11/11/2008	Aqueous	Chloride	16887-00-6	20	31	2	mg/L		300.0-W
RES-1	L87283-03E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0	0.0008	mg/L		6020-W-DISS
RES-1	L87283-03E	10/29/2008		11/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	330	10	mg/L		HARD
RES-1	L87283-03E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
RES-1	L87283-03F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Iron	7439-89-6	1	3.3	0.05	mg/L		ICP-W
RES-1	L87283-03E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
RES-1	L87283-03E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	33	1	mg/L		ICP-W-dis
RES-1	L87283-03E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.47	0.0012	mg/L		6020-W-DISS
RES-1	L87283-03F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Manganese	7439-96-5	1	0.65	0.005	mg/L		ICP-W
RES-1	L87283-03E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
RES-1	L87283-03B	10/29/2008		10/31/2008	Aqueous	Nitrate (as N)		1	0.015	0.01	mg/L		NO3-W
RES-1	L87283-03B	10/29/2008		10/31/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
RES-1	L87283-03C	10/29/2008		11/2/2008	Aqueous	Oil & Grease		1	4.3	3	mg/L		OGB-W
RES-1	L87283-03B	10/29/2008		10/31/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
RES-1	L87283-03E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	7.2	1	mg/L		ICP-W-dis
RES-1	L87283-03E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
RES-1	L87283-03A	10/29/2008		10/30/2008	Aqueous	Settleable Solids		1	0.20	0.1	ml/L		SS-W-2540F
RES-1	L87283-03E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	22	1	mg/L		ICP-W-dis
RES-1	L87283-03B	10/29/2008		11/11/2008	Aqueous	Sulfate	14808-79-8	20	57	15	mg/L		300.0-W
RES-1	L87283-03A	10/29/2008		10/31/2008	Aqueous	TDS		1	420	20	mg/L		TDS-W
RES-1	L87283-03A	10/29/2008		10/30/2008	Aqueous	TSS		1	99	3	mg/L		TSS-W-2540D
RES-1	L87283-03E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
RES-1	1006480-003	6/23/2010		6/25/2010	Aqueous	Settleable Solids		1	0	0.10	mL/L		SS-W-2540F
RES-1	1006480-003	6/23/2010		6/25/2010	Aqueous	Total Dissolved Solids		2	200	20	mg/L		TDS-W-2540C
RES-1	1006480-003	6/23/2010		6/25/2010	Aqueous	Total Suspended Solids	TSS	1	11	3.0	mg/L		TSS-W-2540D

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
RES-1	1006480-003	6/23/2010		6/29/2010	Aqueous	Chloride	16887-00-6	10	8.3	1.0	mg/L		300.0-W
RES-1	1006480-003	6/23/2010		6/29/2010	Aqueous	Sulfate	14808-79-8	10	30	7.5	mg/L		300.0-W
RES-1	1006480-003	6/23/2010		6/28/2010	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
RES-1	1006480-003	6/23/2010		6/28/2010	Aqueous	Alkalinity (as CaCO3)		2	170	20	mg/L		ALK-W-2320B
RES-1	1006480-003	6/23/2010		6/28/2010	Aqueous	Bicarbonate (as CaCO3)		2	160	20	mg/L		ALK-W-2320B
RES-1	1006480-003	6/23/2010		6/28/2010	Aqueous	Carbonate (as CaCO3)		2	0	20	mg/L		ALK-W-2320B
RES-1	1006480-003	6/23/2010		6/25/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0	0.010	mg/L		NO2-W-353.2
RES-1	1006480-003	6/23/2010		6/25/2010	Aqueous	Nitrate (as N)	14797-55-8	1	0	0.010	mg/L		NO3-W-353.2
RES-1	1006480-003	6/23/2010		6/25/2010	Aqueous	pH @ 25° C		1	8.50	1.00	pH Units	H	PH-4500H+B
RES-1	1006480-003	6/23/2010		6/25/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0	0.050	mg/L		PO4-O-365.1
RES-1	1006480-003	6/23/2010		6/30/2010	Aqueous	Oil & Grease		1	0	3.0	mg/L		OGB-W-1664A
RES-1	1006480-003	6/23/2010	6/28/2010	6/29/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0.089	0.050	mg/L		NH3-W-350.1
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Aluminum	7429-90-5	1	0	0.10	mg/L		6010C-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Boron	7440-42-8	1	0	0.50	mg/L		6010C-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Calcium	7440-70-2	1	44	1.0	mg/L		6010C-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	0	0.10	mg/L		6010C-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Magnesium	7439-95-4	1	16	1.0	mg/L		6010C-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.020	mg/L		6010C-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Potassium	7440-09-7	1	2.0	1.0	mg/L		6010C-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Sodium	7440-23-5	1	11	1.0	mg/L		6010C-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Arsenic	7440-38-2	20	0.00071	0.00060	mg/L		6020-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Copper	7440-50-8	20	0.0039	0.00080	mg/L		6020-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Lead	7439-92-1	20	0	0.00040	mg/L		6020-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Manganese	7439-96-5	20	0.0069	0.0012	mg/L		6020-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Selenium	7782-49-2	20	0	0.00080	mg/L		6020-DIS
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Zinc	7440-66-6	20	0.019	0.0050	mg/L		6020-DIS
RES-1	1006480-003	6/23/2010		6/28/2010	Aqueous	Hardness (as CaCO3)		1	180	10	mg/L		HARD-2340B
RES-1	1006480-003	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	0	0.10	mg/L		6010C-W
RES-1	1006480-003	6/23/2010	6/25/2010	6/25/2010	Aqueous	Manganese	7439-96-5	20	0.027	0.0012	mg/L		6020-W
Sulfur Spring	L65736-03B	5/9/2005		5/11/2005	Aqueous	Acidity		1	80	15	mg/L		ACIDITY-W
Sulfur Spring	L65736-03B	5/9/2005		5/11/2005	Aqueous	Alkalinity,(As CaCO3)		1	350	10	mg/L		2320B-ALK-W
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L65736-03F	5/9/2005	5/11/2005	5/12/2005	Aqueous	Ammonia (as N)		1	0.10	0.05	mg/L		NH3-W
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0.001	0.005	mg/L		6020-W-DISS
Sulfur Spring	L65736-03B	5/9/2005		5/11/2005	Aqueous	Bicarbonate (As CaCO3)		1	350	10	mg/L		2320B-ALK-W
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0.07	0.5	mg/L		ICP-W-dis
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	87	10	mg/L		ICP-W-dis
Sulfur Spring	L65736-03B	5/9/2005		5/11/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L65736-03B	5/9/2005		5/18/2005	Aqueous	Chloride	16887-00-6	1	6.6	1	mg/L		300.0-W
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0.0077	0.004	mg/L		6020-W-DISS
Sulfur Spring	L65736-03D	5/9/2005		5/20/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	350	10	mg/L		HARD
Sulfur Spring	L65736-03C	5/9/2005	5/11/2005	5/19/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0.0057	0.005	mg/L		6020-W-DISS
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	10	mg/L		ICP-W-dis
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.16	0.005	mg/L		6020-W-DISS
Sulfur Spring	L65736-03C	5/9/2005	5/11/2005	5/19/2005	Aqueous	Manganese	7439-96-5	1	0.17	0.005	mg/L		6020-W
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L65736-03B	5/9/2005		5/11/2005	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L65736-03B	5/9/2005		5/11/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L65736-03E	5/9/2005		5/11/2005	Aqueous	Oil & Grease		1	3.8	3	mg/L		OGB-W
Sulfur Spring	L65736-03B	5/9/2005		5/11/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	5.0	1	mg/L		ICP-W-dis
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0.0075	0.005	mg/L		6020-W-DISS
Sulfur Spring	L65736-03A	5/9/2005		5/10/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/19/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	8.6	1	mg/L		ICP-W-dis
Sulfur Spring	L65736-03B	5/9/2005		5/18/2005	Aqueous	Sulfate	14808-79-8	1	43	10	mg/L		300.0-W
Sulfur Spring	L65736-03A	5/9/2005		5/10/2005	Aqueous	TDS		1	390	10	mg/L		TDS-W
Sulfur Spring	L65736-03A	5/9/2005		5/10/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L65736-03D	5/9/2005	5/11/2005	5/17/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.012	0.01	mg/L		6020-W-DISS
Sulfur Spring	L67580-02B	9/6/2005		9/9/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L67580-02B	9/6/2005		9/8/2005	Aqueous	Alkalinity,(As CaCO3)		1	350	10	mg/L		2320B-ALK-W
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L67580-02F	9/6/2005	9/7/2005	9/8/2005	Aqueous	Ammonia (as N)		1	0.44	0.05	mg/L		NH3-W
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L67580-02B	9/6/2005		9/8/2005	Aqueous	Bicarbonate (As CaCO3)		1	350	10	mg/L		2320B-ALK-W
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	82	10	mg/L		ICP-W-DIS
Sulfur Spring	L67580-02B	9/6/2005		9/8/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L67580-02B	9/6/2005		9/13/2005	Aqueous	Chloride	16887-00-6	10	6.8	1	mg/L		300.0-W
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	340	10	mg/L		HARD
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0.15	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L67580-02C	9/6/2005	9/8/2005	9/13/2005	Aqueous	Iron	7439-89-6	1	0.30	0.05	mg/L		ICP-W
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0.0070	0.005	mg/L		6020-W-DISS
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	31	10	mg/L		ICP-W-DIS
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.055	0.005	mg/L		6020-W-DISS
Sulfur Spring	L67580-02C	9/6/2005	9/8/2005	9/15/2005	Aqueous	Manganese	7439-96-5	1	0.048	0.005	mg/L		6020-W
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L67580-02B	9/6/2005		8/7/2005	Aqueous	Nitrate (as N)		1	0.012	0.01	mg/L		NO3-W
Sulfur Spring	L67580-02B	9/6/2005		9/7/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L67580-02E	9/6/2005		9/7/2005	Aqueous	Oil & Grease		1	4.7	3	mg/L		OGB-W
Sulfur Spring	L67580-02B	9/6/2005		9/8/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.06	mg/L		PO4-O
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	4.2	1	mg/L		ICP-W-DIS
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L67580-02A	9/6/2005		9/7/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	7.6	1	mg/L		ICP-W-DIS
Sulfur Spring	L67580-02B	9/6/2005		9/13/2005	Aqueous	Sulfate	14808-79-8	10	45	10	mg/L		300.0-W
Sulfur Spring	L67580-02A	9/6/2005		9/7/2005	Aqueous	TSS		1	15	3	mg/L		TSS-W
Sulfur Spring	L67580-02D	9/6/2005	9/9/2005	9/15/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.038	0.01	mg/L		6020-W-DISS
Sulfur Spring	L68520-02B	10/31/2005		11/2/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Alkalinity,(As CaCO3)		1	370	10	mg/L		2320B-ALK-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02F	10/31/2005	11/7/2005	11/9/2005	Aqueous	Ammonia (as N)		1	0.15	0.05	mg/L		NH3-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Bicarbonate (As CaCO3)		1	370	10	mg/L		2320B-ALK-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	88	5	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L68520-02B	10/31/2005		11/9/2005	Aqueous	Chloride	16887-00-6	1	5.1	5	mg/L		CL-W-LAT
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	370	10	mg/L		HARD
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02C	10/31/2005	11/1/2005	11/9/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.029	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68520-02C	10/31/2005	11/1/2005	11/10/2005	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		6020-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Nitrate (as N)		1	0.010	0.01	mg/L		NO3-W
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L68520-02E	10/31/2005		11/2/2005	Aqueous	Oil & Grease		1	3.1	3	mg/L		OGB-W
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	5.0	1	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68520-02A	10/31/2005		11/1/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	8.9	5	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02B	10/31/2005		11/10/2005	Aqueous	Sulfate	14808-79-8	1	46	5	mg/L		SO4-W
Sulfur Spring	L68520-02A	10/31/2005		11/1/2005	Aqueous	TDS		1	390	10	mg/L		TDS-W
Sulfur Spring	L68520-02A	10/31/2005		11/1/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.014	0.01	mg/L		6020-W-DISS
Sulfur Spring	L68520-02B	10/31/2005		11/2/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Alkalinity,(As CaCO3)		1	370	10	mg/L		2320B-ALK-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02F	10/31/2005	11/7/2005	11/9/2005	Aqueous	Ammonia (as N)		1	0.15	0.05	mg/L		NH3-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Bicarbonate (As CaCO3)		1	370	10	mg/L		2320B-ALK-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	88	5	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L68520-02B	10/31/2005		11/9/2005	Aqueous	Chloride	16887-00-6	1	5.1	5	mg/L		CL-W-LAT
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	370	10	mg/L		HARD
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02C	10/31/2005	11/1/2005	11/9/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.029	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68520-02C	10/31/2005	11/1/2005	11/10/2005	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		6020-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Nitrate (as N)		1	0.010	0.01	mg/L		NO3-W
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L68520-02E	10/31/2005		11/2/2005	Aqueous	Oil & Grease		1	3.1	3	mg/L		OGB-W
Sulfur Spring	L68520-02B	10/31/2005		11/1/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/9/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	5.0	1	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68520-02A	10/31/2005		11/1/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	8.9	5	mg/L		ICP-W-DIS
Sulfur Spring	L68520-02B	10/31/2005		11/10/2005	Aqueous	Sulfate	14808-79-8	1	46	5	mg/L		SO4-W
Sulfur Spring	L68520-02A	10/31/2005		11/1/2005	Aqueous	TDS		1	390	10	mg/L		TDS-W
Sulfur Spring	L68520-02A	10/31/2005		11/1/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L68520-02D	10/31/2005	11/1/2005	11/10/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.014	0.01	mg/L		6020-W-DISS
Sulfur Spring	L68977-02C	11/28/2005		12/1/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L68977-02C	11/28/2005		11/29/2005	Aqueous	Alkalinity,(As CaCO3)		1	340	10	mg/L		2320B-ALK-W
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L68977-02F	11/28/2005	12/6/2005	12/7/2005	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68977-02C	11/28/2005		11/29/2005	Aqueous	Bicarbonate (As CaCO3)		1	340	10	mg/L		2320B-ALK-W
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Calcium	7440-70-2	5	91	5	mg/L		ICP-W-DIS
Sulfur Spring	L68977-02C	11/28/2005		11/29/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L68977-02C	11/28/2005		12/3/2005	Aqueous	Chloride	16887-00-6	1	6.2	1	mg/L		300.0-W
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	380	10	mg/L		HARD
Sulfur Spring	L68977-02E	11/28/2005	11/30/2005	12/6/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	37	1	mg/L		ICP-W-DIS
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Manganese	7439-96-5	1	0.031	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68977-02E	11/28/2005	11/30/2005	12/2/2005	Aqueous	Manganese	7439-96-5	1	0.028	0.005	mg/L		6020-W
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L68977-02C	11/28/2005		11/29/2005	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L68977-02C	11/28/2005		11/29/2005	Aqueous	Nitrite (as N)		1	0.010	0.01	mg/L		NO2-W
Sulfur Spring	L68977-02G	11/28/2005		11/30/2005	Aqueous	Oil & Grease		1	3.6	3	mg/L		OGB-W
Sulfur Spring	L68977-02C	11/28/2005		11/29/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/5/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	4.6	1	mg/L		ICP-W-DIS
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L68977-02A	11/28/2005		11/29/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/6/2005	Aqueous-Dissolved	Sodium	7440-23-5	5	8.8	5	mg/L		ICP-W-DIS
Sulfur Spring	L68977-02C	11/28/2005		12/3/2005	Aqueous	Sulfate	14808-79-8	10	45	10	mg/L		300.0-W
Sulfur Spring	L68977-02B	11/28/2005		12/2/2005	Aqueous	TDS		1	330	10	mg/L		TDS-W
Sulfur Spring	L68977-02A	11/28/2005		11/29/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L68977-02D	11/28/2005	11/30/2005	12/2/2005	Aqueous-Dissolved	Zinc	7440-66-6	1	0.035	0.01	mg/L		6020-W-DISS
Sulfur Spring	L69428-02B	12/22/2005		12/23/2005	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L69428-02B	12/22/2005		12/23/2005	Aqueous	Alkalinity,(As CaCO3)		1	340	10	mg/L		2320B-ALK-W
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L69428-02E	12/22/2005	12/23/2005	12/28/2005	Aqueous	Ammonia (as N)		1	0.13	0.05	mg/L		NH3-W
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Arsenic	7440-38-2	2	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L69428-02B	12/22/2005		12/23/2005	Aqueous	Bicarbonate (As CaCO3)		1	340	10	mg/L		2320B-ALK-W
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Cadmium	7440-43-9	2	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Calcium	7440-70-2	1	93	1	mg/L		ICP-W-DIS
Sulfur Spring	L69428-02B	12/22/2005		12/23/2005	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L69428-02B	12/22/2005		12/28/2005	Aqueous	Chloride	16887-00-6	1	6.3	1	mg/L		300.0-W
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Copper	7440-50-8	2	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	380	10	mg/L		HARD
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L69428-02D	12/22/2005	12/23/2005	12/27/2005	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Lead	7439-92-1	2	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-DIS
Sulfur Spring	L69428-02D	12/22/2005	12/23/2005	12/28/2005	Aqueous	Manganese	7439-96-5	1	0.033	0.005	mg/L		6020-W
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Manganese	7439-96-5	2	0.035	0.005	mg/L		6020-W-DISS
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L69428-02B	12/22/2005		12/23/2005	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L69428-02B	12/22/2005		12/23/2005	Aqueous	Nitrite (as N)		1	0.010	0.01	mg/L		NO2-W
Sulfur Spring	L69428-02F	12/22/2005		12/28/2005	Aqueous	Oil & Grease		1	4.2	3	mg/L		OGB-W
Sulfur Spring	L69428-02B	12/22/2005		12/23/2005	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Potassium	7440-09-7	1	5.0	1	mg/L		ICP-W-DIS
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Selenium	7782-49-2	2	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L69428-02A	12/22/2005		12/23/2005	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/27/2005	Aqueous-Dissolved	Sodium	7440-23-5	1	9.1	1	mg/L		ICP-W-DIS
Sulfur Spring	L69428-02B	12/22/2005		12/28/2005	Aqueous	Sulfate	14808-79-8	10	46	10	mg/L		300.0-W
Sulfur Spring	L69428-02A	12/22/2005		12/23/2005	Aqueous	TDS		1	420	10	mg/L		TDS-W
Sulfur Spring	L69428-02A	12/22/2005		12/23/2005	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L69428-02C	12/22/2005	12/23/2005	12/28/2005	Aqueous-Dissolved	Zinc	7440-66-6	2	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L69847-03B	1/23/2006		1/24/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L69847-03B	1/23/2006		1/24/2006	Aqueous	Alkalinity,(As CaCO3)		1	350	10	mg/L		2320B-ALK-W
Sulfur Spring	L69847-03F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L69847-03C	1/23/2006	1/31/2006	2/1/2006	Aqueous	Ammonia (as N)		1	0.059	0.05	mg/L		NH3-W
Sulfur Spring	L69847-03F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L69847-03B	1/23/2006		1/24/2006	Aqueous	Bicarbonate (As CaCO3)		1	350	10	mg/L		2320B-ALK-W
Sulfur Spring	L69847-03F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L69847-03F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L69847-03F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	89	10	mg/L		ICP-W-DIS
Sulfur Spring	L69847-03B	1/23/2006		1/24/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L69847-03B	1/23/2006		1/27/2006	Aqueous	Chloride	16887-00-6	1	6.4	1	mg/L		300.0-W
Sulfur Spring	L69847-03F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L69847-03F	1/23/2006		1/27/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	360	10	mg/L		HARD
Sulfur Spring	L69847-03E	1/23/2006	1/24/2006	1/27/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L69847-03F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L69847-03F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L69847-03F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	10	mg/L		ICP-W-DIS
Sulfur Spring	L69847-03F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.030	0.005	mg/L		6020-W-DISS
Sulfur Spring	L69847-03E	1/23/2006	1/24/2006	1/30/2006	Aqueous	Manganese	7439-96-5	1	0.032	0.005	mg/L		6020-W
Sulfur Spring	L69847-03F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L69847-03B	1/23/2006		1/24/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L69847-03B	1/23/2006		1/24/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L69847-03D	1/23/2006		1/24/2006	Aqueous	Oil & Grease		1	4.3	3	mg/L		OGB-W
Sulfur Spring	L69847-03B	1/23/2006		1/24/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L69847-03F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	4.7	1	mg/L		ICP-W-DIS
Sulfur Spring	L69847-03F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L69847-03A	1/23/2006		1/24/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L69847-03F	1/23/2006	2/2/2006	2/4/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	8.4	1	mg/L		ICP-W-DIS
Sulfur Spring	L69847-03B	1/23/2006		1/27/2006	Aqueous	Sulfate	14808-79-8	1	44	10	mg/L		300.0-W
Sulfur Spring	L69847-03A	1/23/2006		1/24/2006	Aqueous	TDS		1	380	10	mg/L		TDS-W
Sulfur Spring	L69847-03A	1/23/2006		1/24/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L69847-03F	1/23/2006	1/24/2006	1/31/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.029	0.01	mg/L		6020-W-DISS
Sulfur Spring	L70355-01A	2/26/2006		2/28/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L70355-01A	2/26/2006		2/28/2006	Aqueous	Alkalinity,(As CaCO3)		1	340	10	mg/L		2320B-ALK-W
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L70355-01C	2/26/2006	3/2/2006	3/2/2006	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L70355-01A	2/26/2006		2/28/2006	Aqueous	Bicarbonate (As CaCO3)		1	340	10	mg/L		2320B-ALK-W
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	93	10	mg/L		ICP-W-DIS
Sulfur Spring	L70355-01A	2/26/2006		2/28/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L70355-01A	2/26/2006		3/1/2006	Aqueous	Chloride	16887-00-6	1	6.4	1	mg/L		300.0-W
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0.0079	0.004	mg/L		6020-W-DISS
Sulfur Spring	L70355-01F	2/26/2006		3/7/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	380	10	mg/L		HARD
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L70355-01E	2/26/2006	2/28/2006	2/28/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-DIS
Sulfur Spring	L70355-01E	2/26/2006	2/28/2006	2/28/2006	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		ICP-W
Sulfur Spring	L70355-01F	2/26/2006	3/13/2006	3/13/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.030	0.005	mg/L		ICP-W-DIS
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L70355-01A	2/26/2006		2/27/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L70355-01A	2/26/2006		2/27/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	[1]	NO2-W
Sulfur Spring	L70355-01D	2/26/2006		2/27/2006	Aqueous	Oil & Grease		1	3.5	3	mg/L		OGB-W
Sulfur Spring	L70355-01A	2/26/2006		2/27/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	@	PO4-O
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	5.3	1	mg/L		ICP-W-DIS
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L70355-01B	2/26/2006		2/27/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/7/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.6	1	mg/L		ICP-W-DIS
Sulfur Spring	L70355-01A	2/26/2006		3/1/2006	Aqueous	Sulfate	14808-79-8	10	43	10	mg/L		300.0-W
Sulfur Spring	L70355-01B	2/26/2006		3/3/2006	Aqueous	TDS		1	300	10	mg/L		TDS-W
Sulfur Spring	L70355-01B	2/26/2006		2/28/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L70355-01F	2/26/2006	2/27/2006	3/10/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.12	0.01	mg/L		6020-W-DISS
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	89	10	mg/L	[2]	ICP-W-DIS
Sulfur Spring	L70885-03B	3/27/2006		3/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L70885-03B	3/27/2006		3/29/2006	Aqueous	Chloride	16887-00-6	1	7.2	1	mg/L		300.0-W
Sulfur Spring	L70885-03B	3/27/2006		3/30/2006	Aqueous	Conductivity		1	710	2	umhos/cm		COND-W
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L70885-03E	3/27/2006		4/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	380	10	mg/L		HARD
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L70885-03D	3/27/2006	4/6/2006	4/9/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	37	1	mg/L		ICP-W-DIS
Sulfur Spring	L70885-03D	3/27/2006	4/3/2006	4/4/2006	Aqueous	Manganese	7439-96-5	1	0.032	0.005	mg/L		ICP-W
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.033	0.005	mg/L		6020-W-DISS
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L70885-03B	3/27/2006		3/29/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L70885-03B	3/27/2006		3/29/2006	Aqueous	Nitrite (as N)		1	0.10	0.01	mg/L		NO2-W
Sulfur Spring	L70885-03F	3/27/2006		3/28/2006	Aqueous	Oil & Grease		1	4.6	3	mg/L		OGB-W
Sulfur Spring	L70885-03B	3/27/2006		3/28/2006	Aqueous	pH @ 25° C		1	7.38	0	pH Units		PH-W
Sulfur Spring	L70885-03B	3/27/2006		3/29/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	5.4	1	mg/L		ICP-W-DIS
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L70885-03A	3/27/2006		3/28/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/11/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.4	1	mg/L		ICP-W-DIS
Sulfur Spring	L70885-03B	3/27/2006		3/29/2006	Aqueous	Sulfate	14808-79-8	10	44	10	mg/L		300.0-W
Sulfur Spring	L70885-03A	3/27/2006		3/31/2006	Aqueous	TDS		1	230	10	mg/L		TDS-W
Sulfur Spring	L70885-03A	3/27/2006		3/28/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L70885-03E	3/27/2006	4/3/2006	4/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.042	0.01	mg/L		6020-W-DISS
Sulfur Spring	L71507-02B	4/26/2006		5/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L71507-02B	4/26/2006		5/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	380	10	mg/L		2320B-ALK-W
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L71507-02C	4/26/2006	5/3/2006	5/3/2006	Aqueous	Ammonia (as N)		1	0.15	0.05	mg/L		NH3-W
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L71507-02B	4/26/2006		5/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	380	10	mg/L		2320B-ALK-W
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	95	10	mg/L		ICP-W-dis
Sulfur Spring	L71507-02B	4/26/2006		5/2/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L71507-02B	4/26/2006		5/12/2006	Aqueous	Chloride	16887-00-6	1	6.1	1	mg/L		300.0-W
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L71507-02E	4/26/2006		5/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	390	10	mg/L		HARD
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L71507-02D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	38	10	mg/L		ICP-W-dis
Sulfur Spring	L71507-02D	4/26/2006	5/3/2006	5/11/2006	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		ICP-W
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.027	0.005	mg/L		6020-W-DISS
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L71507-02C	4/26/2006		5/4/2006	Aqueous	Nitrate/Nitrite (as N)		1	0.022	0.01	mg/L		NO2/NO3-W
Sulfur Spring	L71507-02F	4/26/2006		5/5/2006	Aqueous	Oil & Grease		1	3.9	3	mg/L		OGB-W
Sulfur Spring	L71507-02B	4/26/2006		4/28/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0.02	0.05	mg/L		PO4-O
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	4.3	1	mg/L		ICP-W-dis
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L71507-02A	4/26/2006		4/28/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	10	19	10	mg/L		ICP-W-dis
Sulfur Spring	L71507-02B	4/26/2006		5/12/2006	Aqueous	Sulfate	14808-79-8	1	29	10	mg/L		300.0-W
Sulfur Spring	L71507-02A	4/26/2006		4/28/2006	Aqueous	TDS		1	360	10	mg/L		TDS-W
Sulfur Spring	L71507-02A	4/26/2006		4/28/2006	Aqueous	TSS		1	17	3	mg/L		TSS-W
Sulfur Spring	L71507-02E	4/26/2006	5/2/2006	5/13/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.034	0.01	mg/L		6020-W-DISS
Sulfur Spring	L72071-02B	5/25/2006		5/30/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L72071-02B	5/25/2006		5/30/2006	Aqueous	Alkalinity,(As CaCO3)		1	340	10	mg/L		2320B-ALK-W
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L72071-02C	5/25/2006	5/30/2006	5/31/2006	Aqueous	Ammonia (as N)		1	0.075	0.05	mg/L	[1]	NH3-W
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L72071-02B	5/25/2006		5/30/2006	Aqueous	Bicarbonate (As CaCO3)		1	340	10	mg/L		2320B-ALK-W
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	84	10	mg/L		ICP-W-DIS
Sulfur Spring	L72071-02B	5/25/2006		5/30/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L72071-02B	5/25/2006		6/1/2006	Aqueous	Chloride	16887-00-6	1	6.2	1	mg/L		300.0-W
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L72071-02E	5/25/2006		6/9/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	210	10	mg/L		HARD
Sulfur Spring	L72071-02D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	10	mg/L		ICP-W-DIS
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.028	0.005	mg/L		6020-W-DISS
Sulfur Spring	L72071-02D	5/25/2006	5/29/2006	6/8/2006	Aqueous	Manganese	7439-96-5	1	0.029	0.005	mg/L		ICP-W
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L72071-02B	5/25/2006		5/26/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L72071-02B	5/25/2006		5/26/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L72071-02F	5/25/2006		5/30/2006	Aqueous	Oil & Grease		1	3.7	3	mg/L		OGB-W
Sulfur Spring	L72071-02B	5/25/2006		5/26/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	5.0	1	mg/L		ICP-W-DIS
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L72071-02A	5/25/2006		5/26/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/9/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	8.6	1	mg/L		ICP-W-DIS
Sulfur Spring	L72071-02B	5/25/2006		6/1/2006	Aqueous	Sulfate	14808-79-8	1	41	10	mg/L		300.0-W
Sulfur Spring	L72071-02A	5/25/2006		5/26/2006	Aqueous	TDS		1	350	10	mg/L		TDS-W
Sulfur Spring	L72071-02A	5/25/2006		5/26/2006	Aqueous	TSS		1	3.0	3	mg/L		TSS-W
Sulfur Spring	L72071-02E	5/25/2006	5/30/2006	6/8/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L72660-03B	6/29/2006		7/3/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L72660-03B	6/29/2006		7/3/2006	Aqueous	Alkalinity,(As CaCO3)		1	330	20	mg/L		2320B-ALK-W
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L72660-03C	6/29/2006	7/5/2006	7/7/2006	Aqueous	Ammonia (as N)		1	0.064	0.05	mg/L		NH3-W
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L72660-03B	6/29/2006		7/3/2006	Aqueous	Bicarbonate (As CaCO3)		1	330	20	mg/L		2320B-ALK-W
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Calcium	7440-70-2	1	84	10	mg/L		ICP-W-DIS
Sulfur Spring	L72660-03B	6/29/2006		7/3/2006	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Sulfur Spring	L72660-03B	6/29/2006		7/5/2006	Aqueous	Chloride	16887-00-6	1	6.2	1	mg/L		300.0-W
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L72660-03E	6/29/2006		7/11/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	390	10	mg/L		HARD
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L72660-03D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	10	mg/L		ICP-W-DIS
Sulfur Spring	L72660-03D	6/29/2006	7/5/2006	7/11/2006	Aqueous	Manganese	7439-96-5	1	0.029	0.005	mg/L		ICP-W
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.029	0.005	mg/L		6020-W-DISS
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L72660-03B	6/29/2006		6/30/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L72660-03B	6/29/2006		6/30/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L72660-03F	6/29/2006		6/30/2006	Aqueous	Oil & Grease		1	4.4	3	mg/L		OGB-W
Sulfur Spring	L72660-03B	6/29/2006		6/30/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	4.4	1	mg/L		ICP-W-DIS
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L72660-03A	6/29/2006		6/30/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/12/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	7.8	1	mg/L		ICP-W-DIS
Sulfur Spring	L72660-03B	6/29/2006		7/5/2006	Aqueous	Sulfate	14808-79-8	1	44	10	mg/L		300.0-W
Sulfur Spring	L72660-03A	6/29/2006		6/30/2006	Aqueous	TDS		1	310	20	mg/L		TDS-W
Sulfur Spring	L72660-03A	6/29/2006		6/30/2006	Aqueous	TSS		1	6.0	3	mg/L		TSS-W
Sulfur Spring	L72660-03E	6/29/2006	7/5/2006	7/11/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L73160-04B	7/31/2006		8/2/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L73160-04B	7/31/2006		8/2/2006	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L73160-04C	7/31/2006	8/2/2006	8/4/2006	Aqueous	Ammonia (as N)		1	0.089	0.05	mg/L		NH3-W
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L73160-04B	7/31/2006		8/2/2006	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	90	10	mg/L	2	ICP-W-DIS
Sulfur Spring	L73160-04B	7/31/2006		8/2/2006	Aqueous	Carbonate (As CaCO3)		1	10	20	mg/L		2320B-ALK-W
Sulfur Spring	L73160-04B	7/31/2006		8/4/2006	Aqueous	Chloride	16887-00-6	1	6.3	1	mg/L		300.0-W
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L73160-04E	7/31/2006		8/15/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	370	10	mg/L		HARD
Sulfur Spring	L73160-04D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	1	mg/L		ICP-W-DIS
Sulfur Spring	L73160-04D	7/31/2006	8/3/2006	8/8/2006	Aqueous	Manganese	7439-96-5	1	0.029	0.005	mg/L		ICP-W
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.030	0.005	mg/L		6020-W-DISS
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L73160-04B	7/31/2006		8/2/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L73160-04B	7/31/2006		8/2/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L73160-04F	7/31/2006		8/8/2006	Aqueous	Oil & Grease		1	3.2	3	mg/L		OGB-W
Sulfur Spring	L73160-04B	7/31/2006		8/2/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/14/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	4.5	1	mg/L		ICP-W-DIS
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L73160-04A	7/31/2006		8/2/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/15/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	8.4	1	mg/L		ICP-W-DIS
Sulfur Spring	L73160-04B	7/31/2006		8/4/2006	Aqueous	Sulfate	14808-79-8	1	47	10	mg/L		300.0-W
Sulfur Spring	L73160-04A	7/31/2006		8/3/2006	Aqueous	TDS		1	330	20	mg/L		TDS-W
Sulfur Spring	L73160-04A	7/31/2006		8/2/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L73160-04E	7/31/2006	8/3/2006	8/4/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0.022	0.01	mg/L		6020-W-DISS
Sulfur Spring	L73504-04B	8/21/2006		8/23/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L73504-04B	8/21/2006		8/23/2006	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L73504-04C	8/21/2006	8/23/2006	8/24/2006	Aqueous	Ammonia (as N)		1	0.17	0.05	mg/L		NH3-W
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L73504-04B	8/21/2006		8/23/2006	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	88	10	mg/L		ICP-W-DIS
Sulfur Spring	L73504-04B	8/21/2006		8/23/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L73504-04B	8/21/2006		8/24/2006	Aqueous	Chloride	16887-00-6	1	6.6	1	mg/L		300.0-W
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L73504-04E	8/21/2006		9/5/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	360	10	mg/L		HARD
Sulfur Spring	L73504-04D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	35	10	mg/L		ICP-W-DIS
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Manganese	7439-96-5	5	0.030	0.005	mg/L		6020-W-DISS
Sulfur Spring	L73504-04D	8/21/2006	8/23/2006	9/1/2006	Aqueous	Manganese	7439-96-5	1	0.031	0.005	mg/L		ICP-W
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L73504-04B	8/21/2006		8/23/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L73504-04B	8/21/2006		8/23/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L73504-04F	8/21/2006		8/23/2006	Aqueous	Oil & Grease		1	5.3	3	mg/L		OGB-W
Sulfur Spring	L73504-04B	8/21/2006		8/23/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	4.7	1	mg/L		ICP-W-DIS
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L73504-04A	8/21/2006		8/23/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	9/5/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	8.7	1	mg/L		ICP-W-DIS
Sulfur Spring	L73504-04B	8/21/2006		8/24/2006	Aqueous	Sulfate	14808-79-8	1	47	10	mg/L		300.0-W
Sulfur Spring	L73504-04A	8/21/2006		8/25/2006	Aqueous	TDS		1	320	20	mg/L		TDS-W
Sulfur Spring	L73504-04A	8/21/2006		8/23/2006	Aqueous	TSS		1	3.0	3	mg/L		TSS-W
Sulfur Spring	L73504-04E	8/21/2006	8/23/2006	8/25/2006	Aqueous-Dissolved	Zinc	7440-66-6	5	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L74688-02B	10/30/2006		11/1/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L74688-02B	10/30/2006		11/1/2006	Aqueous	Alkalinity,(As CaCO3)		1	350	20	mg/L		2320B-ALK-W
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L74688-02C	10/30/2006	11/1/2006	11/3/2006	Aqueous	Ammonia (as N)		1	0.064	0.05	mg/L		NH3-W
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L74688-02B	10/30/2006		11/1/2006	Aqueous	Bicarbonate (As CaCO3)		1	350	20	mg/L		2320B-ALK-W
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-DIS
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	89	10	mg/L	*	ICP-W-DIS
Sulfur Spring	L74688-02B	10/30/2006		11/1/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L74688-02B	10/30/2006		11/9/2006	Aqueous	Chloride	16887-00-6	1	6.5	1	mg/L		300.0-W
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L74688-02F	10/30/2006		11/13/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	380	10	mg/L		HARD
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-DIS
Sulfur Spring	L74688-02E	10/30/2006	11/1/2006	11/13/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Magnesium	7439-95-4	10	37	10	mg/L	*	ICP-W-DIS
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.032	0.005	mg/L		6020-W-DISS
Sulfur Spring	L74688-02E	10/30/2006	11/1/2006	11/13/2006	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		ICP-W
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-DIS
Sulfur Spring	L74688-02B	10/30/2006		11/1/2006	Aqueous	Nitrate (as N)		1	0.019	0.01	mg/L		NO3-W
Sulfur Spring	L74688-02B	10/30/2006		11/1/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L74688-02D	10/30/2006		11/1/2006	Aqueous	Oil & Grease		1	3.7	3	mg/L		OGB-W
Sulfur Spring	L74688-02B	10/30/2006		11/1/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	5.1	1	mg/L		ICP-W-DIS
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L74688-02A	10/30/2006		11/1/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/13/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	8.9	1	mg/L		ICP-W-DIS
Sulfur Spring	L74688-02B	10/30/2006		11/9/2006	Aqueous	Sulfate	14808-79-8	1	46	10	mg/L		300.0-W
Sulfur Spring	L74688-02A	10/30/2006		11/1/2006	Aqueous	TDS		1	360	20	mg/L		TDS-W
Sulfur Spring	L74688-02A	10/30/2006		11/1/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L74688-02F	10/30/2006	11/2/2006	11/6/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L75142-02B	11/27/2006		11/29/2006	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L75142-02B	11/27/2006		11/29/2006	Aqueous	Alkalinity,(As CaCO3)		1	350	20	mg/L		2320B-ALK-W
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	12/13/2006	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L75142-02C	11/27/2006	11/30/2006	12/1/2006	Aqueous	Ammonia (as N)		1	0.084	0.05	mg/L		NH3-W
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L75142-02B	11/27/2006		11/29/2006	Aqueous	Bicarbonate (As CaCO3)		1	350	20	mg/L		2320B-ALK-W
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	12/13/2006	Aqueous-Dissolved	Calcium	7440-70-2	10	93	10	mg/L	*	ICP-W-DIS
Sulfur Spring	L75142-02B	11/27/2006		11/29/2006	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L75142-02B	11/27/2006		11/29/2006	Aqueous	Chloride	16887-00-6	1	6.1	1	mg/L		300.0-W
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L75142-02F	11/27/2006		12/13/2006	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	390	10	mg/L		HARD
Sulfur Spring	L75142-02E	11/27/2006	11/29/2006	12/11/2006	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Magnesium	7439-95-4	1	38	1	mg/L	[1]	ICP-W-dis
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Manganese	7439-96-5	1	0.032	0.005	mg/L		6020-W-DISS
Sulfur Spring	L75142-02E	11/27/2006	11/29/2006	12/11/2006	Aqueous	Manganese	7439-96-5	1	0.030	0.005	mg/L		ICP-W
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L75142-02B	11/27/2006		11/29/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L75142-02B	11/27/2006		11/29/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L75142-02D	11/27/2006		11/29/2006	Aqueous	Oil & Grease		1	3.6	3	mg/L		OGB-W
Sulfur Spring	L75142-02B	11/27/2006		11/29/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	12/11/2006	Aqueous-Dissolved	Potassium	7440-09-7	1	5.2	1	mg/L		ICP-W-dis
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	12/13/2006	Aqueous-Dissolved	Sodium	7440-23-5	1	9.0	1	mg/L		ICP-W-dis
Sulfur Spring	L75142-02B	11/27/2006		11/29/2006	Aqueous	Sulfate	14808-79-8	1	43	10	mg/L		300.0-W
Sulfur Spring	L75142-02A	11/27/2006		12/1/2006	Aqueous	TDS		1	350	20	mg/L		TDS-W
Sulfur Spring	L75142-02A	11/27/2006		11/29/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L75142-02F	11/27/2006	11/29/2006	11/30/2006	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L75586-02B	12/26/2006		1/2/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L75586-02B	12/26/2006		1/2/2007	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L75586-02C	12/26/2006	12/28/2006	12/29/2006	Aqueous	Ammonia (as N)		1	0.093	0.05	mg/L		NH3-W
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Arsenic	7440-38-2	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L75586-02B	12/26/2006		1/2/2007	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Cadmium	7440-43-9	10	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	93	10	mg/L	*	ICP-W-dis
Sulfur Spring	L75586-02B	12/26/2006		1/2/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L75586-02B	12/26/2006		1/2/2007	Aqueous	Chloride	16887-00-6	1	6.5	1	mg/L		300.0-W
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Copper	7440-50-8	10	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L75586-02F	12/26/2006		1/5/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	380	10	mg/L		HARD
Sulfur Spring	L75586-02E	12/26/2006	1/2/2007	1/3/2007	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Lead	7439-92-1	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Magnesium	7439-95-4	10	36	10	mg/L	*	ICP-W-dis
Sulfur Spring	L75586-02E	12/26/2006	1/2/2007	1/3/2007	Aqueous	Manganese	7439-96-5	1	0.026	0.005	mg/L		ICP-W
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Manganese	7439-96-5	10	0.029	0.005	mg/L		6020-W-DISS
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L75586-02B	12/26/2006		12/28/2006	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L75586-02B	12/26/2006		12/28/2006	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L75586-02D	12/26/2006		12/29/2006	Aqueous	Oil & Grease		1	3.3	3	mg/L		OGB-W
Sulfur Spring	L75586-02B	12/26/2006		12/28/2006	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	5.5	1	mg/L		ICP-W-dis
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Selenium	7782-49-2	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L75586-02A	12/26/2006		12/28/2006	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/5/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	9.1	1	mg/L		ICP-W-dis
Sulfur Spring	L75586-02B	12/26/2006		1/2/2007	Aqueous	Sulfate	14808-79-8	1	42	5	mg/L		300.0-W
Sulfur Spring	L75586-02A	12/26/2006		12/29/2006	Aqueous	TDS		1	370	20	mg/L		TDS-W
Sulfur Spring	L75586-02A	12/26/2006		12/28/2006	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L75586-02F	12/26/2006	1/2/2007	1/3/2007	Aqueous-Dissolved	Zinc	7440-66-6	10	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L76053-02B	1/31/2007		2/5/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L76053-02B	1/31/2007		2/5/2007	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L76053-02C	1/31/2007	2/2/2007	2/5/2007	Aqueous	Ammonia (as N)		1	0.097	0.05	mg/L		NH3-W
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Arsenic	7440-38-2	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76053-02B	1/31/2007		2/5/2007	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Cadmium	7440-43-9	10	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	89	10	mg/L	*	ICP-W-dis
Sulfur Spring	L76053-02B	1/31/2007		2/5/2007	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Sulfur Spring	L76053-02B	1/31/2007		2/2/2007	Aqueous	Chloride	16887-00-6	1	6.4	1	mg/L		300.0-W
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Copper	7440-50-8	10	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L76053-02F	1/31/2007		2/12/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	370	10	mg/L		HARD
Sulfur Spring	L76053-02E	1/31/2007	2/2/2007	2/7/2007	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Lead	7439-92-1	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	37	1	mg/L		ICP-W-dis
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Manganese	7439-96-5	10	0.025	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76053-02E	1/31/2007	2/2/2007	2/7/2007	Aqueous	Manganese	7439-96-5	1	0.027	0.005	mg/L		ICP-W
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L76053-02B	1/31/2007		2/2/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L76053-02B	1/31/2007		2/2/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L76053-02D	1/31/2007		2/9/2007	Aqueous	Oil & Grease		1	3.8	3	mg/L		OGB-W
Sulfur Spring	L76053-02B	1/31/2007		2/2/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	5.1	1	mg/L		ICP-W-dis
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Selenium	7782-49-2	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76053-02A	1/31/2007		2/2/2007	Aqueous	Settable Solids		1	0	0.1	ml/L		SS
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/12/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	8.8	1	mg/L		ICP-W-dis
Sulfur Spring	L76053-02B	1/31/2007		2/2/2007	Aqueous	Sulfate	14808-79-8	1	41	5	mg/L		300.0-W
Sulfur Spring	L76053-02A	1/31/2007		2/2/2007	Aqueous	TDS		1	390	20	mg/L		TDS-W
Sulfur Spring	L76053-02A	1/31/2007		2/2/2007	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L76053-02F	1/31/2007	2/5/2007	2/5/2007	Aqueous-Dissolved	Zinc	7440-66-6	10	0.010	0.01	mg/L		6020-W-DISS
Sulfur Spring	L76314-02B	2/19/2007		2/21/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L76314-02B	2/19/2007		2/21/2007	Aqueous	Alkalinity,(As CaCO3)		1	290	20	mg/L		2320B-ALK-W
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L76314-02C	2/19/2007	2/21/2007	2/22/2007	Aqueous	Ammonia (as N)		1	0.10	0.05	mg/L		NH3-W
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Arsenic	7440-38-2	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76314-02B	2/19/2007		2/21/2007	Aqueous	Bicarbonate (As CaCO3)		1	290	20	mg/L		2320B-ALK-W
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Cadmium	7440-43-9	10	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	94	10	mg/L	*	ICP-W-dis
Sulfur Spring	L76314-02B	2/19/2007		2/21/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L76314-02B	2/19/2007		2/21/2007	Aqueous	Chloride	16887-00-6	1	6.6	1	mg/L		300.0-W
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Copper	7440-50-8	10	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L76314-02F	2/19/2007		2/26/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	380	10	mg/L		HARD
Sulfur Spring	L76314-02E	2/19/2007	2/21/2007	2/23/2007	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Lead	7439-92-1	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-dis
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Manganese	7439-96-5	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76314-02E	2/19/2007	2/21/2007	2/23/2007	Aqueous	Manganese	7439-96-5	1	0.027	0.005	mg/L		ICP-W
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L76314-02B	2/19/2007		2/21/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L76314-02B	2/19/2007		2/21/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L76314-02D	2/19/2007		2/27/2007	Aqueous	Oil & Grease		1	3.6	3	mg/L		OGB-W
Sulfur Spring	L76314-02B	2/19/2007		2/21/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	4.9	1	mg/L		ICP-W-dis
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Selenium	7782-49-2	10	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/26/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	8.0	1	mg/L		ICP-W-dis
Sulfur Spring	L76314-02B	2/19/2007		2/21/2007	Aqueous	Sulfate	14808-79-8	1	42	5	mg/L		300.0-W
Sulfur Spring	L76314-02A	2/19/2007		2/22/2007	Aqueous	TDS		1	340	10	mg/L		TDS-W
Sulfur Spring	L76314-02A	2/19/2007		2/21/2007	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L76314-02F	2/19/2007	2/21/2007	2/22/2007	Aqueous-Dissolved	Zinc	7440-66-6	10	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L76981-02B	3/29/2007		4/2/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L76981-02B	3/29/2007		4/2/2007	Aqueous	Alkalinity,(As CaCO3)		1	350	20	mg/L		2320B-ALK-W
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L76981-02C	3/29/2007	3/30/2007	4/2/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76981-02B	3/29/2007		4/2/2007	Aqueous	Bicarbonate (As CaCO3)		1	350	20	mg/L		2320B-ALK-W
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	90	10	mg/L	*	ICP-W-dis
Sulfur Spring	L76981-02B	3/29/2007		4/2/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L76981-02B	3/29/2007		3/31/2007	Aqueous	Chloride	16887-00-6	1	6.5	1	mg/L		300.0-W
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L76981-02F	3/29/2007		4/11/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	380	10	mg/L		HARD
Sulfur Spring	L76981-02E	3/29/2007	4/2/2007	4/9/2007	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	37	1	mg/L		ICP-W-dis
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Manganese	7439-96-5	1	0.031	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76981-02E	3/29/2007	4/2/2007	4/9/2007	Aqueous	Manganese	7439-96-5	1	0.032	0.005	mg/L		ICP-W
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L76981-02B	3/29/2007		3/30/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L76981-02B	3/29/2007		3/30/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L76981-02D	3/29/2007		3/30/2007	Aqueous	Oil & Grease		1	3.1	3	mg/L		OGB-W
Sulfur Spring	L76981-02B	3/29/2007		3/30/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	5.9	1	mg/L		ICP-W-dis
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/11/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	8.8	1	mg/L		ICP-W-dis
Sulfur Spring	L76981-02B	3/29/2007		3/31/2007	Aqueous	Sulfate	14808-79-8	5	44	5	mg/L		300.0-W
Sulfur Spring	L76981-02A	3/29/2007		3/30/2007	Aqueous	TDS		1	340	20	mg/L		TDS-W
Sulfur Spring	L76981-02A	3/29/2007		3/30/2007	Aqueous	TSS		1	4.0	3	mg/L		TSS-W
Sulfur Spring	L76981-02F	3/29/2007	4/2/2007	4/6/2007	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L77519-02B	4/25/2007		4/30/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W
Sulfur Spring	L77519-02B	4/25/2007		4/30/2007	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L77519-02C	4/25/2007	5/1/2007	5/2/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Arsenic	7440-38-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L77519-02B	4/25/2007		4/30/2007	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Cadmium	7440-43-9	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	90	10	mg/L	*	ICP-W-dis
Sulfur Spring	L77519-02B	4/25/2007		4/30/2007	Aqueous	Carbonate (As CaCO3)		1	0	20	mg/L		2320B-ALK-W
Sulfur Spring	L77519-02B	4/25/2007		4/29/2007	Aqueous	Chloride	16887-00-6	1	6.6	1	mg/L		300.0-W
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Copper	7440-50-8	1	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L77519-02F	4/25/2007		5/9/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	370	10	mg/L		HARD
Sulfur Spring	L77519-02E	4/25/2007	5/4/2007	5/9/2007	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Lead	7439-92-1	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-dis
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Manganese	7439-96-5	1	0.031	0.005	mg/L		6020-W-DISS
Sulfur Spring	L77519-02E	4/25/2007	5/4/2007	5/9/2007	Aqueous	Manganese	7439-96-5	1	0.029	0.005	mg/L		ICP-W
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L77519-02B	4/25/2007		4/27/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L77519-02B	4/25/2007		4/27/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L77519-02D	4/25/2007		5/3/2007	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Sulfur Spring	L77519-02B	4/25/2007		4/27/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	4.9	1	mg/L		ICP-W-dis
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Selenium	7782-49-2	1	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/9/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	8.5	1	mg/L		ICP-W-dis
Sulfur Spring	L77519-02B	4/25/2007		4/29/2007	Aqueous	Sulfate	14808-79-8	10	45	10	mg/L		300.0-W
Sulfur Spring	L77519-02A	4/25/2007		4/30/2007	Aqueous	TDS		1	380	20	mg/L		TDS-W
Sulfur Spring	L77519-02A	4/25/2007		4/27/2007	Aqueous	TSS		1	0	3	mg/L		TSS-W
Sulfur Spring	L77519-02F	4/25/2007	4/30/2007	5/2/2007	Aqueous-Dissolved	Zinc	7440-66-6	1	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L78061-02B	5/29/2007		6/4/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	L78061-02B	5/29/2007		6/4/2007	Aqueous	Alkalinity,(As CaCO3)		1	330	20	mg/L		2320B-ALK-W
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L78061-02C	5/29/2007	6/1/2007	6/6/2007	Aqueous	Ammonia (as N)		1	0.093	0.05	mg/L	[1]	NH3-W
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L78061-02B	5/29/2007		6/4/2007	Aqueous	Bicarbonate (As CaCO3)		1	330	20	mg/L		2320B-ALK-W
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	94	10	mg/L	*	ICP-W-dis
Sulfur Spring	L78061-02B	5/29/2007		6/4/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L78061-02B	5/29/2007		5/30/2007	Aqueous	Chloride	16887-00-6	1	6.4	1	mg/L		300.0-W
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L78061-02F	5/29/2007		6/12/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	390	10	mg/L		HARD
Sulfur Spring	L78061-02E	5/29/2007	6/5/2007	6/12/2007	Aqueous	Iron	7439-89-6	1	0.054	0.05	mg/L		ICP-W
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	37	1	mg/L		ICP-W-dis
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.029	0.005	mg/L		6020-W-DISS
Sulfur Spring	L78061-02E	5/29/2007	6/5/2007	6/12/2007	Aqueous	Manganese	7439-96-5	1	0.027	0.005	mg/L		ICP-W
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L78061-02B	5/29/2007		5/30/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L78061-02B	5/29/2007		5/30/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L78061-02D	5/29/2007		6/1/2007	Aqueous	Oil & Grease		1	5.3	3	mg/L		OGB-W
Sulfur Spring	L78061-02B	5/29/2007		5/31/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	4.3	1	mg/L		ICP-W-dis
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L78061-02A	5/29/2007		5/30/2007	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/12/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	7.4	1	mg/L		ICP-W-dis
Sulfur Spring	L78061-02B	5/29/2007		5/31/2007	Aqueous	Sulfate	14808-79-8	10	46	10	mg/L		300.0-W
Sulfur Spring	L78061-02A	5/29/2007		6/1/2007	Aqueous	TDS		1	380	20	mg/L		TDS-W
Sulfur Spring	L78061-02A	5/29/2007		5/30/2007	Aqueous	TSS		1	0	3	mg/L		TSS-W-2540D
Sulfur Spring	L78061-02F	5/29/2007	5/31/2007	6/1/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0	0.01	mg/L		6020-W-DISS
Sulfur Spring	L78574-02B	6/25/2007		6/28/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	L78574-02B	6/25/2007		6/28/2007	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L78574-02C	6/25/2007	6/28/2007	6/29/2007	Aqueous	Ammonia (as N)		1	0.060	0.05	mg/L		NH3-W
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L78574-02B	6/25/2007		6/28/2007	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	83	10	mg/L	*	ICP-W-dis
Sulfur Spring	L78574-02B	6/25/2007		6/28/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L78574-02B	6/25/2007		7/9/2007	Aqueous	Chloride	16887-00-6	2	7.2	2	mg/L		300.0-W
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0.0046	0.004	mg/L		6020-W-DISS
Sulfur Spring	L78574-02F	6/25/2007		7/2/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	340	10	mg/L		HARD
Sulfur Spring	L78574-02E	6/25/2007	6/27/2007	7/2/2007	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Magnesium	7439-95-4	10	33	10	mg/L	*	ICP-W-dis
Sulfur Spring	L78574-02E	6/25/2007	6/27/2007	7/2/2007	Aqueous	Manganese	7439-96-5	1	0.029	0.005	mg/L		ICP-W
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.039	0.005	mg/L		6020-W-DISS
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L78574-02B	6/25/2007		6/28/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L	H	NO3-W
Sulfur Spring	L78574-02B	6/25/2007		6/28/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	H	NO2-W
Sulfur Spring	L78574-02D	6/25/2007		7/5/2007	Aqueous	Oil & Grease		1	4.8	3	mg/L		OGB-W
Sulfur Spring	L78574-02B	6/25/2007		6/27/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	4.3	1	mg/L		ICP-W-dis
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L78574-02A	6/25/2007		6/27/2007	Aqueous	Settleable Solids		1	0	0.1	mL/L		SS-W-2540F
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/2/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	16	1	mg/L		ICP-W-dis
Sulfur Spring	L78574-02B	6/25/2007		7/7/2007	Aqueous	Sulfate	14808-79-8	10	46	10	mg/L		300.0-W
Sulfur Spring	L78574-02A	6/25/2007		6/27/2007	Aqueous	TDS		1	360	20	mg/L		TDS-W
Sulfur Spring	L78574-02A	6/25/2007		6/27/2007	Aqueous	TSS		1	0	3	mg/L		TSS-W-2540D
Sulfur Spring	L78574-02F	6/25/2007	6/28/2007	7/9/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0.020	0.01	mg/L		6020-W-DISS
Sulfur Spring	L79156-01B	7/30/2007		8/6/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	L79156-01B	7/30/2007		8/3/2007	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L79156-01C	7/30/2007	8/2/2007	8/3/2007	Aqueous	Ammonia (as N)		1	0	0.05	mg/L		NH3-W
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Arsenic	7440-38-2	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L79156-01B	7/30/2007		8/3/2007	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Cadmium	7440-43-9	5	0	0.004	mg/L		6020-W-DISS
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	89	10	mg/L	*	ICP-W-dis
Sulfur Spring	L79156-01B	7/30/2007		8/3/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L79156-01B	7/30/2007		8/11/2007	Aqueous	Chloride	16887-00-6	5	6.3	5	mg/L		300.0-W
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Copper	7440-50-8	5	0.0090	0.004	mg/L		6020-W-DISS
Sulfur Spring	L79156-01F	7/30/2007		8/10/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	370	10	mg/L		HARD
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L79156-01E	7/30/2007	8/2/2007	8/7/2007	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Lead	7439-92-1	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Magnesium	7439-95-4	10	35	10	mg/L	*	ICP-W-dis
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Manganese	7439-96-5	5	0.038	0.005	mg/L		6020-W-DISS
Sulfur Spring	L79156-01E	7/30/2007	8/2/2007	8/7/2007	Aqueous	Manganese	7439-96-5	1	0.031	0.005	mg/L		ICP-W
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L79156-01B	7/30/2007		8/2/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L	H	NO3-W
Sulfur Spring	L79156-01B	7/30/2007		8/2/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L	[1]H	NO2-W
Sulfur Spring	L79156-01D	7/30/2007		8/6/2007	Aqueous	Oil & Grease		1	3.7	3	mg/L		OGB-W
Sulfur Spring	L79156-01B	7/30/2007		8/2/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	[1]H	PO4-O
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	4.9	1	mg/L		ICP-W-dis
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Selenium	7782-49-2	5	0	0.005	mg/L		6020-W-DISS
Sulfur Spring	L79156-01A	7/30/2007		8/2/2007	Aqueous	Settleable Solids		1	0	0.1	ml/L	H	SS-W-2540F
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/10/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	8.5	1	mg/L		ICP-W-dis
Sulfur Spring	L79156-01B	7/30/2007		8/11/2007	Aqueous	Sulfate	14808-79-8	5	47	5	mg/L		300.0-W
Sulfur Spring	L79156-01A	7/30/2007		8/3/2007	Aqueous	TDS		1	390	10	mg/L		TDS-W
Sulfur Spring	L79156-01A	7/30/2007		8/2/2007	Aqueous	TSS		1	0	3	mg/L		TSS-W-2540D
Sulfur Spring	L79156-01F	7/30/2007	8/3/2007	8/6/2007	Aqueous-Dissolved	Zinc	7440-66-6	5	0.018	0.01	mg/L		6020-W-DISS
Sulfur Spring	L81026-02B	11/12/2007		11/15/2007	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	L81026-02B	11/12/2007		11/15/2007	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L81026-02C	11/12/2007	11/15/2007	11/15/2007	Aqueous	Ammonia (as N)		1	0.085	0.05	mg/L		NH3-W
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Sulfur Spring	L81026-02B	11/12/2007		11/15/2007	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Calcium	7440-70-2	10	86	10	mg/L	#	ICP-W-dis
Sulfur Spring	L81026-02B	11/12/2007		11/15/2007	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L81026-02B	11/12/2007		11/21/2007	Aqueous	Chloride	16887-00-6	5	6.0	5	mg/L		300.0-W
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Copper	7440-50-8	20	0.0012	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L81026-02F	11/12/2007		11/27/2007	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	360	10	mg/L		HARD

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L81026-02E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0001	mg/L		6020-W-DISS
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-dis
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Manganese	7439-96-5	20	0.028	0.0012	mg/L		6020-W-DISS
Sulfur Spring	L81026-02E	11/12/2007	11/15/2007	11/27/2007	Aqueous	Manganese	7439-96-5	1	0.028	0.005	mg/L		ICP-W
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L81026-02B	11/12/2007		11/14/2007	Aqueous	Nitrate (as N)		1	0	0.01	mg/L	1	NO3-W
Sulfur Spring	L81026-02B	11/12/2007		11/14/2007	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L81026-02D	11/12/2007		11/18/2007	Aqueous	Oil & Grease		1	4.2	3	mg/L		OGB-W
Sulfur Spring	L81026-02B	11/12/2007		11/14/2007	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Potassium	7440-09-7	1	4.4	1	mg/L		ICP-W-dis
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L81026-02A	11/12/2007		11/14/2007	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/27/2007	Aqueous-Dissolved	Sodium	7440-23-5	1	8.8	1	mg/L		ICP-W-dis
Sulfur Spring	L81026-02B	11/12/2007		11/21/2007	Aqueous	Sulfate	14808-79-8	5	43	5	mg/L		300.0-W
Sulfur Spring	L81026-02A	11/12/2007		11/14/2007	Aqueous	TDS		1	440	20	mg/L		TDS-W
Sulfur Spring	L81026-02A	11/12/2007		11/14/2007	Aqueous	TSS		1	0	3	mg/L		TSS-W-2540D
Sulfur Spring	L81026-02F	11/12/2007	11/15/2007	11/16/2007	Aqueous-Dissolved	Zinc	7440-66-6	20	0.0064	0.0054	mg/L		6020-W-DISS
Sulfur Spring	L83169-02B	3/25/2008		3/28/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	L83169-02B	3/25/2008		3/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02C	3/25/2008	4/1/2008	4/1/2008	Aqueous	Ammonia (as N)		1	0.077	0.05	mg/L		NH3-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Sulfur Spring	L83169-02B	3/25/2008		3/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	86	10	mg/L	#	ICP-W-dis
Sulfur Spring	L83169-02B	3/25/2008		3/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L83169-02B	3/25/2008		3/30/2008	Aqueous	Chloride	16887-00-6	10	9.3	1	mg/L		300.0-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0015	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L83169-02F	3/25/2008		4/2/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	360	10	mg/L		HARD
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L83169-02E	3/25/2008	4/10/2008	4/10/2008	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.032	0.0012	mg/L		6020-W-DISS
Sulfur Spring	L83169-02E	3/25/2008	4/10/2008	4/10/2008	Aqueous	Manganese	7439-96-5	1	0.033	0.005	mg/L		ICP-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02B	3/25/2008		3/27/2008	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L83169-02B	3/25/2008		3/27/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L83169-02D	3/25/2008		3/31/2008	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Sulfur Spring	L83169-02B	3/25/2008		3/27/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	4.8	1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L83169-02A	3/25/2008		3/27/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	10	1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02B	3/25/2008		3/30/2008	Aqueous	Sulfate	14808-79-8	10	44	7.5	mg/L		300.0-W
Sulfur Spring	L83169-02A	3/25/2008		3/28/2008	Aqueous	TDS		1	400	20	mg/L		TDS-W
Sulfur Spring	L83169-02A	3/25/2008		3/27/2008	Aqueous	TSS		1	0	3	mg/L		TSS-W-2540D
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Sulfur Spring	L83169-02B	3/25/2008		3/28/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	L83169-02B	3/25/2008		3/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02C	3/25/2008	4/1/2008	4/1/2008	Aqueous	Ammonia (as N)		1	0.077	0.05	mg/L		NH3-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Sulfur Spring	L83169-02B	3/25/2008		3/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	86	10	mg/L	#	ICP-W-dis
Sulfur Spring	L83169-02B	3/25/2008		3/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L83169-02B	3/25/2008		3/30/2008	Aqueous	Chloride	16887-00-6	10	9.3	1	mg/L		300.0-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0015	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L83169-02F	3/25/2008		4/2/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	360	10	mg/L		HARD
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L83169-02E	3/25/2008	4/10/2008	4/10/2008	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.032	0.0012	mg/L		6020-W-DISS
Sulfur Spring	L83169-02E	3/25/2008	4/10/2008	4/10/2008	Aqueous	Manganese	7439-96-5	1	0.033	0.005	mg/L		ICP-W
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02B	3/25/2008		3/27/2008	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L83169-02B	3/25/2008		3/27/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L83169-02D	3/25/2008		3/31/2008	Aqueous	Oil & Grease		1	0	3	mg/L		OGB-W
Sulfur Spring	L83169-02B	3/25/2008		3/27/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	4.8	1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L83169-02A	3/25/2008		3/27/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	4/2/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	10	1	mg/L		ICP-W-dis
Sulfur Spring	L83169-02B	3/25/2008		3/30/2008	Aqueous	Sulfate	14808-79-8	10	44	7.5	mg/L		300.0-W
Sulfur Spring	L83169-02A	3/25/2008		3/28/2008	Aqueous	TDS		1	400	20	mg/L		TDS-W
Sulfur Spring	L83169-02A	3/25/2008		3/27/2008	Aqueous	TSS		1	0	3	mg/L		TSS-W-2540D
Sulfur Spring	L83169-02F	3/25/2008	3/28/2008	3/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Sulfur Spring	L84608-02B	6/16/2008		6/20/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	L84608-02B	6/16/2008		6/20/2008	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L84608-02C	6/16/2008	6/20/2008	6/25/2008	Aqueous	Ammonia (as N)		1	0.067	0.05	mg/L		NH3-W
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Sulfur Spring	L84608-02B	6/16/2008		6/20/2008	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Calcium	7440-70-2	10	88	10	mg/L	~	ICP-W-dis
Sulfur Spring	L84608-02B	6/16/2008		6/20/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L84608-02B	6/16/2008		6/26/2008	Aqueous	Chloride	16887-00-6	5	6.1	0.5	mg/L		300.0-W
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Copper	7440-50-8	20	0.0011	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L84608-02F	6/16/2008		6/18/2008	Aqueous Dissolved	Hardness (as CaCO3)	471-34-1	1	360	10	mg/L		HARD
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L84608-02E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Magnesium	7439-95-4	1	35	1	mg/L		ICP-W-dis
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Manganese	7439-96-5	20	0.028	0.0012	mg/L		6020-W-DISS
Sulfur Spring	L84608-02E	6/16/2008	6/20/2008	6/27/2008	Aqueous	Manganese	7439-96-5	1	0.027	0.005	mg/L		ICP-W
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L84608-02B	6/16/2008		6/18/2008	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L84608-02B	6/16/2008		6/18/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L84608-02D	6/16/2008		6/18/2008	Aqueous	Oil & Grease		1	540	3	mg/L	*	OGB-W
Sulfur Spring	L84608-02B	6/16/2008		6/18/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L		PO4-O
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Potassium	7440-09-7	1	5.0	1	mg/L		ICP-W-dis
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L84608-02A	6/16/2008		6/18/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/18/2008	Aqueous Dissolved	Sodium	7440-23-5	1	8.7	1	mg/L		ICP-W-dis
Sulfur Spring	L84608-02B	6/16/2008		6/26/2008	Aqueous	Sulfate	14808-79-8	5	46	3.8	mg/L		300.0-W
Sulfur Spring	L84608-02A	6/16/2008		6/19/2008	Aqueous	TDS		1	390	20	mg/L		TDS-W
Sulfur Spring	L84608-02A	6/16/2008		6/18/2008	Aqueous	TSS		1	6.0	3	mg/L		TSS-W-2540D
Sulfur Spring	L84608-02F	6/16/2008	6/18/2008	6/19/2008	Aqueous Dissolved	Zinc	7440-66-6	20	0.011	0.0054	mg/L		6020-W-DISS
Sulfur Spring	L85972-02B	8/26/2008		8/29/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	L85972-02B	8/26/2008		8/28/2008	Aqueous	Alkalinity,(As CaCO3)		1	350	20	mg/L		2320B-ALK-W
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L85972-02D	8/26/2008	8/28/2008	8/29/2008	Aqueous	Ammonia (as N)		1	0.090	0.05	mg/L		NH3-W
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Sulfur Spring	L85972-02B	8/26/2008		8/28/2008	Aqueous	Bicarbonate (As CaCO3)		1	350	20	mg/L		2320B-ALK-W
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	88	10	mg/L	~	ICP-W-dis
Sulfur Spring	L85972-02B	8/26/2008		8/28/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L85972-02B	8/26/2008		8/28/2008	Aqueous	Chloride	16887-00-6	1	7.7	0.1	mg/L		300.0-W
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0.0011	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L85972-02E	8/26/2008		9/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	360	10	mg/L		HARD
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L85972-02F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Iron	7439-89-6	1	0.073	0.05	mg/L		ICP-W
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	35	1	mg/L		ICP-W-dis
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.036	0.0012	mg/L		6020-W-DISS
Sulfur Spring	L85972-02F	8/26/2008	8/28/2008	9/5/2008	Aqueous	Manganese	7439-96-5	1	0.035	0.005	mg/L		ICP-W
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L85972-02B	8/26/2008		8/28/2008	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L85972-02B	8/26/2008		8/28/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L85972-02C	8/26/2008		9/5/2008	Aqueous	Oil & Grease		1	3.8	3	mg/L		OGB-W
Sulfur Spring	L85972-02B	8/26/2008		8/28/2008	Aqueous	Phosphorus, Orthophosphate (as P	7723-14-0	1	0	0.1	mg/L		300.0-W
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	5.2	1	mg/L		ICP-W-dis
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L85972-02A	8/26/2008		8/28/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	9/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	9.0	1	mg/L		ICP-W-dis
Sulfur Spring	L85972-02B	8/26/2008		8/28/2008	Aqueous	Sulfate	14808-79-8	20	43	15	mg/L		300.0-W
Sulfur Spring	L85972-02A	8/26/2008		8/28/2008	Aqueous	TDS		1	420	20	mg/L		TDS-W
Sulfur Spring	L85972-02A	8/26/2008		8/28/2008	Aqueous	TSS		1	3.0	3	mg/L	#	TSS-W-2540D
Sulfur Spring	L85972-02E	8/26/2008	8/28/2008	8/28/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0.011	0.0054	mg/L		6020-W-DISS
Sulfur Spring	L87283-02B	10/29/2008		10/31/2008	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	L87283-02B	10/29/2008		10/31/2008	Aqueous	Alkalinity,(As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Aluminum	7429-90-5	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L87283-02D	10/29/2008	11/6/2008	11/7/2008	Aqueous	Ammonia (as N)		1	0.074	0.05	mg/L		NH3-W
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Arsenic	7440-38-2	20	0	0.0006	mg/L		6020-W-DISS
Sulfur Spring	L87283-02B	10/29/2008		10/31/2008	Aqueous	Bicarbonate (As CaCO3)		1	340	20	mg/L		2320B-ALK-W
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Boron	7440-42-8	1	0	0.5	mg/L		ICP-W-dis
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-W-DISS
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Calcium	7440-70-2	10	89	10	mg/L	~	ICP-W-dis
Sulfur Spring	L87283-02B	10/29/2008		10/31/2008	Aqueous	Carbonate (As CaCO3)		1	0	10	mg/L		2320B-ALK-W
Sulfur Spring	L87283-02B	10/29/2008		11/11/2008	Aqueous	Chloride	16887-00-6	5	6.5	0.5	mg/L		300.0-W
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Copper	7440-50-8	20	0	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L87283-02E	10/29/2008		11/5/2008	Aqueous-Dissolved	Hardness (as CaCO3)	471-34-1	1	370	10	mg/L		HARD
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W-dis
Sulfur Spring	L87283-02F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Iron	7439-89-6	1	0	0.05	mg/L		ICP-W
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Lead	7439-92-1	20	0	0.0004	mg/L		6020-W-DISS
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Magnesium	7439-95-4	1	36	1	mg/L		ICP-W-dis
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Manganese	7439-96-5	20	0.028	0.0012	mg/L		6020-W-DISS
Sulfur Spring	L87283-02F	10/29/2008	10/31/2008	11/5/2008	Aqueous	Manganese	7439-96-5	1	0.029	0.005	mg/L		ICP-W
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Molybdenum	7439-98-7	1	0	0.1	mg/L		ICP-W-dis
Sulfur Spring	L87283-02B	10/29/2008		10/31/2008	Aqueous	Nitrate (as N)		1	0	0.01	mg/L		NO3-W
Sulfur Spring	L87283-02B	10/29/2008		10/31/2008	Aqueous	Nitrite (as N)		1	0	0.01	mg/L		NO2-W
Sulfur Spring	L87283-02C	10/29/2008		11/2/2008	Aqueous	Oil & Grease		1	4.4	3	mg/L		OGB-W
Sulfur Spring	L87283-02B	10/29/2008		10/31/2008	Aqueous	Phosphate, ortho (as P)	7723-14-0	1	0	0.05	mg/L	1	PO4-O
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Potassium	7440-09-7	1	5.0	1	mg/L		ICP-W-dis
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Selenium	7782-49-2	20	0	0.0008	mg/L		6020-W-DISS
Sulfur Spring	L87283-02A	10/29/2008		10/30/2008	Aqueous	Settleable Solids		1	0	0.1	ml/L		SS-W-2540F
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	11/5/2008	Aqueous-Dissolved	Sodium	7440-23-5	1	9.1	1	mg/L		ICP-W-dis
Sulfur Spring	L87283-02B	10/29/2008		11/11/2008	Aqueous	Sulfate	14808-79-8	5	47	3.8	mg/L		300.0-W
Sulfur Spring	L87283-02A	10/29/2008		10/31/2008	Aqueous	TDS		1	390	20	mg/L		TDS-W
Sulfur Spring	L87283-02A	10/29/2008		10/30/2008	Aqueous	TSS		1	0	3	mg/L		TSS-W-2540D

Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print													
Client Samp ID	Samp ID	Collection Date	Prep Date	Anal Date	Matrix	Analyte	CAS	DF	Result	PQL	Units	Qual	Test Code
Sulfur Spring	L87283-02E	10/29/2008	10/31/2008	10/31/2008	Aqueous-Dissolved	Zinc	7440-66-6	20	0	0.0054	mg/L		6020-W-DISS
Sulfur Spring	1006480-002	6/23/2010		6/25/2010	Aqueous	Settleable Solids		1	0	0.10	mL/L		SS-W-2540F
Sulfur Spring	1006480-002	6/23/2010		6/25/2010	Aqueous	Total Dissolved Solids		2	370	20	mg/L		TDS-W-2540C
Sulfur Spring	1006480-002	6/23/2010		6/25/2010	Aqueous	Total Suspended Solids	TSS	1	0	3.0	mg/L		TSS-W-2540D
Sulfur Spring	1006480-002	6/23/2010		6/29/2010	Aqueous	Chloride	16887-00-6	10	6.5	1.0	mg/L		300.0-W
Sulfur Spring	1006480-002	6/23/2010		6/29/2010	Aqueous	Sulfate	14808-79-8	10	44	7.5	mg/L		300.0-W
Sulfur Spring	1006480-002	6/23/2010		6/28/2010	Aqueous	Acidity		1	0	15	mg/L		ACIDITY-W-2310B
Sulfur Spring	1006480-002	6/23/2010		6/28/2010	Aqueous	Alkalinity (as CaCO3)		4	350	40	mg/L		ALK-W-2320B
Sulfur Spring	1006480-002	6/23/2010		6/28/2010	Aqueous	Bicarbonate (as CaCO3)		4	350	40	mg/L		ALK-W-2320B
Sulfur Spring	1006480-002	6/23/2010		6/28/2010	Aqueous	Carbonate (as CaCO3)		4	0	10	mg/L		ALK-W-2320B
Sulfur Spring	1006480-002	6/23/2010		6/25/2010	Aqueous	Nitrite (as N)	14797-65-0	1	0	0.010	mg/L		NO2-W-353.2
Sulfur Spring	1006480-002	6/23/2010		6/25/2010	Aqueous	Nitrate (as N)	14797-55-8	1	0	0.010	mg/L		NO3-W-353.2
Sulfur Spring	1006480-002	6/23/2010		6/25/2010	Aqueous	pH @ 25° C		1	7.30	1.00	pH Units	H	PH-4500H+B
Sulfur Spring	1006480-002	6/23/2010		6/25/2010	Aqueous	Phosphate, Total Ortho (as P)	7723-14-0	1	0	0.050	mg/L		PO4-O-365.1
Sulfur Spring	1006480-002	6/23/2010		6/30/2010	Aqueous	Oil & Grease		1	0	3.0	mg/L		OGB-W-1664A
Sulfur Spring	1006480-002	6/23/2010	6/28/2010	6/29/2010	Aqueous	Ammonia (as N)	7664-41-7	1	0.21	0.050	mg/L		NH3-W-350.1
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Aluminum	7429-90-5	1	0	0.10	mg/L		6010C-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Boron	7440-42-8	1	0	0.50	mg/L		6010C-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Calcium	7440-70-2	10	86	10	mg/L		6010C-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	0	0.10	mg/L		6010C-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Magnesium	7439-95-4	1	35	1.0	mg/L	[1]	6010C-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Molybdenum	7439-98-7	1	0	0.020	mg/L		6010C-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Potassium	7440-09-7	1	5.0	1.0	mg/L		6010C-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Sodium	7440-23-5	1	8.5	1.0	mg/L		6010C-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Arsenic	7440-38-2	20	0	0.00060	mg/L		6020-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Cadmium	7440-43-9	20	0	0.00018	mg/L		6020-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Copper	7440-50-8	20	0	0.00080	mg/L		6020-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Lead	7439-92-1	20	0	0.00040	mg/L		6020-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Manganese	7439-96-5	20	0.030	0.0012	mg/L		6020-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Selenium	7782-49-2	20	0	0.00080	mg/L		6020-DIS
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Zinc	7440-66-6	20	0	0.0050	mg/L		6020-DIS
Sulfur Spring	1006480-002	6/23/2010		6/28/2010	Aqueous	Hardness (as CaCO3)		10	360	100	mg/L		HARD-2340B
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/28/2010	Aqueous	Iron	7439-89-6	1	0	0.10	mg/L		6010C-W
Sulfur Spring	1006480-002	6/23/2010	6/25/2010	6/25/2010	Aqueous	Manganese	7439-96-5	20	0.029	0.0012	mg/L		6020-W

EXHIBIT 12

SURFACE AND GROUNDWATER QUALITY DATA
(5-5-2009 Thru 8-31-2010)

AWAL Labs
Individual Analyses Sheet
1,022 Pages

Carbon Resources Kinney # 2 Mine

INORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-01C

Field Sample ID:
Eagle Outlet

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/19/2005 12:56:14 PM	6010B	0.050	**2.3** [1]
Manganese	mg/L	5/19/2005 1:31:48 PM	6020	0.0050	**0.16**

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-02C

Field Sample ID:
Eagle Springs

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/19/2005 1:12:51 PM	6010B	0.050	**1.1**
Manganese	mg/L	5/19/2005 1:51:47 PM	6020	0.0050	**0.018**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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Laboratory Supervisor

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e-mail: awal@awal-Labs.com

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-03C

Field Sample ID:
Sulfer Springs

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/19/2005 1:17:32 PM	6010B	0.050	< 0.050
Manganese	mg/L	5/19/2005 1:56:46 PM	6020	0.0050	**0.17**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: Kyle F. Gross
Laboratory Supervisor

Report Date: May 23, 2005

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84115

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Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-04C

Field Sample ID:
Muddy Creek

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/19/2005 1:21:30 PM	6010B	0.050	**0.84**
Manganese	mg/L	5/19/2005 2:01:46 PM	6020	0.0050	**0.094**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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Laboratory Supervisor

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-01D

Field Sample ID:
Eagle Outlet

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/19/2005 12:02:40 PM	6010B	0.10	< 0.10
Arsenic	mg/L	5/17/2005 4:22:25 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/19/2005 12:02:40 PM	6010B	0.50	< 0.50
Cadmium	mg/L	5/17/2005 4:22:25 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/19/2005 12:02:40 PM	6010B	10	**92** [1]
Copper	mg/L	5/17/2005 4:22:25 PM	6020	0.0040	< 0.0040
Iron	mg/L	5/19/2005 12:02:40 PM	6010B	0.050	< 0.050
Lead	mg/L	5/17/2005 4:22:25 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/19/2005 12:02:40 PM	6010B	1.0	**18**
Manganese	mg/L	5/17/2005 4:22:25 PM	6020	0.0050	**0.075**
Molybdenum	mg/L	5/19/2005 12:02:40 PM	6010B	0.10	< 0.10
Potassium	mg/L	5/19/2005 12:02:40 PM	6010B	1.0	**2.6**
Selenium	mg/L	5/17/2005 4:22:25 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/19/2005 12:02:40 PM	6010B	1.0	**11** [1]
Zinc	mg/L	5/17/2005 4:22:25 PM	6020	0.010	< 0.010

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005

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Laboratory Director

Peggy McNicol
QA Officer

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-02D

Field Sample ID:
Eagle Springs

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/19/2005 12:18:40 PM	6010B	0.10	**0.94**
Arsenic	mg/L	5/17/2005 4:42:22 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/19/2005 12:18:40 PM	6010B	0.50	< 0.50
Cadmium	mg/L	5/17/2005 4:42:22 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/19/2005 12:18:40 PM	6010B	1.0	**15**
Copper	mg/L	5/17/2005 4:42:22 PM	6020	0.0040	**0.0057**
Iron	mg/L	5/19/2005 12:18:40 PM	6010B	0.050	**0.75**
Lead	mg/L	5/17/2005 4:42:22 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/19/2005 12:18:40 PM	6010B	1.0	**3.5**
Manganese	mg/L	5/17/2005 4:42:22 PM	6020	0.0050	**0.017**
Molybdenum	mg/L	5/19/2005 12:18:40 PM	6010B	0.10	< 0.10
Potassium	mg/L	5/19/2005 12:18:40 PM	6010B	1.0	**4.5**
Selenium	mg/L	5/17/2005 4:42:22 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/19/2005 12:18:40 PM	6010B	1.0	**4.4**
Zinc	mg/L	5/17/2005 4:42:22 PM	6020	0.010	**0.016**

Released by: _____
Laboratory Supervisor

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Kyle F. Gross
Laboratory Director

Peggy McNicol
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Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-03D

Field Sample ID:
Sulfer Springs

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/19/2005 12:22:33 PM	6010B	0.10	< 0.10
Arsenic	mg/L	5/17/2005 4:47:22 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/19/2005 12:22:33 PM	6010B	0.50	< 0.50
Cadmium	mg/L	5/17/2005 4:47:22 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/19/2005 12:22:33 PM	6010B	10	**87**
Copper	mg/L	5/17/2005 4:47:22 PM	6020	0.0040	**0.0077**
Iron	mg/L	5/19/2005 12:22:33 PM	6010B	0.050	< 0.050
Lead	mg/L	5/17/2005 4:47:22 PM	6020	0.0050	**0.0057**
Magnesium	mg/L	5/19/2005 12:22:33 PM	6010B	10	**35**
Manganese	mg/L	5/17/2005 4:47:22 PM	6020	0.0050	**0.16**
Molybdenum	mg/L	5/19/2005 12:22:33 PM	6010B	0.10	< 0.10
Potassium	mg/L	5/19/2005 12:22:33 PM	6010B	1.0	**5.0**
Selenium	mg/L	5/17/2005 4:47:22 PM	6020	0.0050	**0.0075**
Sodium	mg/L	5/19/2005 12:22:33 PM	6010B	1.0	**8.6**
Zinc	mg/L	5/17/2005 4:47:22 PM	6020	0.010	**0.012**

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005

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INORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-04D

Field Sample ID:
Muddy Creek

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/19/2005 12:26:27 PM	6010B	0.10	< 0.10
Arsenic	mg/L	5/17/2005 4:52:21 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/19/2005 12:26:27 PM	6010B	0.50	< 0.50
Cadmium	mg/L	5/17/2005 4:52:21 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/19/2005 12:26:27 PM	6010B	10	**81**
Copper	mg/L	5/17/2005 4:52:21 PM	6020	0.0040	< 0.0040
Iron	mg/L	5/19/2005 12:26:27 PM	6010B	0.050	< 0.050
Lead	mg/L	5/17/2005 4:52:21 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/19/2005 12:26:27 PM	6010B	10	**35**
Manganese	mg/L	5/17/2005 4:52:21 PM	6020	0.0050	**0.089**
Molybdenum	mg/L	5/19/2005 12:26:27 PM	6010B	0.10	< 0.10
Potassium	mg/L	5/19/2005 12:26:27 PM	6010B	1.0	**5.2**
Selenium	mg/L	5/17/2005 4:52:21 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/19/2005 12:26:27 PM	6010B	10	**37**
Zinc	mg/L	5/17/2005 4:52:21 PM	6020	0.010	< 0.010

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005

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INORGANIC ANALYSIS REPORT

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-01

Field Sample ID:
Eagle Outlet

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	05/11/05	305.1	15	**86**
Alkalinity,(As CaCO3)	mg/L	05/11/05	2320B	10	**260**
Ammonia (as N)	mg/L	05/12/05	350.1	0.050	**0.055**
Bicarbonate (As CaCO3)	mg/L	05/11/05	2320B	10	**260**
Carbonate (As CaCO3)	mg/L	05/11/05	2320B	10	< 10
Chloride	mg/L	05/18/05 2:54 am	300.0	10	**13**
Hardness (as CaCO3)	mg/L	05/20/05	2340B	10	**310**
Nitrate (as N)	mg/L	05/11/05 9:05 am	353.2	0.010	**0.023**
Nitrite (as N)	mg/L	05/11/05 9:05 am	353.2	0.010	< 0.010
Oil & Grease	mg/L	05/11/05	EPA 1664	3.0	**3.5**
Phosphate, ortho (as P)	mg/L	05/11/05 7:29 am	365.1	0.050	< 0.050
Settable Solids	ml/L	05/10/05 1:15 pm	2540F	0.10	**0.20**
Sulfate	mg/L	05/18/05 2:54 am	300.0	10	**42**
TDS	mg/L	05/10/05	160.1	10	**330**
TSS	mg/L	05/10/05	160.2	3.0	**150**

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-02

Field Sample ID:
Eagle Springs

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	05/11/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	05/11/05	2320B	10	**46**
Ammonia (as N)	mg/L	05/12/05	350.1	0.050	**0.082**
Bicarbonate (As CaCO3)	mg/L	05/11/05	2320B	10	**46**
Carbonate (As CaCO3)	mg/L	05/11/05	2320B	10	< 10
Chloride	mg/L	05/18/05 4:01 am	300.0	1.0	**5.0**
Hardness (as CaCO3)	mg/L	05/20/05	2340B	10	**55**
Nitrate (as N)	mg/L	05/11/05 9:05 am	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	05/11/05 9:05 am	353.2	0.010	**0.010**
Oil & Grease	mg/L	05/11/05	EPA 1664	3.0	**3.3**
Phosphate, ortho (as P)	mg/L	05/11/05 7:29 am	365.1	0.050	**0.13**
Settable Solids	ml/L	05/10/05 1:15 pm	2540F	0.10	ND
Sulfate	mg/L	05/18/05 4:01 am	300.0	1.0	**6.2**
TDS	mg/L	05/10/05	160.1	10	**120**
TSS	mg/L	05/10/05	160.2	3.0	**8.0**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005

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INORGANIC ANALYSIS REPORT

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-03

Field Sample ID:
Sulfer Springs

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	05/11/05	305.1	15	**80**
Alkalinity,(As CaCO3)	mg/L	05/11/05	2320B	10	**350**
Ammonia (as N)	mg/L	05/12/05	350.1	0.050	**0.10**
Bicarbonate (As CaCO3)	mg/L	05/11/05	2320B	10	**350**
Carbonate (As CaCO3)	mg/L	05/11/05	2320B	10	< 10
Chloride	mg/L	05/18/05 4:34 am	300.0	1.0	**6.6**
Hardness (as CaCO3)	mg/L	05/20/05	2340B	10	**350**
Nitrate (as N)	mg/L	05/11/05 9:05 am	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	05/11/05 9:05 am	353.2	0.010	< 0.010
Oil & Grease	mg/L	05/11/05	EPA 1664	3.0	**3.8**
Phosphate, ortho (as P)	mg/L	05/11/05 7:29 am	365.1	0.050	< 0.050
Settable Solids	ml/L	05/10/05 1:15 pm	2540F	0.10	ND
Sulfate	mg/L	05/18/05 4:34 am	300.0	10	**43**
TDS	mg/L	05/10/05	160.1	10	**390**
TSS	mg/L	05/10/05	160.2	3.0	< 3.0

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005

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84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-04

Field Sample ID:
Muddy Creek

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	05/11/05	305.1	15	**68**
Alkalinity,(As CaCO3)	mg/L	05/11/05	2320B	10	**230**
Ammonia (as N)	mg/L	05/12/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	05/11/05	2320B	10	**220**
Carbonate (As CaCO3)	mg/L	05/11/05	2320B	10	**11**
Chloride	mg/L	05/18/05 5:41 am	300.0	10	**27**
Hardness (as CaCO3)	mg/L	05/20/05	2340B	10	**350**
Nitrate (as N)	mg/L	05/11/05 9:05 am	353.2	0.010	**0.70**
Nitrite (as N)	mg/L	05/11/05 9:05 am	353.2	0.010	< 0.010
Oil & Grease	mg/L	05/11/05	EPA 1664	3.0	**3.9**
Phosphate, ortho (as P)	mg/L	05/11/05 7:29 am	365.1	0.050	< 0.050
Settable Solids	ml/L	05/10/05 1:15 pm	2540F	0.10	**0.10**
Sulfate	mg/L	05/17/05 12:00 am	300.0	100	**120**
TDS	mg/L	05/10/05	160.1	10	**500**
TSS	mg/L	05/10/05	160.2	3.0	**52**

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005

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American West Analytical Labs

WORK ORDER Summary

10-May-05

Work Order L65736

Client ID: WALKIN

Project: Wiskey Creek / Scofield Baseline **QC Level:** QC 1 HOK

Comments:

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage
L65736-01A	Eagle Outlet	5/9/2005 12:30:00 PM	5/10/2005	5/24/2005	Aqueous	SS	ww
				5/24/2005		TDS-W	ww
				5/24/2005		TSS-W	ww
L65736-01B				5/24/2005		2320B-ALK-W	may 10 - wc
				5/24/2005		300.0-W	may 10 - wc
				5/24/2005		ACIDITY-W	may 10 - wc
				5/24/2005		NO2-W	may 10 - wc
				5/24/2005		NO3-W	may 10 - wc
				5/24/2005		PO4-O	may 10 - wc
L65736-01C				5/24/2005		3005A-ICPMS	may 10 - metal
				5/24/2005		6020-W	may 10 - metal
				5/24/2005		ICP-W	may 10 - metal
L65736-01D				5/24/2005	queous-Dissolve	3005A-Diss	may 10 - dis m
				5/24/2005		6020-W-DISS	may 10 - dis m
				5/24/2005		HARD	may 10 - dis m
				5/24/2005		ICP-W-DIS	may 10 - dis m
L65736-01E				5/24/2005	Aqueous	OGB-W	ogb
L65736-01F				5/24/2005		NH3-W	may 10 - nh3
				5/24/2005		NH3-W-PREP	may 10 - nh3
L65736-02A	Eagle Springs	5/9/2005 12:45:00 PM		5/24/2005		SS	ww
				5/24/2005		TDS-W	ww
				5/24/2005		TSS-W	ww
L65736-02B				5/24/2005		2320B-ALK-W	may 10 - wc
				5/24/2005		300.0-W	may 10 - wc
				5/24/2005		ACIDITY-W	may 10 - wc
				5/24/2005		NO2-W	may 10 - wc
				5/24/2005		NO3-W	may 10 - wc

WORK ORDER Summary

10-May-05

Work Order L65736

Client ID: WALKIN

Project: Wiskey Creek / Scofield Baseline **QC Level:** QC 1

Comments:

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage
L65736-02B	Eagle Springs	5/9/2005 12:45:00 PM	5/10/2005	5/24/2005	Aqueous	PO4-O	may 10 - wc
L65736-02C				5/24/2005		3005A-ICPMS	may 10 - metal
				5/24/2005		6020-W	may 10 - metal
				5/24/2005		ICP-W	may 10 - metal
L65736-02D				5/24/2005	Aqueous-Dissolve	3005A-Diss	may 10 - dis m
				5/24/2005		6020-W-DISS	may 10 - dis m
				5/24/2005		HARD	may 10 - dis m
				5/24/2005		ICP-W-DIS	may 10 - dis m
L65736-02E				5/24/2005	Aqueous	OGB-W	ogb
L65736-02F				5/24/2005		NH3-W	may 10 - nh3
				5/24/2005		NH3-W-PREP	may 10 - nh3
L65736-03A	Sulfer Springs	5/9/2005 1:30:00 PM		5/24/2005		SS	ww
				5/24/2005		TDS-W	ww
				5/24/2005		TSS-W	ww
L65736-03B				5/24/2005		2320B-ALK-W	may 10 - wc
				5/24/2005		300.0-W	may 10 - wc
				5/24/2005		ACIDITY-W	may 10 - wc
				5/24/2005		NO2-W	may 10 - wc
				5/24/2005		NO3-W	may 10 - wc
				5/24/2005		PO4-O	may 10 - wc
L65736-03C				5/24/2005		3005A-ICPMS	may 10 - metal
				5/24/2005		6020-W	may 10 - metal
				5/24/2005		ICP-W	may 10 - metal
L65736-03D				5/24/2005	Aqueous-Dissolve	3005A-Diss	may 10 - dis m
				5/24/2005		6020-W-DISS	may 10 - dis m
				5/24/2005		HARD	may 10 - dis m
				5/24/2005		ICP-W-DIS	may 10 - dis m
L65736-03E				5/24/2005	Aqueous	OGB-W	ogb

WORK ORDER Summary

10-May-05

Work Order L65736

Client ID: WALKIN

Project: Wiskey Creek / Scofield Baseline **QC Level:** QC 1

Comments:

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage
L65736-03F	Sulfer Springs	5/9/2005 1:30:00 PM	5/10/2005	5/24/2005	Aqueous	NH3-W	may 10 - nh3
				5/24/2005		NH3-W-PREP	may 10 - nh3
L65736-04A	Muddy Creek	5/9/2005 2:00:00 PM		5/24/2005		SS	ww
				5/24/2005		TDS-W	ww
				5/24/2005		TSS-W	ww
L65736-04B				5/24/2005		2320B-ALK-W	may 10 - wc
				5/24/2005		300.0-W	may 10 - wc
				5/24/2005		ACIDITY-W	may 10 - wc
				5/24/2005		NO2-W	may 10 - wc
				5/24/2005		NO3-W	may 10 - wc
				5/24/2005		PO4-O	may 10 - wc
L65736-04C				5/24/2005		3005A-ICPMS	may 10 - metal
				5/24/2005		6020-W	may 10 - metal
				5/24/2005		ICP-W	may 10 - metal
L65736-04D				5/24/2005	Aqueous-Dissolve	3005A-Diss	may 10 - dis m
				5/24/2005		6020-W-DISS	may 10 - dis m
				5/24/2005		HARD	may 10 - dis m
				5/24/2005		ICP-W-DIS	may 10 - dis m
L65736-04E				5/24/2005	Aqueous	OGB-W	ogb
L65736-04F				5/24/2005		NH3-W	may 10 - nh3
				5/24/2005		NH3-W-PREP	may 10 - nh3

Client Wisley Creek
Address
City State Zip
Phone 970-835-3715 Fax
Contact Brad Lindsay
E-mail boarding-star@hotmail.com
Project Name Scofield Baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 65736
Page 1 of 1

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day Standard
QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Please indicate tests needed below: see table 3 attached	COMMENTS
Eagle Outlook Outlet	5-9-05 / 1230	W	6	✓	
Eagle Springs	5-9-05 / 1245	W	6	✓	
Sutter Spring	5-9-05 / 1330	W	6	✓	
Muddy Creek	5-9-05 / 1400	W	6	✓	

Relinquished By: Signature	Date 5-9-05	Received By: Signature	
PRINT NAME BRAD LINDSAY	Time 15:30	PRINT NAME	
Relinquished By: Signature UPS	Date 5/10/05	Received By: Signature	
PRINT NAME	Time 11:00	PRINT NAME REBEKAH WINKLER	
Relinquished By: Signature	Date	Received By: Signature	
PRINT NAME	Time	PRINT NAME	
Relinquished By: Signature	Date	Received By: Signature	
PRINT NAME	Time	PRINT NAME	

Special Instructions:
5-11-05 Emailed credit ap

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS
2 Ambient or Chilled
Notes:
3 Temperature 7.5°C
4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS		
*	-	Total Dissolved Solids		mg/l
*	-	Total Settleable Solids		(UPDES)
*	-	Total Suspended Solids		mg/l
*	-	Total Hardness ($CaCO_3$)		mg/l
*	-	Total Alkalinity		mg/l
	-	Acidity		mg/l
	-	Aluminum (Dissolved)		mg/l
	-	Arsenic (Dissolved)		mg/l
	-	Boron (Dissolved)[1]		mg/l
*	-	Carbonate		mg/l
*	-	Bicarbonate		mg/l
	-	Cadmium (Dissolved)		mg/l
*	-	Calcium (Dissolved)		mg/l
*	-	Chloride	mg/l	
	-	Copper (Dissolved)		mg/l
*	-	Iron (Dissolved)		mg/l
*	-	Iron (Total)		mg/l
	-	Lead (Dissolved)	mg/l	
*	-	Magnesium (Dissolved)		mg/l
*	-	Manganese (Dissolved)		mg/l
*	-	Manganese (Total)		mg/l
	-	Molybdenum (Dissolved)		mg/l
	-	Ammonia		mg/l
	-	Nitrates		mg/l
	-	Nitrites		mg/l
*	-	Potassium (Dissolved)		mg/l
	-	Phosphates(Ortho)		mg/l
	-	Selenium[1] (Dissolved)		mg/l
*	-	Sodium (Dissolved)		mg/l
*	-	Sulfate		mg/l
	-	Zinc (Dissolved)	mg/l	
*	-	Oil & Grease[2]		mg/l
*	-	Cations		meq/l
*	-	Anions		meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Preservation Check Sheet

Sample Set: 605736

Sample Set Extension and pH

Bottle Type	Preservative	All OK														
Ammonia[1]	pH <2 H_2SO_4	✓														
COD[1]	pH <2 H_2SO_4															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO_3	✓														
NO_2 & NO_3[1]	pH <2 H_2SO_4															
Nutrients[1]	pH <2 H_2SO_4															
O & G	pH <2 HCL	✓														
Phenols[2]	pH <2 H_2SO_4															
Sulfide	pH > 9 NaOH, ZnAC															
TKN[1]	pH <2 H_2SO_4															
TOC[1]	pH <2 H_2SO_4															
TOX[2]	pH <2 H_2SO_4															
T PO4[1]	pH <2 H_2SO_4															
Mixed Analysis[1]	pH <2 H_2SO_4															
Mixed Analysis[2]	pH <2 H_2SO_4															

Procedure:
1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 H_2SO_4 in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 H_2SO_4 in a B.R.

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@xmission.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

November 11, 2005

Brad Lindsay
Carbon Resources
c/o Rock Logic Consulting
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L68520

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 10/31/2005 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-01C
Field Sample ID: **Eagle Outlet**
Collected: 10/31/2005 11:40:00 AM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@xmission.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/9/2005 8:55:22 PM	6010B	0.050	**2.2**
Manganese	mg/L	11/10/2005 12:56:44 PM	6020	0.0050	**0.13**

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-02C
Field Sample ID: **Sulfur Springs**
Collected: 10/31/2005 12:00:00 PM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@xmission.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/9/2005 9:11:13 PM	6010B	0.050	< 0.050
Manganese	mg/L	11/10/2005 1:29:05 PM	6020	0.0050	**0.030**

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-03C
Field Sample ID: **Angle Spring**
Collected: 10/31/2005 12:45:00 PM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@xmission.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/9/2005 9:15:10 PM	6010B	0.050	< 0.050
Manganese	mg/L	11/10/2005 1:34:29 PM	6020	0.0050	< 0.0050

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-04C
Field Sample ID: **Mud Creek**
Collected: 10/31/2005 1:15:00 PM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@xmission.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/9/2005 9:19:08 PM	6010B	0.050	**0.24**
Manganese	mg/L	11/10/2005 1:39:54 PM	6020	0.0050	**0.033**

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-01D
Field Sample ID: **Eagle Outlet**
Collected: 10/31/2005 11:40:00 AM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
e-mail: awal@xmission.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	11/9/2005 8:02:37 PM	6010B	0.10	< 0.10
Arsenic	mg/L	11/10/2005 12:13:34 PM	6020	0.0050	< 0.0050
Boron	mg/L	11/9/2005 8:02:37 PM	6010B	0.50	< 0.50
Cadmium	mg/L	11/10/2005 12:13:34 PM	6020	0.0040	< 0.0040
Calcium	mg/L	11/10/2005 1:31:42 PM	6010B	5.0	**79**
Copper	mg/L	11/10/2005 12:13:34 PM	6020	0.0040	< 0.0040
Iron	mg/L	11/9/2005 8:02:37 PM	6010B	0.050	< 0.050
Lead	mg/L	11/10/2005 12:13:34 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	11/9/2005 8:02:37 PM	6010B	1.0	**17**
Manganese	mg/L	11/10/2005 12:13:34 PM	6020	0.0050	**0.042**
Molybdenum	mg/L	11/9/2005 8:02:37 PM	6010B	0.10	< 0.10
Potassium	mg/L	11/9/2005 8:02:37 PM	6010B	1.0	**2.7**
Selenium	mg/L	11/10/2005 12:13:34 PM	6020	0.0050	< 0.0050
Sodium	mg/L	11/10/2005 1:31:42 PM	6010B	5.0	**6.9**
Zinc	mg/L	11/10/2005 12:13:34 PM	6020	0.010	**0.011**

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-02D
Field Sample ID: **Sulfur Springs**
Collected: 10/31/2005 12:00:00 PM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@xmission.com

Kyle F. Gross
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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	11/9/2005 8:18:22 PM	6010B	0.10	< 0.10
Arsenic	mg/L	11/10/2005 12:35:07 PM	6020	0.0050	< 0.0050
Boron	mg/L	11/9/2005 8:18:22 PM	6010B	0.50	< 0.50
Cadmium	mg/L	11/10/2005 12:35:07 PM	6020	0.0040	< 0.0040
Calcium	mg/L	11/10/2005 1:47:24 PM	6010B	5.0	**88**
Copper	mg/L	11/10/2005 12:35:07 PM	6020	0.0040	< 0.0040
Iron	mg/L	11/9/2005 8:18:22 PM	6010B	0.050	< 0.050
Lead	mg/L	11/10/2005 12:35:07 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	11/9/2005 8:18:22 PM	6010B	1.0	**36**
Manganese	mg/L	11/10/2005 12:35:07 PM	6020	0.0050	**0.029**
Molybdenum	mg/L	11/9/2005 8:18:22 PM	6010B	0.10	< 0.10
Potassium	mg/L	11/9/2005 8:18:22 PM	6010B	1.0	**5.0**
Selenium	mg/L	11/10/2005 12:35:07 PM	6020	0.0050	< 0.0050
Sodium	mg/L	11/10/2005 1:47:24 PM	6010B	5.0	**8.9**
Zinc	mg/L	11/10/2005 12:35:07 PM	6020	0.010	**0.014**

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-03D
Field Sample ID: **Angle Spring**
Collected: 10/31/2005 12:45:00 PM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@xmission.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	11/9/2005 8:22:16 PM	6010B	0.10	< 0.10
Arsenic	mg/L	11/10/2005 12:40:31 PM	6020	0.0050	< 0.0050
Boron	mg/L	11/9/2005 8:22:16 PM	6010B	0.50	< 0.50
Cadmium	mg/L	11/10/2005 12:40:31 PM	6020	0.0040	< 0.0040
Calcium	mg/L	11/10/2005 1:51:25 PM	6010B	5.0	**94**
Copper	mg/L	11/10/2005 12:40:31 PM	6020	0.0040	< 0.0040
Iron	mg/L	11/9/2005 8:22:16 PM	6010B	0.050	< 0.050
Lead	mg/L	11/10/2005 12:40:31 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	11/9/2005 8:22:16 PM	6010B	1.0	**18**
Manganese	mg/L	11/10/2005 12:40:31 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	11/9/2005 8:22:16 PM	6010B	0.10	< 0.10
Potassium	mg/L	11/9/2005 8:22:16 PM	6010B	1.0	**1.5**
Selenium	mg/L	11/10/2005 12:40:31 PM	6020	0.0050	< 0.0050
Sodium	mg/L	11/10/2005 1:51:25 PM	6010B	5.0	**9.8**
Zinc	mg/L	11/10/2005 12:40:31 PM	6020	0.010	**0.058**

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-04D
Field Sample ID: **Mud Creek**
Collected: 10/31/2005 1:15:00 PM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@xmission.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	11/9/2005 8:26:11 PM	6010B	0.10	< 0.10
Arsenic	mg/L	11/10/2005 12:45:56 PM	6020	0.0050	< 0.0050
Boron	mg/L	11/9/2005 8:26:11 PM	6010B	0.50	< 0.50
Cadmium	mg/L	11/10/2005 12:45:56 PM	6020	0.0040	< 0.0040
Calcium	mg/L	11/10/2005 1:55:20 PM	6010B	5.0	**92**
Copper	mg/L	11/10/2005 12:45:56 PM	6020	0.0040	< 0.0040
Iron	mg/L	11/9/2005 8:26:11 PM	6010B	0.050	< 0.050
Lead	mg/L	11/10/2005 12:45:56 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	11/9/2005 8:26:11 PM	6010B	1.0	**56**
Manganese	mg/L	11/10/2005 12:45:56 PM	6020	0.0050	**0.024**
Molybdenum	mg/L	11/9/2005 8:26:11 PM	6010B	0.10	< 0.10
Potassium	mg/L	11/9/2005 8:26:11 PM	6010B	1.0	**9.4**
Selenium	mg/L	11/10/2005 12:45:56 PM	6020	0.0050	< 0.0050
Sodium	mg/L	11/10/2005 1:55:20 PM	6010B	5.0	**51**
Zinc	mg/L	11/10/2005 12:45:56 PM	6020	0.010	**0.024**

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-01
Field Sample ID: **Eagle Outlet**
Collected: 10/31/2005 11:40:00 AM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/02/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/01/05	2320B	10	**280**
Ammonia (as N)	mg/L	11/09/05	350.1	0.050	**0.057**
Bicarbonate (As CaCO3)	mg/L	11/01/05	2320B	10	**280**
Carbonate (As CaCO3)	mg/L	11/01/05	2320B	10	< 10
Chloride	mg/L	11/09/05	4500-CL E	5.0	**9.9**
Hardness (as CaCO3)	mg/L	11/09/05	2340B	10	**270**
Nitrate (as N)	mg/L	11/01/05 12:32 pm	353.2	0.010	**0.092**
Nitrite (as N)	mg/L	11/01/05 12:32 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/02/05	EPA 1664	3.0	**3.3**
Phosphate, ortho (as P)	mg/L	11/01/05 9:52 am	365.1	0.050	**0.055**
Settable Solids	ml/L	11/01/05 10:30 am	2540F	0.10	**0.10**
Sulfate	mg/L	11/10/05	375.4	5.0	**29**
TDS	mg/L	11/01/05	160.1	10	**300**
TSS	mg/L	11/01/05	160.2	3.0	**88**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-02
Field Sample ID: **Sulfur Springs**
Collected: 10/31/2005 12:00:00 PM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

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QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/02/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/01/05	2320B	10	**370**
Ammonia (as N)	mg/L	11/09/05	350.1	0.050	**0.15**
Bicarbonate (As CaCO3)	mg/L	11/01/05	2320B	10	**370**
Carbonate (As CaCO3)	mg/L	11/01/05	2320B	10	< 10
Chloride	mg/L	11/09/05	4500-CL E	5.0	**5.1**
Hardness (as CaCO3)	mg/L	11/09/05	2340B	10	**370**
Nitrate (as N)	mg/L	11/01/05 12:32 pm	353.2	0.010	**0.010**
Nitrite (as N)	mg/L	11/01/05 12:32 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/02/05	EPA 1664	3.0	**3.1**
Phosphate, ortho (as P)	mg/L	11/01/05 9:52 am	365.1	0.050	< 0.050
Settable Solids	ml/L	11/01/05 10:30 am	2540F	0.10	< 0.10
Sulfate	mg/L	11/10/05	375.4	5.0	**46**
TDS	mg/L	11/01/05	160.1	10	**390**
TSS	mg/L	11/01/05	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-03
Field Sample ID: **Angle Spring**
Collected: 10/31/2005 12:45:00 PM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/02/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/01/05	2320B	10	**320**
Ammonia (as N)	mg/L	11/09/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	11/01/05	2320B	10	**320**
Carbonate (As CaCO3)	mg/L	11/01/05	2320B	10	< 10
Chloride	mg/L	11/09/05	4500-CL E	5.0	**20**
Hardness (as CaCO3)	mg/L	11/09/05	2340B	10	**310**
Nitrate (as N)	mg/L	11/01/05 12:32 pm	353.2	0.010	**0.99**
Nitrite (as N)	mg/L	11/01/05 12:32 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/02/05	EPA 1664	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	11/01/05 9:52 am	365.1	0.050	< 0.050
Settable Solids	ml/L	11/01/05 10:30 am	2540F	0.10	< 0.10
Sulfate	mg/L	11/10/05	375.4	5.0	< 5.0
TDS	mg/L	11/01/05	160.1	10	**350**
TSS	mg/L	11/01/05	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-04
Field Sample ID: **Mud Creek**
Collected: 10/31/2005 1:15:00 PM
Received: 10/31/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/02/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/01/05	2320B	10	**300**
Ammonia (as N)	mg/L	11/09/05	350.1	0.050	**0.077**
Bicarbonate (As CaCO3)	mg/L	11/01/05	2320B	10	**260**
Carbonate (As CaCO3)	mg/L	11/01/05	2320B	10	**33**
Chloride	mg/L	11/09/05	4500-CL E	5.0	**15**
Hardness (as CaCO3)	mg/L	11/09/05	2340B	10	**460**
Nitrate (as N)	mg/L	11/01/05 12:32 pm	353.2	0.010	**0.35**
Nitrite (as N)	mg/L	11/01/05 12:32 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/02/05	EPA 1664	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	11/01/05 9:52 am	365.1	0.050	< 0.050
Settable Solids	ml/L	11/01/05 10:30 am	2540F	0.10	< 0.10
Sulfate	mg/L	11/10/05	375.4	5.0	**250**
TDS	mg/L	11/01/05	160.1	10	**720**
TSS	mg/L	11/01/05	160.2	3.0	**10**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
LCS-25821	Manganese	mg/L	6020	0.1973	0.2	0	98.6	85-115				11/10/2005
LCS-25820	Arsenic	mg/L	6020	0.1977	0.2	0	98.8	85-115				11/10/2005
LCS-25820	Cadmium	mg/L	6020	0.2027	0.2	0	101	85-115				11/10/2005
LCS-25820	Copper	mg/L	6020	0.2008	0.2	0	100	85-115				11/10/2005
LCS-25820	Lead	mg/L	6020	0.2002	0.2	0	100	85-115				11/10/2005
LCS-25820	Manganese	mg/L	6020	0.1990	0.2	0	99.5	85-115				11/10/2005
LCS-25820	Selenium	mg/L	6020	0.2091	0.2	0	105	85-115				11/10/2005
LCS-25820	Zinc	mg/L	6020	1.012	1	0	101	85-115				11/10/2005
LCS-25821	Iron	mg/L	6010B	1.010	1	0	101	75-125				11/9/2005
LCS-25820	Sodium	mg/L	6010B	10.07	10	0	101	75-125				11/10/2005
LCS-25820	Aluminum	mg/L	6010B	0.9928	1	0	99.3	75-125				11/9/2005
LCS-25820	Boron	mg/L	6010B	0.9616	1	0	96.2	75-125				11/9/2005
LCS-25820	Calcium	mg/L	6010B	9.928	10	0	99.3	75-125				11/9/2005
LCS-25820	Iron	mg/L	6010B	1.026	1	0	103	75-125				11/9/2005
LCS-25820	Magnesium	mg/L	6010B	10.15	10	0	102	75-125				11/9/2005
LCS-25820	Molybdenum	mg/L	6010B	0.2008	0.2	0	100	75-125				11/9/2005
LCS-25820	Potassium	mg/L	6010B	10.12	10	0	101	75-125				11/9/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L68520-01CMS	Manganese	mg/L	6020	0.3323	0.2	0.1267	103	70-130				11/10/2005
L68520-01DMS	Arsenic	mg/L	6020	0.1972	0.2	0	98.6	70-130				11/10/2005
L68520-01DMS	Cadmium	mg/L	6020	0.1986	0.2	0	99.3	70-130				11/10/2005
L68520-01DMS	Copper	mg/L	6020	0.1930	0.2	0	96.5	70-130				11/10/2005
L68520-01DMS	Lead	mg/L	6020	0.1881	0.2	0	94.1	70-130				11/10/2005
L68520-01DMS	Manganese	mg/L	6020	0.2373	0.2	0.0419	97.7	70-130				11/10/2005
L68520-01DMS	Selenium	mg/L	6020	0.2111	0.2	0	106	70-130				11/10/2005
L68520-01DMS	Zinc	mg/L	6020	0.9900	1	0.0107	97.9	70-130				11/10/2005
L68520-01CMS	Iron	mg/L	6010B	3.282	1	2.187	109	75-125				11/9/2005
L68520-01DMS	Calcium	mg/L	6010B	90.43	10	79.49	109	75-125				11/10/2005
L68520-01DMS	Sodium	mg/L	6010B	16.82	10	6.867	99.6	75-125				11/10/2005
L68520-01DMS	Aluminum	mg/L	6010B	1.015	1	0.08254	93.3	75-125				11/9/2005
L68520-01DMS	Boron	mg/L	6010B	0.9915	1	0.02303	96.8	75-125				11/9/2005
L68520-01DMS	Iron	mg/L	6010B	1.024	1	0	102	75-125				11/9/2005
L68520-01DMS	Magnesium	mg/L	6010B	27.38	10	17.31	101	75-125				11/9/2005
L68520-01DMS	Molybdenum	mg/L	6010B	0.1985	0.2	0	99.2	75-125				11/9/2005
L68520-01DMS	Potassium	mg/L	6010B	12.68	10	2.676	100	75-125				11/9/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
MB-25821	Manganese	mg/L	6020	< 0.0050				-				11/10/2005
MB-25820	Arsenic	mg/L	6020	< 0.0050				-				11/10/2005
MB-25820	Cadmium	mg/L	6020	< 0.0040				-				11/10/2005
MB-25820	Copper	mg/L	6020	< 0.0040				-				11/10/2005
MB-25820	Lead	mg/L	6020	< 0.0050				-				11/10/2005
MB-25820	Manganese	mg/L	6020	< 0.0050				-				11/10/2005
MB-25820	Selenium	mg/L	6020	< 0.0050				-				11/10/2005
MB-25820	Zinc	mg/L	6020	< 0.010				-				11/10/2005
MB-25821	Iron	mg/L	6010B	< 0.050				-				11/9/2005
MB-25820	Sodium	mg/L	6010B	< 1.0				-				11/10/2005
MB-25820	Aluminum	mg/L	6010B	< 0.10				-				11/9/2005
MB-25820	Boron	mg/L	6010B	< 0.50				-				11/9/2005
MB-25820	Calcium	mg/L	6010B	< 1.0				-				11/9/2005
MB-25820	Iron	mg/L	6010B	< 0.050				-				11/9/2005
MB-25820	Magnesium	mg/L	6010B	< 1.0				-				11/9/2005
MB-25820	Molybdenum	mg/L	6010B	< 0.10				-				11/9/2005
MB-25820	Potassium	mg/L	6010B	< 1.0				-				11/9/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L68520-01CMSD	Manganese	mg/L	6020	0.3239	0.2	0.1267	98.6	70-130	2.56	20		11/10/2005
L68520-01DMSD	Arsenic	mg/L	6020	0.2046	0.2	0	102	70-130	3.68	20		11/10/2005
L68520-01DMSD	Cadmium	mg/L	6020	0.2067	0.2	0	103	70-130	4.00	20		11/10/2005
L68520-01DMSD	Copper	mg/L	6020	0.1995	0.2	0	99.8	70-130	3.31	20		11/10/2005
L68520-01DMSD	Lead	mg/L	6020	0.1963	0.2	0	98.2	70-130	4.27	20		11/10/2005
L68520-01DMSD	Manganese	mg/L	6020	0.2449	0.2	0.0419	102	70-130	3.15	20		11/10/2005
L68520-01DMSD	Selenium	mg/L	6020	0.2193	0.2	0	110	70-130	3.81	20		11/10/2005
L68520-01DMSD	Zinc	mg/L	6020	1.022	1	0.0107	101	70-130	3.19	20		11/10/2005
L68520-01CMSD	Iron	mg/L	6010B	3.256	1	2.187	107	75-125	0.783	20		11/9/2005
L68520-01DMSD	Calcium	mg/L	6010B	89.12	10	79.49	96.2	75-125	1.47	20		11/10/2005
L68520-01DMSD	Sodium	mg/L	6010B	16.77	10	6.867	99.1	75-125	0.308	20		11/10/2005
L68520-01DMSD	Aluminum	mg/L	6010B	1.018	1	0.08254	93.5	75-125	0.241	20		11/9/2005
L68520-01DMSD	Boron	mg/L	6010B	0.9997	1	0.02303	97.7	75-125	0.832	20		11/9/2005
L68520-01DMSD	Iron	mg/L	6010B	1.025	1	0	102	75-125	0.0235	20		11/9/2005
L68520-01DMSD	Magnesium	mg/L	6010B	27.12	10	17.31	98.1	75-125	0.956	20		11/9/2005
L68520-01DMSD	Molybdenum	mg/L	6010B	0.2058	0.2	0	103	75-125	3.62	20		11/9/2005
L68520-01DMSD	Potassium	mg/L	6010B	12.59	10	2.676	99.2	75-125	0.703	20		11/9/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
L68520-04ADUP	TDS	mg/L	160.1	736.0	0	716		-	2.75	20		11/1/2005
L68518-03DDUP	TSS	mg/L	160.2	97.00	0	96		-	1.04	20		11/1/2005
L68520-04ADUP	TSS	mg/L	160.2	11.00	0	10		-	9.52	20		11/1/2005
L68539-03ADUP	TSS	mg/L	160.2	4.000	0	6		-	40.0	20	*	11/1/2005
L68541-02ADUP	TSS	mg/L	160.2	790.0	0	775		-	1.92	20		11/1/2005

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
LCS-R52156	Alkalinity,(As CaCO3)	mg/L	2320B	49140	50000	0	98.3	90-110				11/1/2005
LCS-R52205	Acidity	mg/L	305.1	55.00	50	0	110	80-120				11/2/2005
LCS-52455	Chloride	mg/L	4500-Cl E	24.16	25	0	96.6	90-110				11/9/2005
LCS-25889	Ammonia (as N)	mg/L	350.1	0.9020	1	0	90.2	90-110				11/9/2005
LCS-52181	Nitrite (as N)	mg/L	353.2	1.046	1	0	105	90-110				11/1/2005
LCS-52183	Nitrate (as N)	mg/L	353.2	1.034	1	0	103	90-110				11/1/2005
LCS-R52281	Oil & Grease	mg/L	EPA 1664	39.90	40	0	99.8	79-114				11/2/2005
LCS-52151	Phosphate, ortho (as P)	mg/L	365.1	0.9550	1	0.023	93.2	90-110				11/1/2005
LCS-R52477	Sulfate	mg/L	375.4	975.0	1000	0	97.5	90-110				11/10/2005
LCS-R52251	TDS	mg/L	160.1	204.0	205	0	99.5	80-120				11/1/2005
LCS-R52211	TSS	mg/L	160.2	101.0	100	0	101	80-120				11/1/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
MB-R52156	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				11/1/2005
MB-R52156	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				11/1/2005
MB-R52205	Acidity	mg/L	305.1	< 15				-				11/2/2005
MB-R52455	Chloride	mg/L	4500-Cl E	< 5.0				-				11/9/2005
MB-25889	Ammonia (as N)	mg/L	350.1	< 0.050				-				11/9/2005
MB-52181	Nitrite (as N)	mg/L	353.2	< 0.010				-				11/1/2005
MB-52183	Nitrate (as N)	mg/L	353.2	< 0.010				-				11/1/2005
MB-R52281	Oil & Grease	mg/L	EPA 1664	< 3.0				-				11/2/2005
MB-52151	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				11/1/2005
MB-R52477	Sulfate	mg/L	375.4	< 5.0				-				11/10/2005
MB-R52251	TDS	mg/L	160.1	< 10				-				11/1/2005
MB-R52211	TSS	mg/L	160.2	< 3.0				-				11/1/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L68518-01CMS	Alkalinity,(As CaCO3)	mg/L	2320B	1070	200	866	102	80-120				11/1/2005
L68520-01BMS	Acidity	mg/L	305.1	46.00	50	0	92.0	80-120				11/2/2005
L68520-01BMS	Chloride	mg/L	4500-Cl E	59.83	50	9.858	99.9	90-110				11/9/2005
L68520-03FMS	Ammonia (as N)	mg/L	350.1	0.9390	1	0.029	91.0	90-110				11/9/2005
L68518-01CMS	Nitrite (as N)	mg/L	353.2	0.9860	1	0	98.6	90-110				11/1/2005
L68518-01CMS	Nitrate (as N)	mg/L	353.2	0.9630	1	0	96.3	90-110				11/1/2005
L68520-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.9860	1	0.055	93.1	90-110				11/1/2005
L68520-01BMS	Sulfate	mg/L	375.4	38.00	10	29	90.0	80-120				11/10/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L68518-01CMSD	Alkalinity,(As CaCO3)	mg/L	2320B	1077	200	866	106	80-120	0.652	10		11/1/2005
L68520-01BMSD	Acidity	mg/L	305.1	50.00	50	0	100	80-120	8.33	20		11/2/2005
L68520-01BMSD	Chloride	mg/L	4500-Cl E	59.42	50	9.858	99.1	90-110	0.681	10		11/9/2005
L68520-03FMSD	Ammonia (as N)	mg/L	350.1	0.9650	1	0.029	93.6	90-110	2.73	10		11/9/2005
L68518-01CMSD	Nitrite (as N)	mg/L	353.2	1.102	1	0	110	90-110	11.1	10	@	11/1/2005
L68518-01CMSD	Nitrate (as N)	mg/L	353.2	1.039	1	0	104	90-110	7.59	10		11/1/2005
L68520-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.9980	1	0.055	94.3	90-110	1.21	10		11/1/2005
L68520-01BMSD	Sulfate	mg/L	375.4	39.00	10	29	100	80-120	2.60	10		11/10/2005

@ High RPD due to suspected matrix interference.

American West Analytical Labs

WORK ORDER Summary

01-Nov-05

Work Order L68520

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:** Hot 5

Comments: QCLevel: 2+ (added 11/1)

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L68520-01A	Eagle Outlet	10/31/2005 11:40:00 AM	10/31/2005	11/14/2005	Aqueous	SS	ww - tss/tds/ss	1
				11/14/2005		TDS-W	ww - tss/tds/ss	1
				11/14/2005		TSS-W	ww - tss/tds/ss	1
L68520-01B				11/14/2005		2320B-ALK-W	oct 31- wc	1
				11/14/2005		300.0-W	oct 31- wc	1
				11/14/2005		ACIDITY-W	oct 31- wc	1
				11/14/2005		NO2-W	oct 31- wc	1
				11/14/2005		NO3-W	oct 31- wc	1
				11/14/2005		PO4-O	oct 31- wc	1
L68520-01C				11/14/2005		3005A-ICPMS	oct 31 - metals	1
				11/14/2005		6020-W	oct 31 - metals	1
				11/14/2005		ICP-W	oct 31 - metals	1
L68520-01D				11/14/2005	Aqueous-Dissolved	3005A-Diss	oct 31 - dis met	1
				11/14/2005		6020-W-DISS	oct 31 - dis met	1
				11/14/2005		HARD	oct 31 - dis met	1
				11/14/2005		ICP-W-DIS	oct 31 - dis met	1
L68520-01E				11/14/2005	Aqueous	OGB-W	ogb	1
L68520-01F				11/14/2005		NH3-W	oct 31 - nh3	1
				11/14/2005		NH3-W-PREP	oct 31 - nh3	1
L68520-02A	Sulfur Springs	10/31/2005 12:00:00 PM		11/14/2005		SS	ww - tss/tds/ss	1
				11/14/2005		TDS-W	ww - tss/tds/ss	1
				11/14/2005		TSS-W	ww - tss/tds/ss	1
L68520-02B				11/14/2005		2320B-ALK-W	oct 31- wc	1
				11/14/2005		300.0-W	oct 31- wc	1
				11/14/2005		ACIDITY-W	oct 31- wc	1
				11/14/2005		NO2-W	oct 31- wc	1
				11/14/2005		NO3-W	oct 31- wc	1

L68520

WORK ORDER Summary

01-Nov-05

Work Order L68520

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+ (added 11/1)

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L68520-02B	Sulfur Springs	10/31/2005 12:00:00 PM	10/31/2005	11/14/2005	Aqueous	PO4-O	oct 31- wc	1
L68520-02C				11/14/2005		3005A-ICPMS	oct 31 - metals	1
				11/14/2005		6020-W	oct 31 - metals	1
				11/14/2005		ICP-W	oct 31 - metals	1
L68520-02D				11/14/2005	Aqueous-Dissolved	3005A-Diss	oct 31 - dis met	1
				11/14/2005		6020-W-DISS	oct 31 - dis met	1
				11/14/2005		HARD	oct 31 - dis met	1
				11/14/2005		ICP-W-DIS	oct 31 - dis met	1
L68520-02E				11/14/2005	Aqueous	OGB-W	ogb	1
L68520-02F				11/14/2005		NH3-W	oct 31 - nh3	1
				11/14/2005		NH3-W-PREP	oct 31 - nh3	1
L68520-03A	Angle Spring	10/31/2005 12:45:00 PM		11/14/2005		SS	ww - tss/tds/ss	1
				11/14/2005		TDS-W	ww - tss/tds/ss	1
				11/14/2005		TSS-W	ww - tss/tds/ss	1
L68520-03B				11/14/2005		2320B-ALK-W	oct 31- wc	1
				11/14/2005		300.0-W	oct 31- wc	1
				11/14/2005		ACIDITY-W	oct 31- wc	1
				11/14/2005		NO2-W	oct 31- wc	1
				11/14/2005		NO3-W	oct 31- wc	1
				11/14/2005		PO4-O	oct 31- wc	1
L68520-03C				11/14/2005		3005A-ICPMS	oct 31 - metals	1
				11/14/2005		6020-W	oct 31 - metals	1
				11/14/2005		ICP-W	oct 31 - metals	1
L68520-03D				11/14/2005	Aqueous-Dissolved	3005A-Diss	oct 31 - dis met	1
				11/14/2005		6020-W-DISS	oct 31 - dis met	1
				11/14/2005		HARD	oct 31 - dis met	1
				11/14/2005		ICP-W-DIS	oct 31 - dis met	1
L68520-03E				11/14/2005	Aqueous	OGB-W	ogb	1

WORK ORDER Summary

01-Nov-05

Work Order L68520

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+ (added 11/1)

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L68520-03F	Angle Spring	10/31/2005 12:45:00 PM	10/31/2005	11/14/2005	Aqueous	NH3-W	oct 31 - nh3	1
				11/14/2005		NH3-W-PREP	oct 31 - nh3	1
L68520-04A	Mud Creek	10/31/2005 1:15:00 PM		11/14/2005		SS	ww - tss/tds/ss	1
				11/14/2005		TDS-W	ww - tss/tds/ss	1
				11/14/2005		TSS-W	ww - tss/tds/ss	1
L68520-04B				11/14/2005		2320B-ALK-W	oct 31- wc	1
				11/14/2005		300.0-W	oct 31- wc	1
				11/14/2005		ACIDITY-W	oct 31- wc	1
				11/14/2005		NO2-W	oct 31- wc	1
				11/14/2005		NO3-W	oct 31- wc	1
				11/14/2005		PO4-O	oct 31- wc	1
L68520-04C				11/14/2005		3005A-ICPMS	oct 31 - metals	1
				11/14/2005		6020-W	oct 31 - metals	1
				11/14/2005		ICP-W	oct 31 - metals	1
L68520-04D				11/14/2005	Aqueous-Dissolved	3005A-Diss	oct 31 - dis met	1
				11/14/2005		6020-W-DISS	oct 31 - dis met	1
				11/14/2005		HARD	oct 31 - dis met	1
				11/14/2005		ICP-W-DIS	oct 31 - dis met	1
L68520-04E				11/14/2005	Aqueous	OGB-W	ogb	1
L68520-04F				11/14/2005		NH3-W	oct 31 - nh3	1
				11/14/2005		NH3-W-PREP	oct 31 - nh3	1

Client Carbon Resources / ~~Whiskey Creek~~

Address _____

City State Zip

Phone 970-835-3715 Fax _____

Contact Brad Lindsay

E-mail lindsay.Brad@gmail.com

Project Name Scofield Baseline

Project Number/P.O.# _____

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 68520

Page _____ of _____

Turn Around Time (Circle One)

1 day	2 day	3 day	4 day	5 day	Standard
QC	1	2	2+	3	3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	See table 3 on file										COMMENTS
Eagle Outlet	10-31-05 11:40	W	6	✓										
Sulfer Springs	10-31-05 12:00	W	6	✓										
Angle Spring	10-31-05 12:45	W	6	✓										
Mud Creek	10-31-05 1:15	W	6	✓										

Please indicate tests needed below

Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME BRAD LINDSAY	Time 16:00	PRINT NAME Elma Hayward
Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME

Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME
Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME

Special Instructions:

Please filter for disolved metals

Analysis the same as the previous set (table 3 surface water

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature 8°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Preservation Check Sheet

Sample Set: 68520

Sample Set Extension and pH

Bottle Type	Preservative	All OK														
Ammonia[1]	pH <2 H_2SO_4	✓														
COD[1]	pH <2 H_2SO_4															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO_3	✓														
NO_2 & NO_3[1]	pH <2 H_2SO_4															
Nutrients[1]	pH <2 H_2SO_4															
O & G	pH <2 HCL	✓														
Phenols[2]	pH <2 H_2SO_4															
Sulfide	pH > 9 NaOH, ZnAC															
TKN[1]	pH <2 H_2SO_4															
TOC[1]	pH <2 H_2SO_4															
TOX[2]	pH <2 H_2SO_4															
T PO4[1]	pH <2 H_2SO_4															
Mixed Analysis[1]	pH <2 H_2SO_4															
Mixed Analysis[2]	pH <2 H_2SO_4															

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 H_2SO_4 in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 H_2SO_4 in a B.R.

Frequency: All samples requiring preservation

December 08, 2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
c/o Rock Logic Consulting
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L68977

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 11/29/2005 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-01E
Field Sample ID: **Eagle Outlet**
Collected: 11/28/2005 11:00:00 AM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/6/2005 2:24:14 PM	6010B	0.050	**1.2**
Manganese	mg/L	12/2/2005 3:59:44 PM	6020	0.0050	**0.12**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-02E
Field Sample ID: **Sulfur Spring**
Collected: 11/28/2005 11:35:00 AM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/6/2005 2:40:07 PM	6010B	0.050	< 0.050
Manganese	mg/L	12/2/2005 4:21:19 PM	6020	0.0050	**0.028**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-03E
Field Sample ID: **Mud Creek**
Collected: 11/28/2005 12:15:00 PM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/6/2005 2:44:05 PM	6010B	0.050	**0.25**
Manganese	mg/L	12/2/2005 4:26:44 PM	6020	0.0050	**0.030**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-04E
Field Sample ID: **Angle Spring**
Collected: 11/28/2005 1:15:00 PM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/6/2005 2:48:03 PM	6010B	0.050	< 0.050
Manganese	mg/L	12/2/2005 4:32:08 PM	6020	0.0050	< 0.0050

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-01D
Field Sample ID: **Eagle Outlet**
Collected: 11/28/2005 11:00:00 AM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	12/5/2005 10:24:48 PM	6010B	0.10	< 0.10
Arsenic	mg/L	12/2/2005 3:00:40 PM	6020	0.0050	< 0.0050
Boron	mg/L	12/5/2005 10:24:48 PM	6010B	0.50	< 0.50
Cadmium	mg/L	12/2/2005 3:00:40 PM	6020	0.0040	< 0.0040
Calcium	mg/L	12/6/2005 3:58:50 PM	6010B	5.0	**100**
Copper	mg/L	12/2/2005 3:00:40 PM	6020	0.0040	< 0.0040
Iron	mg/L	12/5/2005 10:24:48 PM	6010B	0.050	< 0.050
Lead	mg/L	12/2/2005 3:00:40 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	12/5/2005 10:24:48 PM	6010B	1.0	**20**
Manganese	mg/L	12/2/2005 3:00:40 PM	6020	0.0050	**0.070**
Molybdenum	mg/L	12/5/2005 10:24:48 PM	6010B	0.10	< 0.10
Potassium	mg/L	12/5/2005 10:24:48 PM	6010B	1.0	**1.8**
Selenium	mg/L	12/2/2005 3:00:40 PM	6020	0.0050	< 0.0050
Sodium	mg/L	12/6/2005 3:58:50 PM	6010B	5.0	**7.3**
Zinc	mg/L	12/2/2005 3:00:40 PM	6020	0.010	**0.015**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-02D
Field Sample ID: **Sulfur Spring**
Collected: 11/28/2005 11:35:00 AM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	12/5/2005 10:40:31 PM	6010B	0.10	< 0.10
Arsenic	mg/L	12/2/2005 3:22:15 PM	6020	0.0050	< 0.0050
Boron	mg/L	12/5/2005 10:40:31 PM	6010B	0.50	< 0.50
Cadmium	mg/L	12/2/2005 3:22:15 PM	6020	0.0040	< 0.0040
Calcium	mg/L	12/6/2005 4:14:55 PM	6010B	5.0	**91**
Copper	mg/L	12/2/2005 3:22:15 PM	6020	0.0040	< 0.0040
Iron	mg/L	12/5/2005 10:40:31 PM	6010B	0.050	< 0.050
Lead	mg/L	12/2/2005 3:22:15 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	12/5/2005 10:40:31 PM	6010B	1.0	**37**
Manganese	mg/L	12/2/2005 3:22:15 PM	6020	0.0050	**0.031**
Molybdenum	mg/L	12/5/2005 10:40:31 PM	6010B	0.10	< 0.10
Potassium	mg/L	12/5/2005 10:40:31 PM	6010B	1.0	**4.6**
Selenium	mg/L	12/2/2005 3:22:15 PM	6020	0.0050	< 0.0050
Sodium	mg/L	12/6/2005 4:14:55 PM	6010B	5.0	**8.8**
Zinc	mg/L	12/2/2005 3:22:15 PM	6020	0.010	**0.035**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-03D
Field Sample ID: **Mud Creek**
Collected: 11/28/2005 12:15:00 PM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	12/5/2005 10:57:45 PM	6010B	0.10	< 0.10
Arsenic	mg/L	12/2/2005 3:43:32 PM	6020	0.0050	< 0.0050
Boron	mg/L	12/5/2005 10:57:45 PM	6010B	0.50	< 0.50
Cadmium	mg/L	12/2/2005 3:43:32 PM	6020	0.0040	< 0.0040
Calcium	mg/L	12/6/2005 4:18:54 PM	6010B	5.0	**98**
Copper	mg/L	12/2/2005 3:43:32 PM	6020	0.0040	< 0.0040
Iron	mg/L	12/5/2005 10:57:45 PM	6010B	0.050	< 0.050
Lead	mg/L	12/2/2005 3:43:32 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	12/5/2005 10:57:45 PM	6010B	1.0	**59**
Manganese	mg/L	12/2/2005 3:43:32 PM	6020	0.0050	**0.022**
Molybdenum	mg/L	12/5/2005 10:57:45 PM	6010B	0.10	< 0.10
Potassium	mg/L	12/5/2005 10:57:45 PM	6010B	1.0	**9.2**
Selenium	mg/L	12/2/2005 3:43:32 PM	6020	0.0050	< 0.0050
Sodium	mg/L	12/6/2005 4:18:54 PM	6010B	5.0	**53**
Zinc	mg/L	12/2/2005 3:43:32 PM	6020	0.010	**0.015**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-04D
Field Sample ID: **Angle Spring**
Collected: 11/28/2005 1:15:00 PM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	12/5/2005 11:01:40 PM	6010B	0.10	< 0.10
Arsenic	mg/L	12/2/2005 3:48:56 PM	6020	0.0050	< 0.0050
Boron	mg/L	12/5/2005 11:01:40 PM	6010B	0.50	< 0.50
Cadmium	mg/L	12/2/2005 3:48:56 PM	6020	0.0040	< 0.0040
Calcium	mg/L	12/6/2005 4:22:48 PM	6010B	5.0	**100**
Copper	mg/L	12/2/2005 3:48:56 PM	6020	0.0040	< 0.0040
Iron	mg/L	12/5/2005 11:01:40 PM	6010B	0.050	< 0.050
Lead	mg/L	12/2/2005 3:48:56 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	12/5/2005 11:01:40 PM	6010B	1.0	**18**
Manganese	mg/L	12/2/2005 3:48:56 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	12/5/2005 11:01:40 PM	6010B	0.10	< 0.10
Potassium	mg/L	12/5/2005 11:01:40 PM	6010B	1.0	**1.0**
Selenium	mg/L	12/2/2005 3:48:56 PM	6020	0.0050	< 0.0050
Sodium	mg/L	12/6/2005 4:22:48 PM	6010B	5.0	**10**
Zinc	mg/L	12/2/2005 3:48:56 PM	6020	0.010	**0.024**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-01
Field Sample ID: **Eagle Outlet**
Collected: 11/28/2005 11:00:00 AM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	12/01/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/29/05	2320B	10	**290**
Ammonia (as N)	mg/L	12/07/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	11/29/05	2320B	10	**290**
Carbonate (As CaCO3)	mg/L	11/29/05	2320B	10	**< 10**
Chloride	mg/L	12/03/05	300.0	10	**12**
Hardness (as CaCO3)	mg/L	12/06/05	2340B	10	**330**
Nitrate (as N)	mg/L	11/29/05 1:48 pm	353.2	0.010	**0.36**
Nitrite (as N)	mg/L	11/29/05 1:48 pm	353.2	0.010	**0.010**
Oil & Grease	mg/L	11/30/05	EPA 1664	3.0	**3.9**
Phosphate, ortho (as P)	mg/L	11/29/05 12:23 pm	365.1	0.050	< 0.050
Settable Solids	ml/L	11/29/05 12:00 pm	2540F	0.10	**0.10**
Sulfate	mg/L	12/03/05	300.0	10	**30**
TDS	mg/L	12/02/05	160.1	10	**300**
TSS	mg/L	11/29/05	160.2	3.0	**44**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-02
Field Sample ID: **Sulfur Spring**
Collected: 11/28/2005 11:35:00 AM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	12/01/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/29/05	2320B	10	**340**
Ammonia (as N)	mg/L	12/07/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	11/29/05	2320B	10	**340**
Carbonate (As CaCO3)	mg/L	11/29/05	2320B	10	< 10
Chloride	mg/L	12/03/05	300.0	1.0	**6.2**
Hardness (as CaCO3)	mg/L	12/06/05	2340B	10	**380**
Nitrate (as N)	mg/L	11/29/05 1:48 pm	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	11/29/05 1:48 pm	353.2	0.010	**0.010**
Oil & Grease	mg/L	11/30/05	EPA 1664	3.0	**3.6**
Phosphate, ortho (as P)	mg/L	11/29/05 12:23 pm	365.1	0.050	< 0.050
Settable Solids	ml/L	11/29/05 12:00 pm	2540F	0.10	< 0.10
Sulfate	mg/L	12/03/05	300.0	10	**45**
TDS	mg/L	12/02/05	160.1	10	**330**
TSS	mg/L	11/29/05	160.2	3.0	< 3.0

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-03
Field Sample ID: **Mud Creek**
Collected: 11/28/2005 12:15:00 PM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	12/01/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/29/05	2320B	10	**270**
Ammonia (as N)	mg/L	12/07/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	11/29/05	2320B	10	**250**
Carbonate (As CaCO3)	mg/L	11/29/05	2320B	10	**24**
Chloride	mg/L	12/03/05	300.0	10	**15**
Hardness (as CaCO3)	mg/L	12/06/05	2340B	10	**490**
Nitrate (as N)	mg/L	11/29/05 1:48 pm	353.2	0.010	**0.40**
Nitrite (as N)	mg/L	11/29/05 1:48 pm	353.2	0.010	**0.013**
Oil & Grease	mg/L	11/30/05	EPA 1664	3.0	**4.1**
Phosphate, ortho (as P)	mg/L	11/29/05 12:23 pm	365.1	0.050	< 0.050
Settable Solids	ml/L	11/29/05 12:00 pm	2540F	0.10	< 0.10
Sulfate	mg/L	12/03/05	300.0	100	**260**
TDS	mg/L	12/02/05	160.1	10	**700**
TSS	mg/L	11/29/05	160.2	3.0	**23**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-04
Field Sample ID: **Angle Spring**
Collected: 11/28/2005 1:15:00 PM
Received: 11/29/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	12/01/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/29/05	2320B	10	**300**
Ammonia (as N)	mg/L	12/07/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	11/29/05	2320B	10	**300**
Carbonate (As CaCO3)	mg/L	11/29/05	2320B	10	< 10
Chloride	mg/L	12/03/05	300.0	10	**22**
Hardness (as CaCO3)	mg/L	12/06/05	2340B	10	**340**
Nitrate (as N)	mg/L	11/29/05 1:48 pm	353.2	0.010	**0.96**
Nitrite (as N)	mg/L	11/29/05 1:48 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/30/05	EPA 1664	3.0	**3.7**
Phosphate, ortho (as P)	mg/L	11/29/05 12:23 pm	365.1	0.050	< 0.050
Settable Solids	ml/L	11/29/05 12:00 pm	2540F	0.10	< 0.10
Sulfate	mg/L	12/03/05	300.0	10	**16**
TDS	mg/L	12/02/05	160.1	10	**290**
TSS	mg/L	11/29/05	160.2	3.0	< 3.0

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-26226	Manganese	mg/L	6020	0.1984	0.2	0	99.2	85-115				12/2/2005
LCS-26225	Arsenic	mg/L	6020	0.2258	0.2	0	113	85-115				12/2/2005
LCS-26225	Cadmium	mg/L	6020	0.2038	0.2	0	102	85-115				12/2/2005
LCS-26225	Copper	mg/L	6020	0.1998	0.2	0	99.9	85-115				12/2/2005
LCS-26225	Lead	mg/L	6020	0.2084	0.2	0	104	85-115				12/2/2005
LCS-26225	Manganese	mg/L	6020	0.2041	0.2	0	102	85-115				12/2/2005
LCS-26225	Selenium	mg/L	6020	0.2132	0.2	0	107	85-115				12/2/2005
LCS-26225	Zinc	mg/L	6020	1.027	1	0	103	85-115				12/2/2005
LCS-26226	Iron	mg/L	6010B	1.062	1	0	106	75-125				12/6/2005
LCS-26225	Aluminum	mg/L	6010B	0.8936	1	0	89.4	75-125				12/5/2005
LCS-26225	Boron	mg/L	6010B	1.004	1	0	100	75-125				12/5/2005
LCS-26225	Iron	mg/L	6010B	1.082	1	0	108	75-125				12/5/2005
LCS-26225	Magnesium	mg/L	6010B	10.72	10	0	107	75-125				12/5/2005
LCS-26225	Molybdenum	mg/L	6010B	0.2058	0.2	0	103	75-125				12/5/2005
LCS-26225	Potassium	mg/L	6010B	10.07	10	0	101	75-125				12/5/2005
LCS-26225	Calcium	mg/L	6010B	10.69	10	0	107	75-125				12/6/2005
LCS-26225	Sodium	mg/L	6010B	10.22	10	0	102	75-125				12/6/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-26226	Manganese	mg/L	6020	< 0.0050				-				12/2/2005
MB-26225	Arsenic	mg/L	6020	< 0.0050				-				12/2/2005
MB-26225	Cadmium	mg/L	6020	< 0.0040				-				12/2/2005
MB-26225	Copper	mg/L	6020	< 0.0040				-				12/2/2005
MB-26225	Lead	mg/L	6020	< 0.0050				-				12/2/2005
MB-26225	Manganese	mg/L	6020	< 0.0050				-				12/2/2005
MB-26225	Selenium	mg/L	6020	< 0.0050				-				12/2/2005
MB-26225	Zinc	mg/L	6020	< 0.010				-				12/2/2005
MB-26226	Iron	mg/L	6010B	< 0.050				-				12/6/2005
MB-26225	Aluminum	mg/L	6010B	< 0.10				-				12/5/2005
MB-26225	Boron	mg/L	6010B	< 0.50				-				12/5/2005
MB-26225	Iron	mg/L	6010B	< 0.050				-				12/5/2005
MB-26225	Magnesium	mg/L	6010B	< 1.0				-				12/5/2005
MB-26225	Molybdenum	mg/L	6010B	< 0.10				-				12/5/2005
MB-26225	Potassium	mg/L	6010B	< 1.0				-				12/5/2005
MB-26225	Calcium	mg/L	6010B	< 1.0				-				12/6/2005
MB-26225	Sodium	mg/L	6010B	< 1.0				-				12/6/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L68977-01EMS	Manganese	mg/L	6020	0.3034	0.2	0.1184	92.5	70-130				12/2/2005
L68977-01DMS	Arsenic	mg/L	6020	0.2289	0.2	0	114	70-130				12/2/2005
L68977-01DMS	Cadmium	mg/L	6020	0.2031	0.2	0	102	70-130				12/2/2005
L68977-01DMS	Copper	mg/L	6020	0.1821	0.2	0	91.0	70-130				12/2/2005
L68977-01DMS	Lead	mg/L	6020	0.2160	0.2	0	108	70-130				12/2/2005
L68977-01DMS	Manganese	mg/L	6020	0.2688	0.2	0.0699	99.5	70-130				12/2/2005
L68977-01DMS	Selenium	mg/L	6020	0.2243	0.2	0	112	70-130				12/2/2005
L68977-01DMS	Zinc	mg/L	6020	1.018	1	0.0146	100	70-130				12/2/2005
L68977-01EMS	Iron	mg/L	6010B	2.342	1	1.239	110	75-125				12/6/2005
L68977-01DMS	Aluminum	mg/L	6010B	0.9630	1	0	96.3	75-125				12/5/2005
L68977-01DMS	Boron	mg/L	6010B	1.010	1	0	101	75-125				12/5/2005
L68977-01DMS	Iron	mg/L	6010B	1.065	1	0	106	75-125				12/5/2005
L68977-01DMS	Magnesium	mg/L	6010B	30.59	10	20.37	102	75-125				12/5/2005
L68977-01DMS	Molybdenum	mg/L	6010B	0.2065	0.2	0	103	75-125				12/5/2005
L68977-01DMS	Potassium	mg/L	6010B	12.19	10	1.784	104	75-125				12/5/2005
L68977-01DMS	Calcium	mg/L	6010B	109.2	10	99.59	96.4	75-125				12/6/2005
L68977-01DMS	Sodium	mg/L	6010B	17.33	10	7.273	101	75-125				12/6/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L68977-01EMSD	Manganese	mg/L	6020	0.3144	0.2	0.1184	98.0	70-130	3.56	20		12/2/2005
L68977-01DMSD	Arsenic	mg/L	6020	0.2327	0.2	0	116	70-130	1.65	20		12/2/2005
L68977-01DMSD	Cadmium	mg/L	6020	0.2090	0.2	0	104	70-130	2.86	20		12/2/2005
L68977-01DMSD	Copper	mg/L	6020	0.1840	0.2	0	92.0	70-130	1.04	20		12/2/2005
L68977-01DMSD	Lead	mg/L	6020	0.2241	0.2	0	112	70-130	3.68	20		12/2/2005
L68977-01DMSD	Manganese	mg/L	6020	0.2746	0.2	0.0699	102	70-130	2.13	20		12/2/2005
L68977-01DMSD	Selenium	mg/L	6020	0.2312	0.2	0	116	70-130	3.03	20		12/2/2005
L68977-01DMSD	Zinc	mg/L	6020	1.028	1	0.0146	101	70-130	1.05	20		12/2/2005
L68977-01EMSD	Iron	mg/L	6010B	2.360	1	1.239	112	75-125	0.755	20		12/6/2005
L68977-01DMSD	Aluminum	mg/L	6010B	0.9580	1	0	95.8	75-125	0.521	20		12/5/2005
L68977-01DMSD	Boron	mg/L	6010B	1.017	1	0	102	75-125	0.653	20		12/5/2005
L68977-01DMSD	Iron	mg/L	6010B	1.061	1	0	106	75-125	0.291	20		12/5/2005
L68977-01DMSD	Magnesium	mg/L	6010B	30.55	10	20.37	102	75-125	0.118	20		12/5/2005
L68977-01DMSD	Molybdenum	mg/L	6010B	0.2068	0.2	0	103	75-125	0.160	20		12/5/2005
L68977-01DMSD	Potassium	mg/L	6010B	12.47	10	1.784	107	75-125	2.29	20		12/5/2005
L68977-01DMSD	Calcium	mg/L	6010B	108.4	10	99.59	87.8	75-125	0.791	20		12/6/2005
L68977-01DMSD	Sodium	mg/L	6010B	17.37	10	7.273	101	75-125	0.249	20		12/6/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L68977-01CDUP	Chloride	mg/L	300.0	12.59	0	12.39		-	1.57	20		12/3/2005
L68977-01CDUP	Sulfate	mg/L	300.0	29.57	0	30.24		-	2.24	20		12/3/2005
L68977-04BDUP	TDS	mg/L	160.1	300.0	0	288		-	4.08	20		12/2/2005
L68999-01CDUP	TDS	mg/L	160.1	1400	0	1000		-	33.3	20	~	12/2/2005
L68977-04ADUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		11/29/2005
L68981-03ADUP	TSS	mg/L	160.2	10.00	0	10		-	0	20		11/29/2005
L68985-02ADUP	TSS	mg/L	160.2	1050	0	1040		-	0.957	20		11/29/2005

~ High RPD due to suspected sample non-homogeneity.

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R52954	Alkalinity,(As CaCO3)	mg/L	2320B	49020	50000	0	98.0	90-110				11/29/2005
LCS-R53107	Chloride	mg/L	300.0	5.041	5	0	101	90-110				12/2/2005
LCS-R53107	Sulfate	mg/L	300.0	5.119	5	0	102	90-110				12/2/2005
LCS-R53022	Acidity	mg/L	305.1	55.00	50	0	110	80-120				12/1/2005
LCS-26282	Ammonia (as N)	mg/L	350.1	0.9150	1	0	91.5	90-110				12/7/2005
LCS-52958	Nitrite (as N)	mg/L	353.2	0.9380	1	0	93.8	90-110				11/29/2005
LCS-52959	Nitrate (as N)	mg/L	353.2	0.9780	1	0	97.8	90-110				11/29/2005
LCS-R53035	Oil & Grease	mg/L	EPA 1664	40.60	40	0	102	79-114				11/30/2005
LCS-52955	Phosphate, ortho (as P)	mg/L	365.1	0.9870	1	0	98.7	90-110				11/29/2005
LCS-R53132	TDS	mg/L	160.1	200.0	205	0	97.6	80-120				12/2/2005
LCS-R52988	TSS	mg/L	160.2	100.0	100	0	100	80-120				11/29/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R52954	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				11/29/2005
MB-R52954	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				11/29/2005
MB-R52954	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				11/29/2005
MB-R53107	Chloride	mg/L	300.0	< 1.0				-				12/2/2005
MB-R53107	Sulfate	mg/L	300.0	< 1.0				-				12/2/2005
MB-R53022	Acidity	mg/L	305.1	< 15				-				12/1/2005
MB-26282	Ammonia (as N)	mg/L	350.1	< 0.050				-				12/7/2005
MB-52958	Nitrite (as N)	mg/L	353.2	< 0.010				-				11/29/2005
MB-52959	Nitrate (as N)	mg/L	353.2	< 0.010				-				11/29/2005
MB-R53035	Oil & Grease	mg/L	EPA 1664	< 3.0				-				11/30/2005
MB-52955	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				11/29/2005
MB-R53132	TDS	mg/L	160.1	< 10				-				12/2/2005
MB-R52988	TSS	mg/L	160.2	< 3.0				-				11/29/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L68977-01CMS	Alkalinity,(As CaCO3)	mg/L	2320B	397.0	100	294	103	80-120				11/29/2005
L68977-01CMS	Chloride	mg/L	300.0	60.88	50	12.39	97.0	90-110				12/3/2005
L68977-01CMS	Sulfate	mg/L	300.0	81.08	50	30.24	102	90-110				12/3/2005
L68977-01CMS	Acidity	mg/L	305.1	42.00	50	0	84.0	80-120				12/1/2005
L68977-02FMS	Ammonia (as N)	mg/L	350.1	0.9810	1	0	98.1	90-110				12/7/2005
L68977-01CMS	Nitrite (as N)	mg/L	353.2	0.9890	1	0.01	97.9	90-110				11/29/2005
L68977-01CMS	Nitrate (as N)	mg/L	353.2	1.297	1	0.356	94.1	90-110				11/29/2005
L68977-01CMS	Phosphate, ortho (as P)	mg/L	365.1	0.9430	1	0	94.3	90-110				11/29/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: WC
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L68977-01CMSD	Alkalinity,(As CaCO3)	mg/L	2320B	394.0	100	294	100	80-120	0.759	10		11/29/2005
L68977-01CMSD	Chloride	mg/L	300.0	60.21	50	12.39	95.6	90-110	1.10	20		12/3/2005
L68977-01CMSD	Sulfate	mg/L	300.0	79.72	50	30.24	98.9	90-110	1.70	20		12/3/2005
L68977-01CMSD	Acidity	mg/L	305.1	44.00	50	0	88.0	80-120	4.65	20		12/1/2005
L68977-02FMSD	Ammonia (as N)	mg/L	350.1	0.9190	1	0	91.9	90-110	6.53	10		12/7/2005
L68977-01CMSD	Nitrite (as N)	mg/L	353.2	0.9630	1	0.01	95.3	90-110	2.66	10		11/29/2005
L68977-01CMSD	Nitrate (as N)	mg/L	353.2	1.418	1	0.356	106	90-110	8.91	10		11/29/2005
L68977-01CMSD	Phosphate, ortho (as P)	mg/L	365.1	0.9460	1	0	94.6	90-110	0.318	10		11/29/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R53035	Oil & Grease	mg/L	EPA 1664	40.80	40	0	102	79-114				11/30/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R53035	Oil & Grease	mg/L	EPA 1664	41.60	40	0	104	79-114				11/30/2005

American West Analytical Labs

WORK ORDER Summary

29-Nov-05

Work Order L68977

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:** HOK 15

Comments: QCLevel: 2+.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L68977-01A	Eagle Outlet	11/28/2005 11:00:00 AM	11/29/2005	12/13/2005	Aqueous	SS	ww - tss/ss	1
				12/13/2005		TSS-W	ww - tss/ss	1
L68977-01B				12/13/2005		TDS-W	ww - tds	1
L68977-01C				12/13/2005		2320B-ALK-W	nov 29 - wc	1
				12/13/2005		300.0-W	nov 29 - wc	1
				12/13/2005		ACIDITY-W	nov 29 - wc	1
				12/13/2005		NO2-W	nov 29 - wc	1
				12/13/2005		NO3-W	nov 29 - wc	1
				12/13/2005		PO4-O	nov 29 - wc	1
L68977-01D				12/13/2005	Aqueous-Dissolved	3005A-Diss	nov 29 - wc	1
				12/13/2005		6020-W-DISS	nov 29 - wc	1
				12/13/2005		HARD	nov 29 - wc	1
				12/13/2005		ICP-W-DIS	nov 29 - wc	1
L68977-01E				12/13/2005	Aqueous	3005A-ICPMS	nov 29 - metals	1
				12/13/2005		6020-W	nov 29 - metals	1
				12/13/2005		ICP-W	nov 29 - metals	1
L68977-01F				12/13/2005		NH3-W	nov 29 - nh3	1
				12/13/2005		NH3-W-PREP	nov 29 - nh3	1
L68977-01G				12/13/2005		OGB-W	ogb	1
L68977-02A	Sulfur Spring	11/28/2005 11:35:00 AM		12/13/2005		SS	ww - tss/ss	1
				12/13/2005		TSS-W	ww - tss/ss	1
L68977-02B				12/13/2005		TDS-W	ww - tds	1
L68977-02C				12/13/2005		2320B-ALK-W	nov 29 - wc	1
				12/13/2005		300.0-W	nov 29 - wc	1
				12/13/2005		ACIDITY-W	nov 29 - wc	1
				12/13/2005		NO2-W	nov 29 - wc	1
				12/13/2005		NO3-W	nov 29 - wc	1

L68977

WORK ORDER Summary

29-Nov-05

Work Order L68977

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L68977-02C	Sulfur Spring	11/28/2005 11:35:00 AM	11/29/2005	12/13/2005	Aqueous	PO4-O	nov 29 - wc	1
L68977-02D				12/13/2005	Aqueous-Dissolved	3005A-Diss	nov 29 - wc	1
				12/13/2005		6020-W-DISS	nov 29 - wc	1
				12/13/2005		HARD	nov 29 - wc	1
				12/13/2005		ICP-W-DIS	nov 29 - wc	1
L68977-02E				12/13/2005	Aqueous	3005A-ICPMS	nov 29 - metals	1
				12/13/2005		6020-W	nov 29 - metals	1
				12/13/2005		ICP-W	nov 29 - metals	1
L68977-02F				12/13/2005		NH3-W	nov 29 - nh3	1
				12/13/2005		NH3-W-PREP	nov 29 - nh3	1
L68977-02G				12/13/2005		OGB-W	ogb	1
L68977-03A	Mud Creek	11/28/2005 12:15:00 PM		12/13/2005		SS	ww - tss/ss	1
				12/13/2005		TSS-W	ww - tss/ss	1
L68977-03B				12/13/2005		TDS-W	ww - tds	1
L68977-03C				12/13/2005		2320B-ALK-W	nov 29 - wc	1
				12/13/2005		300.0-W	nov 29 - wc	1
				12/13/2005		ACIDITY-W	nov 29 - wc	1
				12/13/2005		NO2-W	nov 29 - wc	1
				12/13/2005		NO3-W	nov 29 - wc	1
				12/13/2005		PO4-O	nov 29 - wc	1
L68977-03D				12/13/2005	Aqueous-Dissolved	3005A-Diss	nov 29 - wc	1
				12/13/2005		6020-W-DISS	nov 29 - wc	1
				12/13/2005		HARD	nov 29 - wc	1
				12/13/2005		ICP-W-DIS	nov 29 - wc	1
L68977-03E				12/13/2005	Aqueous	3005A-ICPMS	nov 29 - metals	1
				12/13/2005		6020-W	nov 29 - metals	1
				12/13/2005		ICP-W	nov 29 - metals	1
L68977-03F				12/13/2005		NH3-W	nov 29 - nh3	1

WORK ORDER Summary

29-Nov-05

Work Order L68977

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L68977-03F	Mud Creek	11/28/2005 12:15:00 PM	11/29/2005	12/13/2005	Aqueous	NH3-W-PREP	nov 29 - nh3	1
L68977-03G				12/13/2005		OGB-W	ogb	1
L68977-04A	Angle Spring	11/28/2005 1:15:00 PM		12/13/2005		SS	ww - tss/ss	1
				12/13/2005		TSS-W	ww - tss/ss	1
L68977-04B				12/13/2005		TDS-W	ww - tds	1
L68977-04C				12/13/2005		2320B-ALK-W	nov 29 - wc	1
				12/13/2005		300.0-W	nov 29 - wc	1
				12/13/2005		ACIDITY-W	nov 29 - wc	1
				12/13/2005		NO2-W	nov 29 - wc	1
				12/13/2005		NO3-W	nov 29 - wc	1
				12/13/2005		PO4-O	nov 29 - wc	1
L68977-04D				12/13/2005	Aqueous-Dissolved	3005A-Diss	nov 29 - wc	1
				12/13/2005		6020-W-DISS	nov 29 - wc	1
				12/13/2005		HARD	nov 29 - wc	1
				12/13/2005		ICP-W-DIS	nov 29 - wc	1
L68977-04E				12/13/2005	Aqueous	3005A-ICPMS	nov 29 - metals	1
				12/13/2005		6020-W	nov 29 - metals	1
				12/13/2005		ICP-W	nov 29 - metals	1
L68977-04F				12/13/2005		NH3-W	nov 29 - nh3	1
				12/13/2005		NH3-W-PREP	nov 29 - nh3	1
L68977-04G				12/13/2005		OGB-W	ogb	1

Client Carbon Resources

Address C/O ROCK LOGIC P.O. BOX 544

CEDAREDGE CO 81413

City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 68977

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

QC 1 2 (2+) 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	See tab 2 on file										COMMENTS
Eagle Outlet	11-28-05/11:00	W	6	✓										
Sulfer Spring	11-28-05/11:35	W	6	✓										
Mud Creek	11-28-05/12:15	W	6	✓										
Argle Spring	11-28-05/13:15	W	6	✓										

Please indicate tests needed below

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 15:00	PRINT NAME
Relinquished By: Signature UPS	Date 11/29/05	Received By: Signature
PRINT NAME	Time 10:45	PRINT NAME REBECCA WINKLER
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

please filter for dissolved metals

Analysis the same as the previous set (table 2 surface water)

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 1°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes: pH 11/29/05

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS		
*	-	Total Dissolved Solids		mg/l
*	-	Total Settleable Solids		(UPDES)
*	-	Total Suspended Solids		mg/l
*	-	Total Hardness ($CaCO_3$)		mg/l
*	-	Total Alkalinity		mg/l
	-	Acidity		mg/l
	-	Aluminum (Dissolved)		mg/l
	-	Arsenic (Dissolved)		mg/l
	-	Boron (Dissolved)[1]		mg/l
*	-	Carbonate		mg/l
*	-	Bicarbonate		mg/l
	-	Cadmium (Dissolved)		mg/l
*	-	Calcium (Dissolved)		mg/l
*	-	Chloride	mg/l	
	-	Copper (Dissolved)		mg/l
*	-	Iron (Dissolved)		mg/l
*	-	Iron (Total)		mg/l
	-	Lead (Dissolved)	mg/l	
*	-	Magnesium (Dissolved)		mg/l
*	-	Manganese (Dissolved)		mg/l
*	-	Manganese (Total)		mg/l
	-	Molybdenum (Dissolved)		mg/l
	-	Ammonia		mg/l
	-	Nitrates		mg/l
	-	Nitrites		mg/l
*	-	Potassium (Dissolved)		mg/l
	-	Phosphates(Ortho)		mg/l
	-	Selenium[1] (Dissolved)		mg/l
*	-	Sodium (Dissolved)		mg/l
*	-	Sulfate		mg/l
	-	Zinc (Dissolved)	mg/l	
*	-	Oil & Grease[2]		mg/l
*	-	Cations		meq/l
*	-	Anions		meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Preservation Check Sheet

Sample Set: 68977

Sample Set Extension and pH

Bottle Type	Preservative	All OK														
Ammonia[1]	pH <2 H_2SO_4	√														
COD[1]	pH <2 H_2SO_4															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO_3	√														
NO_2 & NO_3[1]	pH <2 H_2SO_4															
Nutrients[1]	pH <2 H_2SO_4															
O & G	pH <2 HCL	√														
Phenols[2]	pH <2 H_2SO_4															
Sulfide	pH > 9 NaOH, ZnAC															
TKN[1]	pH <2 H_2SO_4															
TOC[1]	pH <2 H_2SO_4															
TOX[2]	pH <2 H_2SO_4															
T PO4[1]	pH <2 H_2SO_4															
Mixed Analysis[1]	pH <2 H_2SO_4															
Mixed Analysis[2]	pH <2 H_2SO_4															

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 H_2SO_4 in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 H_2SO_4 in a B.R.

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

January 03, 2006

Brad Lindsay
Carbon Resources
c/o Rock Logic Consulting
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L69428

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 12/22/2005 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-01D
Field Sample ID: **Mud Creek**
Collected: 12/22/2005 12:30:00 PM
Received: 12/22/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/27/2005 3:17:24 PM	6010B	0.050	**0.28**
Manganese	mg/L	12/28/2005 2:43:04 PM	6020	0.0050	**0.028**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-02D
Field Sample ID: **Sulfur Spring**
Collected: 12/22/2005 1:00:00 PM
Received: 12/22/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/27/2005 3:34:56 PM	6010B	0.050	< 0.050
Manganese	mg/L	12/28/2005 3:15:28 PM	6020	0.0050	**0.033**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-03D
Field Sample ID: **Eagle Outlet**
Collected: 12/22/2005 9:00:00 AM
Received: 12/22/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/27/2005 3:38:51 PM	6010B	0.050	**1.5**
Manganese	mg/L	12/28/2005 3:20:49 PM	6020	0.0050	**0.14**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-04D
Field Sample ID: **Angle Spring**
Collected: 12/22/2005 11:00:00 AM
Received: 12/22/2005

AMERICAN WEST ANALYTICAL LABORATORIES

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Salt Lake City, Utah
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/27/2005 3:42:46 PM	6010B	0.050	< 0.050
Manganese	mg/L	12/28/2005 3:26:14 PM	6020	0.0050	< 0.0050

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69428-01C
Field Sample ID: **Mud Creek**
Collected: 12/22/2005 12:30:00 PM
Received: 12/22/2005

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463 West 3600 South
Salt Lake City, Utah
84115

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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	12/27/2005 4:05:52 PM	6010B	0.10	< 0.10
Arsenic	mg/L	12/28/2005 1:59:54 PM	6020	0.0050	< 0.0050
Boron	mg/L	12/27/2005 4:05:52 PM	6010B	0.50	< 0.50
Cadmium	mg/L	12/28/2005 1:59:54 PM	6020	0.0040	< 0.0040
Calcium	mg/L	12/27/2005 4:05:52 PM	6010B	10	**91** [2]
Copper	mg/L	12/28/2005 1:59:54 PM	6020	0.0040	< 0.0040
Iron	mg/L	12/27/2005 4:05:52 PM	6010B	0.050	< 0.050
Lead	mg/L	12/28/2005 1:59:54 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	12/27/2005 4:05:52 PM	6010B	1.0	**50**
Manganese	mg/L	12/28/2005 1:59:54 PM	6020	0.0050	**0.021**
Molybdenum	mg/L	12/27/2005 4:05:52 PM	6010B	0.10	< 0.10
Potassium	mg/L	12/27/2005 4:05:52 PM	6010B	1.0	**7.6**
Selenium	mg/L	12/28/2005 1:59:54 PM	6020	0.0050	< 0.0050
Sodium	mg/L	12/27/2005 6:28:40 PM	6010B	1.0	**35**
Zinc	mg/L	12/28/2005 1:59:54 PM	6020	0.010	< 0.010

[2] *Analyte concentration is too high for accurate spike recovery.*

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-02C
Field Sample ID: **Sulfur Spring**
Collected: 12/22/2005 1:00:00 PM
Received: 12/22/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	12/27/2005 4:26:42 PM	6010B	0.10	< 0.10
Arsenic	mg/L	12/28/2005 2:21:30 PM	6020	0.0050	< 0.0050
Boron	mg/L	12/27/2005 4:26:42 PM	6010B	0.50	< 0.50
Cadmium	mg/L	12/28/2005 2:21:30 PM	6020	0.0040	< 0.0040
Calcium	mg/L	12/27/2005 4:26:42 PM	6010B	1.0	**93**
Copper	mg/L	12/28/2005 2:21:30 PM	6020	0.0040	< 0.0040
Iron	mg/L	12/27/2005 4:26:42 PM	6010B	0.050	< 0.050
Lead	mg/L	12/28/2005 2:21:30 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	12/27/2005 4:26:42 PM	6010B	1.0	**36**
Manganese	mg/L	12/28/2005 2:21:30 PM	6020	0.0050	**0.035**
Molybdenum	mg/L	12/27/2005 4:26:42 PM	6010B	0.10	< 0.10
Potassium	mg/L	12/27/2005 4:26:42 PM	6010B	1.0	**5.0**
Selenium	mg/L	12/28/2005 2:21:30 PM	6020	0.0050	< 0.0050
Sodium	mg/L	12/27/2005 6:44:32 PM	6010B	1.0	**9.1**
Zinc	mg/L	12/28/2005 2:21:30 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-03C
Field Sample ID: **Eagle Outlet**
Collected: 12/22/2005 9:00:00 AM
Received: 12/22/2005

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	12/27/2005 4:30:50 PM	6010B	0.10	< 0.10
Arsenic	mg/L	12/28/2005 2:26:53 PM	6020	0.0050	< 0.0050
Boron	mg/L	12/27/2005 4:30:50 PM	6010B	0.50	< 0.50
Cadmium	mg/L	12/28/2005 2:26:53 PM	6020	0.0040	< 0.0040
Calcium	mg/L	12/27/2005 4:30:50 PM	6010B	1.0	**95**
Copper	mg/L	12/28/2005 2:26:53 PM	6020	0.0040	< 0.0040
Iron	mg/L	12/27/2005 4:30:50 PM	6010B	0.050	< 0.050
Lead	mg/L	12/28/2005 2:26:53 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	12/27/2005 4:30:50 PM	6010B	1.0	**18**
Manganese	mg/L	12/28/2005 2:26:53 PM	6020	0.0050	**0.074**
Molybdenum	mg/L	12/27/2005 4:30:50 PM	6010B	0.10	< 0.10
Potassium	mg/L	12/27/2005 4:30:50 PM	6010B	1.0	**1.9**
Selenium	mg/L	12/28/2005 2:26:53 PM	6020	0.0050	< 0.0050
Sodium	mg/L	12/28/2005 12:03:01 PM	6010B	1.0	**6.4**
Zinc	mg/L	12/28/2005 2:26:53 PM	6020	0.010	**0.023**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-04C
Field Sample ID: **Angle Spring**
Collected: 12/22/2005 11:00:00 AM
Received: 12/22/2005

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463 West 3600 South
Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	12/27/2005 4:35:13 PM	6010B	0.10	< 0.10
Arsenic	mg/L	12/28/2005 2:32:15 PM	6020	0.0050	< 0.0050
Boron	mg/L	12/27/2005 4:35:13 PM	6010B	0.50	< 0.50
Cadmium	mg/L	12/28/2005 2:32:15 PM	6020	0.0040	< 0.0040
Calcium	mg/L	12/27/2005 4:35:13 PM	6010B	1.0	**100**
Copper	mg/L	12/28/2005 2:32:15 PM	6020	0.0040	< 0.0040
Iron	mg/L	12/27/2005 4:35:13 PM	6010B	0.050	< 0.050
Lead	mg/L	12/28/2005 2:32:15 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	12/27/2005 4:35:13 PM	6010B	1.0	**19**
Manganese	mg/L	12/28/2005 2:32:15 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	12/27/2005 4:35:13 PM	6010B	0.10	< 0.10
Potassium	mg/L	12/27/2005 4:35:13 PM	6010B	1.0	**1.4**
Selenium	mg/L	12/28/2005 2:32:15 PM	6020	0.0050	< 0.0050
Sodium	mg/L	12/28/2005 12:06:57 PM	6010B	1.0	**9.8**
Zinc	mg/L	12/28/2005 2:32:15 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-01
Field Sample ID: **Mud Creek**
Collected: 12/22/2005 12:30:00 PM
Received: 12/22/2005

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463 West 3600 South
Salt Lake City, Utah
84115

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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	12/23/05	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	12/23/05	2320B	10	**250**	
Ammonia (as N)	mg/L	12/28/05	350.1	0.050	< 0.050	1
Bicarbonate (As CaCO3)	mg/L	12/23/05	2320B	10	**250**	
Carbonate (As CaCO3)	mg/L	12/23/05	2320B	10	< 10	
Chloride	mg/L	12/28/05	300.0	10	**17**	
Hardness (as CaCO3)	mg/L	12/27/05	2340B	10	**430**	
Nitrate (as N)	mg/L	12/23/05 3:26 pm	353.2	0.010	**0.28**	1
Nitrite (as N)	mg/L	12/23/05 3:26 pm	353.2	0.010	< 0.010	1
Oil & Grease	mg/L	12/28/05	EPA 1664	3.0	**3.1**	
Phosphate, ortho (as P)	mg/L	12/23/05 10:42 am	365.1	0.050	< 0.050	1@
Settable Solids	ml/L	12/23/05 10:00 am	2540F	0.10	< 0.10	
Sulfate	mg/L	12/28/05	300.0	100	**190**	
TDS	mg/L	12/23/05	160.1	10	**600**	
TSS	mg/L	12/23/05	160.2	3.0	**13**	

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
@ High RPD due to suspected matrix interference.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-02
Field Sample ID: **Sulfur Spring**
Collected: 12/22/2005 1:00:00 PM
Received: 12/22/2005

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
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Peggy McNicol
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Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	12/23/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	12/23/05	2320B	10	**340**
Ammonia (as N)	mg/L	12/28/05	350.1	0.050	**0.13**
Bicarbonate (As CaCO3)	mg/L	12/23/05	2320B	10	**340**
Carbonate (As CaCO3)	mg/L	12/23/05	2320B	10	< 10
Chloride	mg/L	12/28/05	300.0	1.0	**6.3**
Hardness (as CaCO3)	mg/L	12/27/05	2340B	10	**380**
Nitrate (as N)	mg/L	12/23/05 3:26 pm	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	12/23/05 3:26 pm	353.2	0.010	**0.010**
Oil & Grease	mg/L	12/28/05	EPA 1664	3.0	**4.2**
Phosphate, ortho (as P)	mg/L	12/23/05 10:42 am	365.1	0.050	< 0.050
Settable Solids	ml/L	12/23/05 10:00 am	2540F	0.10	< 0.10
Sulfate	mg/L	12/28/05	300.0	10	**46**
TDS	mg/L	12/23/05	160.1	10	**420**
TSS	mg/L	12/23/05	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-03
Field Sample ID: **Eagle Outlet**
Collected: 12/22/2005 9:00:00 AM
Received: 12/22/2005

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	12/23/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	12/23/05	2320B	10	**280**
Ammonia (as N)	mg/L	12/28/05	350.1	0.050	**0.087**
Bicarbonate (As CaCO3)	mg/L	12/23/05	2320B	10	**280**
Carbonate (As CaCO3)	mg/L	12/23/05	2320B	10	< 10
Chloride	mg/L	12/28/05	300.0	10	**11**
Hardness (as CaCO3)	mg/L	12/27/05	2340B	10	**310**
Nitrate (as N)	mg/L	12/23/05 3:26 pm	353.2	0.010	**0.53**
Nitrite (as N)	mg/L	12/23/05 3:26 pm	353.2	0.010	**0.012**
Oil & Grease	mg/L	12/28/05	EPA 1664	3.0	**3.5**
Phosphate, ortho (as P)	mg/L	12/23/05 10:42 am	365.1	0.050	< 0.050
Settable Solids	ml/L	12/23/05 10:00 am	2540F	0.10	**0.10**
Sulfate	mg/L	12/28/05	300.0	10	**27**
TDS	mg/L	12/23/05	160.1	10	**370**
TSS	mg/L	12/23/05	160.2	3.0	**75**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-04
Field Sample ID: **Angle Spring**
Collected: 12/22/2005 11:00:00 AM
Received: 12/22/2005

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Salt Lake City, Utah
84115

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QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	12/23/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	12/23/05	2320B	10	**310**
Ammonia (as N)	mg/L	12/28/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	12/23/05	2320B	10	**310**
Carbonate (As CaCO3)	mg/L	12/23/05	2320B	10	< 10
Chloride	mg/L	12/28/05	300.0	10	**22**
Hardness (as CaCO3)	mg/L	12/27/05	2340B	10	**330**
Nitrate (as N)	mg/L	12/23/05 3:26 pm	353.2	0.010	**0.98**
Nitrite (as N)	mg/L	12/23/05 3:26 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	12/28/05	EPA 1664	3.0	**3.4**
Phosphate, ortho (as P)	mg/L	12/23/05 10:42 am	365.1	0.050	< 0.050
Settable Solids	ml/L	12/23/05 10:00 am	2540F	0.10	< 0.10
Sulfate	mg/L	12/28/05	300.0	10	**15**
TDS	mg/L	12/23/05	160.1	10	**400**
TSS	mg/L	12/23/05	160.2	3.0	< 3.0

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-26529	Manganese	mg/L	6020	0.1987	0.2	0.0009143	98.9	85-115				12/28/2005
LCS-26528	Arsenic	mg/L	6020	0.2057	0.2	0	103	85-115				12/28/2005
LCS-26528	Cadmium	mg/L	6020	0.2046	0.2	0	102	85-115				12/28/2005
LCS-26528	Copper	mg/L	6020	0.2026	0.2	0	101	85-115				12/28/2005
LCS-26528	Lead	mg/L	6020	0.2113	0.2	0	106	85-115				12/28/2005
LCS-26528	Manganese	mg/L	6020	0.2015	0.2	0	101	85-115				12/28/2005
LCS-26528	Selenium	mg/L	6020	0.2121	0.2	0	106	85-115				12/28/2005
LCS-26528	Zinc	mg/L	6020	1.036	1	0	104	85-115				12/28/2005
LCS-26529	Iron	mg/L	6010B	1.076	1	0	108	75-125				12/27/2005
LCS-26528	Aluminum	mg/L	6010B	1.007	1	0	101	75-125				12/27/2005
LCS-26528	Boron	mg/L	6010B	1.050	1	0	105	75-125				12/27/2005
LCS-26528	Calcium	mg/L	6010B	10.22	10	0	102	75-125				12/27/2005
LCS-26528	Iron	mg/L	6010B	1.054	1	0	105	75-125				12/27/2005
LCS-26528	Magnesium	mg/L	6010B	10.34	10	0	103	75-125				12/27/2005
LCS-26528	Molybdenum	mg/L	6010B	0.2072	0.2	0	104	75-125				12/27/2005
LCS-26528	Potassium	mg/L	6010B	10.15	10	0	102	75-125				12/27/2005
LCS-26528	Sodium	mg/L	6010B	10.16	10	0	102	75-125				12/27/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-26529	Manganese	mg/L	6020	< 0.0050				-				12/28/2005
MB-26528	Arsenic	mg/L	6020	< 0.0050				-				12/28/2005
MB-26528	Cadmium	mg/L	6020	< 0.0040				-				12/28/2005
MB-26528	Copper	mg/L	6020	< 0.0040				-				12/28/2005
MB-26528	Lead	mg/L	6020	< 0.0050				-				12/28/2005
MB-26528	Manganese	mg/L	6020	< 0.0050				-				12/28/2005
MB-26528	Selenium	mg/L	6020	< 0.0050				-				12/28/2005
MB-26528	Zinc	mg/L	6020	< 0.010				-				12/28/2005
MB-26529	Iron	mg/L	6010B	< 0.050				-				12/27/2005
MB-26528	Aluminum	mg/L	6010B	< 0.10				-				12/27/2005
MB-26528	Boron	mg/L	6010B	< 0.50				-				12/27/2005
MB-26528	Calcium	mg/L	6010B	< 1.0				-				12/27/2005
MB-26528	Iron	mg/L	6010B	< 0.050				-				12/27/2005
MB-26528	Magnesium	mg/L	6010B	< 1.0				-				12/27/2005
MB-26528	Molybdenum	mg/L	6010B	< 0.10				-				12/27/2005
MB-26528	Potassium	mg/L	6010B	< 1.0				-				12/27/2005
MB-26528	Sodium	mg/L	6010B	< 1.0				-				12/27/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L69428-01DMS	Manganese	mg/L	6020	0.2287	0.2	0.0282	100	70-130				12/28/2005
L69428-01CMS	Arsenic	mg/L	6020	0.1938	0.2	0	96.9	70-130				12/28/2005
L69428-01CMS	Cadmium	mg/L	6020	0.1999	0.2	0	100	70-130				12/28/2005
L69428-01CMS	Copper	mg/L	6020	0.1964	0.2	0.002	97.2	70-130				12/28/2005
L69428-01CMS	Lead	mg/L	6020	0.2060	0.2	0	103	70-130				12/28/2005
L69428-01CMS	Manganese	mg/L	6020	0.2191	0.2	0.0211	99.0	70-130				12/28/2005
L69428-01CMS	Selenium	mg/L	6020	0.2056	0.2	0	103	70-130				12/28/2005
L69428-01CMS	Zinc	mg/L	6020	0.9877	1	0.0063	98.1	70-130				12/28/2005
L69428-01DMS	Iron	mg/L	6010B	1.353	1	0.2813	107	75-125				12/27/2005
L69428-01CMS	Aluminum	mg/L	6010B	1.033	1	0.05437	97.8	75-125				12/27/2005
L69428-01CMS	Boron	mg/L	6010B	1.252	1	0.1346	112	75-125				12/27/2005
L69428-01CMS	Calcium	mg/L	6010B	96.88	10	90.59	62.9	75-125			[2]	12/27/2005
L69428-01CMS	Iron	mg/L	6010B	1.072	1	0	107	75-125				12/27/2005
L69428-01CMS	Magnesium	mg/L	6010B	59.45	10	49.78	96.7	75-125				12/27/2005
L69428-01CMS	Molybdenum	mg/L	6010B	0.2077	0.2	0	104	75-125				12/27/2005
L69428-01CMS	Potassium	mg/L	6010B	18.23	10	7.556	107	75-125				12/27/2005
L69428-01CMS	Sodium	mg/L	6010B	44.54	10	34.59	99.5	75-125				12/27/2005

[2] Analyte concentration is too high for accurate spike recovery.

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L69428-01DMSD	Manganese	mg/L	6020	0.2378	0.2	0.0282	105	70-130	3.90	20		12/28/2005
L69428-01CMSD	Arsenic	mg/L	6020	0.1961	0.2	0	98.0	70-130	1.18	20		12/28/2005
L69428-01CMSD	Cadmium	mg/L	6020	0.2005	0.2	0	100	70-130	0.300	20		12/28/2005
L69428-01CMSD	Copper	mg/L	6020	0.1952	0.2	0.002	96.6	70-130	0.613	20		12/28/2005
L69428-01CMSD	Lead	mg/L	6020	0.2087	0.2	0	104	70-130	1.30	20		12/28/2005
L69428-01CMSD	Manganese	mg/L	6020	0.2223	0.2	0.0211	101	70-130	1.45	20		12/28/2005
L69428-01CMSD	Selenium	mg/L	6020	0.2086	0.2	0	104	70-130	1.45	20		12/28/2005
L69428-01CMSD	Zinc	mg/L	6020	0.9883	1	0.0063	98.2	70-130	0.0607	20		12/28/2005
L69428-01DMSD	Iron	mg/L	6010B	1.350	1	0.2813	107	75-125	0.197	20		12/27/2005
L69428-01CMSD	Aluminum	mg/L	6010B	1.068	1	0.05437	101	75-125	3.33	20		12/27/2005
L69428-01CMSD	Boron	mg/L	6010B	1.252	1	0.1346	112	75-125	0.0463	20		12/27/2005
L69428-01CMSD	Calcium	mg/L	6010B	97.93	10	90.59	73.4	75-125	1.08	20	2	12/27/2005
L69428-01CMSD	Iron	mg/L	6010B	1.070	1	0	107	75-125	0.167	20		12/27/2005
L69428-01CMSD	Magnesium	mg/L	6010B	61.27	10	49.78	115	75-125	3.01	20		12/27/2005
L69428-01CMSD	Molybdenum	mg/L	6010B	0.2045	0.2	0	102	75-125	1.56	20		12/27/2005
L69428-01CMSD	Potassium	mg/L	6010B	18.57	10	7.556	110	75-125	1.84	20		12/27/2005
L69428-01CMSD	Sodium	mg/L	6010B	44.84	10	34.59	103	75-125	0.677	20		12/27/2005

[2] Analyte concentration is too high for accurate spike recovery.

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L69428-03BDUP	Chloride	mg/L	300.0	10.02	0	10.62		-	5.81	20		12/28/2005
L69428-03BDUP	Sulfate	mg/L	300.0	26.08	0	26.88		-	3.02	20		12/28/2005
L69401-01DDUP	TDS	mg/L	160.1	13160	0	13240		-	0.606	20		12/23/2005
L69428-04ADUP	TDS	mg/L	160.1	392.0	0	396		-	1.02	20		12/23/2005
L69422-02ADUP	TSS	mg/L	160.2	4.000	0	4		-	0	20		12/23/2005
L69428-04ADUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		12/23/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R53600	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				12/23/2005
LCS-R53684	Chloride	mg/L	300.0	4.982	5	0	99.6	90-110				12/27/2005
LCS-R53684	Sulfate	mg/L	300.0	5.217	5	0	104	90-110				12/27/2005
LCS-R53602	Acidity	mg/L	305.1	50.00	50	0	100	80-120				12/23/2005
LCS-26513	Ammonia (as N)	mg/L	350.1	0.9660	1	0	96.6	90-110				12/28/2005
LCS-53618	Nitrite (as N)	mg/L	353.2	0.9460	1	0	94.6	90-110				12/23/2005
LCS-53619	Nitrate (as N)	mg/L	353.2	0.9620	1	0	96.2	90-110				12/23/2005
LCS-R53697	Oil & Grease	mg/L	EPA 1664	41.60	40	0	104	79-114				12/28/2005
LCS-53609	Phosphate, ortho (as P)	mg/L	365.1	1.020	1	0.01	101	90-110				12/23/2005
LCS-R53670	TDS	mg/L	160.1	200.0	205	0	97.6	80-120				12/23/2005
LCS-R53636	TSS	mg/L	160.2	100.0	100	0	100	80-120				12/23/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R53600	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				12/23/2005
MB-R53600	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				12/23/2005
MB-R53600	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				12/23/2005
MB-R53684	Chloride	mg/L	300.0	< 1.0				-				12/27/2005
MB-R53684	Sulfate	mg/L	300.0	< 1.0				-				12/27/2005
MB-R53602	Acidity	mg/L	305.1	< 15				-				12/23/2005
MB-26513	Ammonia (as N)	mg/L	350.1	< 0.050				-				12/28/2005
MB-53618	Nitrite (as N)	mg/L	353.2	< 0.010				-				12/23/2005
MB-53619	Nitrate (as N)	mg/L	353.2	< 0.010				-				12/23/2005
MB-R53697	Oil & Grease	mg/L	EPA 1664	< 3.0				-				12/28/2005
MB-53609	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				12/23/2005
MB-R53670	TDS	mg/L	160.1	< 10				-				12/23/2005
MB-R53636	TSS	mg/L	160.2	< 3.0				-				12/23/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L69428-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	346.0	100	248	98.0	80-120				12/23/2005
L69428-03BMS	Chloride	mg/L	300.0	60.27	50	10.62	99.3	90-110				12/28/2005
L69428-03BMS	Sulfate	mg/L	300.0	78.87	50	26.88	104	90-110				12/28/2005
L69428-01BMS	Acidity	mg/L	305.1	52.00	50	0	96.0	80-120				12/23/2005
L69428-01EMS	Ammonia (as N)	mg/L	350.1	0.9050	1	0	90.5	90-110				12/28/2005
L69428-01BMS	Nitrite (as N)	mg/L	353.2	0.8830	1	0	88.3	90-110			1	12/23/2005
L69428-01BMS	Nitrate (as N)	mg/L	353.2	1.191	1	0.276	91.5	90-110				12/23/2005
L69428-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.124	1	0.01	111	90-110			1	12/23/2005

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: WC
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L69428-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	351.0	100	248	103	80-120	1.43	10		12/23/2005
L69428-03BMSD	Chloride	mg/L	300.0	60.10	50	10.62	99.0	90-110	0.276	20		12/28/2005
L69428-03BMSD	Sulfate	mg/L	300.0	77.94	50	26.88	102	90-110	1.19	20		12/28/2005
L69428-01BMSD	Acidity	mg/L	305.1	48.00	50	0	104	80-120	8.00	20		12/23/2005
L69428-01EMSD	Ammonia (as N)	mg/L	350.1	0.8840	1	0	88.4	90-110	2.35	10	[1]	12/28/2005
L69428-01BMSD	Nitrite (as N)	mg/L	353.2	0.9140	1	0	91.4	90-110	3.45	10		12/23/2005
L69428-01BMSD	Nitrate (as N)	mg/L	353.2	1.158	1	0.276	88.2	90-110	2.81	10	[1]	12/23/2005
L69428-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.8880	1	0.01	87.8	90-110	23.5	10	[1]@	12/23/2005

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R53697	Oil & Grease	mg/L	EPA 1664	38.30	40	0	95.8	79-114				12/28/2005

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R53697	Oil & Grease	mg/L	EPA 1664	37.80	40	0	94.5	79-114	1.31	18		12/28/2005

American West Analytical Labs

WORK ORDER Summary

28-Dec-05

Work Order L69428

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+. EDD in Excel format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L69428-01A	Mud Creek	12/22/2005 12:30:00 PM	12/22/2005	1/9/2006	Aqueous	SS	ww - tss/ss/tds	1
				1/9/2006		TDS-W	ww - tss/ss/tds	1
				1/9/2006		TSS-W	ww - tss/ss/tds	1
L69428-01B				1/9/2006		2320B-ALK-W	dec 22 - wc	1
				1/9/2006		300.0-W	dec 22 - wc	1
				1/9/2006		ACIDITY-W	dec 22 - wc	1
				1/9/2006		NO2-W	dec 22 - wc	1
				1/9/2006		NO3-W	dec 22 - wc	1
				1/9/2006		PO4-O	dec 22 - wc	1
L69428-01C				1/9/2006	Aqueous-Dissolved	3005A-Diss	dec 22 - dis met	1
				1/9/2006		6020-W-DISS	dec 22 - dis met	1
				1/9/2006		HARD	dec 22 - dis met	1
				1/9/2006		ICP-W-DIS	dec 22 - dis met	1
L69428-01D				1/9/2006	Aqueous	3005A-ICPMS	dec 22 - metals	1
				1/9/2006		6020-W	dec 22 - metals	1
				1/9/2006		ICP-W	dec 22 - metals	1
L69428-01E				1/9/2006		NH3-W	dec 22 - nh3	1
				1/9/2006		NH3-W-PREP	dec 22 - nh3	1
L69428-01F				1/9/2006		OGB-W	ogb	1
L69428-02A	Sulfur Spring	12/22/2005 1:00:00 PM		1/9/2006		SS	ww - tss/ss/tds	1
				1/9/2006		TDS-W	ww - tss/ss/tds	1
				1/9/2006		TSS-W	ww - tss/ss/tds	1
L69428-02B				1/9/2006		2320B-ALK-W	dec 22 - wc	1
				1/9/2006		300.0-W	dec 22 - wc	1
				1/9/2006		ACIDITY-W	dec 22 - wc	1
				1/9/2006		NO2-W	dec 22 - wc	1
				1/9/2006		NO3-W	dec 22 - wc	1

WORK ORDER Summary

28-Dec-05

Work Order L69428

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+. EDD in Excel format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L69428-02B	Sulfur Spring	12/22/2005 1:00:00 PM	12/22/2005	1/9/2006	Aqueous	PO4-O	dec 22 - wc	1
L69428-02C				1/9/2006	Aqueous-Dissolved	3005A-Diss	dec 22 - dis met	1
				1/9/2006		6020-W-DISS	dec 22 - dis met	1
				1/9/2006		HARD	dec 22 - dis met	1
				1/9/2006		ICP-W-DIS	dec 22 - dis met	1
L69428-02D				1/9/2006	Aqueous	3005A-ICPMS	dec 22 - metals	1
				1/9/2006		6020-W	dec 22 - metals	1
				1/9/2006		ICP-W	dec 22 - metals	1
L69428-02E				1/9/2006		NH3-W	dec 22 - nh3	1
				1/9/2006		NH3-W-PREP	dec 22 - nh3	1
L69428-02F				1/9/2006		OGB-W	ogb	1
L69428-03A	Eagle Outlet	12/22/2005 9:00:00 AM		1/9/2006		SS	ww - tss/ss/tds	1
				1/9/2006		TDS-W	ww - tss/ss/tds	1
				1/9/2006		TSS-W	ww - tss/ss/tds	1
L69428-03B				1/9/2006		2320B-ALK-W	dec 22 - wc	1
				1/9/2006		300.0-W	dec 22 - wc	1
				1/9/2006		ACIDITY-W	dec 22 - wc	1
				1/9/2006		NO2-W	dec 22 - wc	1
				1/9/2006		NO3-W	dec 22 - wc	1
				1/9/2006		PO4-O	dec 22 - wc	1
L69428-03C				1/9/2006	Aqueous-Dissolved	3005A-Diss	dec 22 - dis met	1
				1/9/2006		6020-W-DISS	dec 22 - dis met	1
				1/9/2006		HARD	dec 22 - dis met	1
				1/9/2006		ICP-W-DIS	dec 22 - dis met	1
L69428-03D				1/9/2006	Aqueous	3005A-ICPMS	dec 22 - metals	1
				1/9/2006		6020-W	dec 22 - metals	1
				1/9/2006		ICP-W	dec 22 - metals	1
L69428-03E				1/9/2006		NH3-W	dec 22 - nh3	1

WORK ORDER Summary

28-Dec-05

Work Order L69428

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+. EDD in Excel format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L69428-03E	Eagle Outlet	12/22/2005 9:00:00 AM	12/22/2005	1/9/2006	Aqueous	NH3-W-PREP	dec 22 - nh3	1
L69428-03F				1/9/2006		OGB-W	ogb	1
L69428-04A	Angle Spring	12/22/2005 11:00:00 AM		1/9/2006		SS	ww - tss/ss/tds	1
				1/9/2006		TDS-W	ww - tss/ss/tds	1
				1/9/2006		TSS-W	ww - tss/ss/tds	1
L69428-04B				1/9/2006		2320B-ALK-W	dec 22 - wc	1
				1/9/2006		300.0-W	dec 22 - wc	1
				1/9/2006		ACIDITY-W	dec 22 - wc	1
				1/9/2006		NO2-W	dec 22 - wc	1
				1/9/2006		NO3-W	dec 22 - wc	1
				1/9/2006		PO4-O	dec 22 - wc	1
L69428-04C				1/9/2006	Aqueous-Dissolved	3005A-Diss	dec 22 - dis met	1
				1/9/2006		6020-W-DISS	dec 22 - dis met	1
				1/9/2006		HARD	dec 22 - dis met	1
				1/9/2006		ICP-W-DIS	dec 22 - dis met	1
L69428-04D				1/9/2006	Aqueous	3005A-ICPMS	dec 22 - metals	1
				1/9/2006		6020-W	dec 22 - metals	1
				1/9/2006		ICP-W	dec 22 - metals	1
L69428-04E				1/9/2006		NH3-W	dec 22 - nh3	1
				1/9/2006		NH3-W-PREP	dec 22 - nh3	1
L69428-04F				1/9/2006		OGB-W	ogb	1

Client Carbon Resources c/o Rock Logic
Address P.O. Box 544
CEDAREDGE, CO 81413
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name SCOFIELD BASELINE
Project Number/P.O.#
Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 69428
Page 1 of 1

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 (2+) 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE #3 ON FILE										COMMENTS
Mud Creek	12-22-05 / 12:30	W	6	✓										
Culfer Spring	12-22-05 / 1:00	W	6	✓										
Eagle Outlet	12-22-05 / 9:00	W	6	✓										
Angle Spring	12-22-05 / 11:00	W	6	✓										

Please indicate tests needed below

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 16:10	PRINT NAME REBEKAH WINKLER
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:
SAMPLES NOT FIELD FILTERED

PLEASE E-MAIL:
- PDF INVOICE
- PDF REPORT
- EXCEL REPORT

THANKS

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature 4°C
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y (N) NA
2 Unbroken on Outer Package Y N (NA)
3 Present on Sample Y (N) NA
4 Unbroken on Sample Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Preservation Check Sheet

Sample Set: 69428

Sample Set Extension and pH

Bottle Type	Preservative	All OK														
Ammonia[1]	pH <2 H_2SO_4	✓														
COD[1]	pH <2 H_2SO_4															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO_3	✓														
NO_2 & NO_3[1]	pH <2 H_2SO_4															
Nutrients[1]	pH <2 H_2SO_4															
O & G	pH <2 HCL	✓														
Phenols[2]	pH <2 H_2SO_4															
Sulfide	pH > 9 NaOH, ZnAC															
TKN[1]	pH <2 H_2SO_4															
TOC[1]	pH <2 H_2SO_4															
TOX[2]	pH <2 H_2SO_4															
T PO4[1]	pH <2 H_2SO_4															
Mixed Analysis[1]	pH <2 H_2SO_4															
Mixed Analysis[2]	pH <2 H_2SO_4															

Procedure:
1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 H_2SO_4 in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 H_2SO_4 in a B.R.

Frequency: All samples requiring preservation

INORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-01C

Field Sample ID: Eagle Outlook

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/13/2005 12:30:29 PM	6010B	0.050	**2.2**
Manganese	mg/L	9/15/2005 4:55:51 PM	6020	0.0050	**0.16**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005

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INORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID:
L67580-02C

Field Sample ID:
Sulfur Springs

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/13/2005 12:46:15 PM	6010B	0.050	**0.30**
Manganese	mg/L	9/15/2005 5:15:53 PM	6020	0.0050	**0.048**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-03C

Field Sample ID: Angle Spring

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/13/2005 12:50:09 PM	6010B	0.050	< 0.050
Manganese	mg/L	9/15/2005 5:20:53 PM	6020	0.0050	< 0.0050

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Laboratory Director

Peggy McNicol
QA Officer

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Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-04C

Field Sample ID: Mud Creek

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/13/2005 12:54:10 PM	6010B	0.050	**0.15**
Manganese	mg/L	9/15/2005 5:25:54 PM	6020	0.0050	**0.023**

Kyle F. Gross
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Peggy McNicol
QA Officer

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-01D

Field Sample ID: Eagle Outlook

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/15/2005 3:51:52 PM	6010B	0.10	**0.24**
Arsenic	mg/L	9/15/2005 3:55:01 PM	6020	0.0050	< 0.0050
Boron	mg/L	9/15/2005 3:51:52 PM	6010B	0.50	< 0.50
Cadmium	mg/L	9/15/2005 3:55:01 PM	6020	0.0040	< 0.0040
Calcium	mg/L	9/15/2005 3:51:52 PM	6010B	10	**71** [1]
Copper	mg/L	9/15/2005 3:55:01 PM	6020	0.0040	< 0.0040
Hardness (as CaCO3)	mg/L	9/15/2005	2340B	10	**250**
Iron	mg/L	9/15/2005 3:51:52 PM	6010B	0.050	**1.3**
Lead	mg/L	9/15/2005 3:55:01 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	9/15/2005 3:51:52 PM	6010B	10	**17**
Manganese	mg/L	9/15/2005 3:55:01 PM	6020	0.0050	**0.15**
Molybdenum	mg/L	9/15/2005 3:51:52 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/15/2005 3:51:52 PM	6010B	1.0	**2.6**
Selenium	mg/L	9/15/2005 3:55:01 PM	6020	0.0050	< 0.0050
Sodium	mg/L	9/15/2005 3:51:52 PM	6010B	1.0	**6.9**
Zinc	mg/L	9/15/2005 3:55:01 PM	6020	0.010	**0.019**

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-02D

Field Sample ID: Sulfur Springs

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/15/2005 4:07:42 PM	6010B	0.10	< 0.10
Arsenic	mg/L	9/15/2005 4:14:59 PM	6020	0.0050	< 0.0050
Boron	mg/L	9/15/2005 4:07:42 PM	6010B	0.50	< 0.50
Cadmium	mg/L	9/15/2005 4:14:59 PM	6020	0.0040	< 0.0040
Calcium	mg/L	9/15/2005 4:07:42 PM	6010B	10	**82**
Copper	mg/L	9/15/2005 4:14:59 PM	6020	0.0040	< 0.0040
Hardness (as CaCO3)	mg/L	9/15/2005	2340B	10	**340**
Iron	mg/L	9/15/2005 4:07:42 PM	6010B	0.050	**0.15**
Lead	mg/L	9/15/2005 4:14:59 PM	6020	0.0050	**0.0070**
Magnesium	mg/L	9/15/2005 4:07:42 PM	6010B	10	**31**
Manganese	mg/L	9/15/2005 4:14:59 PM	6020	0.0050	**0.055**
Molybdenum	mg/L	9/15/2005 4:07:42 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/15/2005 4:07:42 PM	6010B	1.0	**4.2**
Selenium	mg/L	9/15/2005 4:14:59 PM	6020	0.0050	< 0.0050
Sodium	mg/L	9/15/2005 4:07:42 PM	6010B	1.0	**7.6**
Zinc	mg/L	9/15/2005 4:14:59 PM	6020	0.010	**0.038**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-03D

Field Sample ID: Angle Spring

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/15/2005 4:11:37 PM	6010B	0.10	< 0.10
Arsenic	mg/L	9/15/2005 4:19:59 PM	6020	0.0050	< 0.0050
Boron	mg/L	9/15/2005 4:11:37 PM	6010B	0.50	< 0.50
Cadmium	mg/L	9/15/2005 4:19:59 PM	6020	0.0040	< 0.0040
Calcium	mg/L	9/15/2005 4:11:37 PM	6010B	10	**96**
Copper	mg/L	9/15/2005 4:19:59 PM	6020	0.0040	< 0.0040
Hardness (as CaCO3)	mg/L	9/15/2005	2340B	10	**310**
Iron	mg/L	9/15/2005 4:11:37 PM	6010B	0.050	< 0.050
Lead	mg/L	9/15/2005 4:19:59 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	9/15/2005 4:11:37 PM	6010B	10	**17**
Manganese	mg/L	9/15/2005 4:19:59 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	9/15/2005 4:11:37 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/15/2005 4:11:37 PM	6010B	1.0	**1.4**
Selenium	mg/L	9/15/2005 4:19:59 PM	6020	0.0050	< 0.0050
Sodium	mg/L	9/15/2005 4:11:37 PM	6010B	1.0	**9.4**
Zinc	mg/L	9/15/2005 4:19:59 PM	6020	0.010	< 0.010

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Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-04D

Field Sample ID: Mud Creek

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/15/2005 4:15:37 PM	6010B	0.10	< 0.10
Arsenic	mg/L	9/15/2005 4:24:59 PM	6020	0.0050	< 0.0050
Boron	mg/L	9/15/2005 4:15:37 PM	6010B	0.50	< 0.50
Cadmium	mg/L	9/15/2005 4:24:59 PM	6020	0.0040	< 0.0040
Calcium	mg/L	9/15/2005 4:15:37 PM	6010B	10	**83**
Copper	mg/L	9/15/2005 4:24:59 PM	6020	0.0040	< 0.0040
Hardness (as CaCO3)	mg/L	9/15/2005	2340B	10	**410**
Iron	mg/L	9/15/2005 4:15:37 PM	6010B	0.050	**0.066**
Lead	mg/L	9/15/2005 4:24:59 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	9/15/2005 4:15:37 PM	6010B	10	**49**
Manganese	mg/L	9/15/2005 4:24:59 PM	6020	0.0050	**0.020**
Molybdenum	mg/L	9/15/2005 4:15:37 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/15/2005 4:15:37 PM	6010B	1.0	**7.3**
Selenium	mg/L	9/15/2005 4:24:59 PM	6020	0.0050	< 0.0050
Sodium	mg/L	9/15/2005 4:15:37 PM	6010B	10	**34**
Zinc	mg/L	9/15/2005 4:24:59 PM	6020	0.010	< 0.010

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Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-01

Field Sample ID: Eagle Outlook

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	09/09/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	09/08/05	2320B	10	**220**
Ammonia (as N)	mg/L	09/08/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	09/08/05	2320B	10	**220**
Carbonate (As CaCO3)	mg/L	09/08/05	2320B	10	< 10
Chloride	mg/L	09/13/05 9:11 am	300.0	10	**11**
Hardness (as CaCO3)	mg/L	09/15/05	2340B	10	**250**
Nitrate (as N)	mg/L	08/07/05 12:52 pm	353.2	0.010	**0.018**
Nitrite (as N)	mg/L	09/07/05 12:52 pm	353.2	0.010	**0.024**
Oil & Grease	mg/L	09/07/05	EPA 1664	3.0	**4.0**
Phosphate, ortho (as P)	mg/L	09/08/05 8:12 am	365.1	0.060	< 0.060 [1]@
Settable Solids	ml/L	09/07/05 2:00 pm	2540F	0.10	**0.10**
Sulfate	mg/L	09/13/05 9:11 am	300.0	10	**22**
TDS	mg/L	09/09/05	160.1	10	**220**
TSS	mg/L	09/07/05	160.2	3.0	**100**

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
@ High RPD due to suspected matrix interference.

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Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-02

Field Sample ID: Sulfur Springs

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	09/09/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	09/08/05	2320B	10	**350**
Ammonia (as N)	mg/L	09/08/05	350.1	0.050	**0.44**
Bicarbonate (As CaCO3)	mg/L	09/08/05	2320B	10	**350**
Carbonate (As CaCO3)	mg/L	09/08/05	2320B	10	< 10
Chloride	mg/L	09/13/05 10:18 am	300.0	1.0	**6.8**
Hardness (as CaCO3)	mg/L	09/15/05	2340B	10	**340**
Nitrate (as N)	mg/L	08/07/05 12:52 pm	353.2	0.010	**0.012**
Nitrite (as N)	mg/L	09/07/05 12:52 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	09/07/05	EPA 1664	3.0	**4.7**
Phosphate, ortho (as P)	mg/L	09/08/05 8:12 am	365.1	0.060	< 0.060
Settable Solids	ml/L	09/07/05 2:00 pm	2540F	0.10	< 0.10
Sulfate	mg/L	09/13/05 10:18 am	300.0	10	**45**
TDS	mg/L	09/09/05	160.1	10	**360**
TSS	mg/L	09/07/05	160.2	3.0	**15**

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Laboratory Director

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QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-03

Field Sample ID: Angle Spring

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	09/09/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	09/08/05	2320B	10	**300**
Ammonia (as N)	mg/L	09/08/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	09/08/05	2320B	10	**300**
Carbonate (As CaCO3)	mg/L	09/08/05	2320B	10	< 10
Chloride	mg/L	09/13/05 11:24 am	300.0	10	**21**
Hardness (as CaCO3)	mg/L	09/15/05	2340B	10	**310**
Nitrate (as N)	mg/L	08/07/05 12:52 pm	353.2	0.010	**0.97**
Nitrite (as N)	mg/L	09/07/05 12:52 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	09/07/05	EPA 1664	3.0	**4.6**
Phosphate, ortho (as P)	mg/L	09/08/05 8:12 am	365.1	0.060	< 0.060
Settable Solids	ml/L	09/07/05 2:00 pm	2540F	0.10	< 0.10
Sulfate	mg/L	09/13/05 11:24 am	300.0	10	**15**
TDS	mg/L	09/09/05	160.1	10	**340**
TSS	mg/L	09/07/05	160.2	3.0	< 3.0

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Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-04

Field Sample ID: Mud Creek

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	09/09/05	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	09/08/05	2320B	10	**230**
Ammonia (as N)	mg/L	09/08/05	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	09/08/05	2320B	10	**230**
Carbonate (As CaCO3)	mg/L	09/08/05	2320B	10	< 10
Chloride	mg/L	09/14/05 2:11 am	300.0	10	**17**
Hardness (as CaCO3)	mg/L	09/15/05	2340B	10	**410**
Nitrate (as N)	mg/L	08/07/05 12:52 pm	353.2	0.010	**0.22**
Nitrite (as N)	mg/L	09/07/05 12:52 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	09/07/05	EPA 1664	3.0	**4.8**
Phosphate, ortho (as P)	mg/L	09/08/05 8:12 am	365.1	0.060	< 0.060
Settable Solids	ml/L	09/07/05 2:00 pm	2540F	0.10	< 0.10
Sulfate	mg/L	09/14/05 2:11 am	300.0	100	**250**
TDS	mg/L	09/09/05	160.1	10	**580**
TSS	mg/L	09/07/05	160.2	3.0	**8.0**

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005

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American West Analytical Labs

WORK ORDER Summary

07-Sep-05

Work Order L67580

Client ID: WALKIN **QC Level:** 1

Project: Carbon Resources / Whiskey Creek **Location:** HOK UT

Comments: QCLevel: 1

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L67580-01A	Eagle Outlook	9/6/2005 10:15:00 AM	9/7/2005	9/21/2005	Aqueous	SS	ww - tss/tds/ss	1
				9/21/2005		TDS-W	ww - tss/tds/ss	1
				9/21/2005		TSS-W	ww - tss/tds/ss	1
L67580-01B				9/21/2005		2320B-ALK-W	sept 7 - wc	1
				9/21/2005		300.0-W	sept 7 - wc	1
				9/21/2005		ACIDITY-W	sept 7 - wc	1
				9/21/2005		NO2-W	sept 7 - wc	1
				9/21/2005		NO3-W	sept 7 - wc	1
				9/21/2005		PO4-O	sept 7 - wc	1
L67580-01C				9/21/2005		3005A-ICPMS	sept 7 - metals	1
				9/21/2005		6020-W	sept 7 - metals	1
				9/21/2005		ICP-W	sept 7 - metals	1
L67580-01D				9/21/2005	Aqueous-Dissolved	3005A-Diss	sept 7 - dis met	1
				9/21/2005		6020-W-DISS	sept 7 - dis met	1
				9/21/2005		HARD	sept 7 - dis met	1
				9/21/2005		ICP-W-DIS	sept 7 - dis met	1
L67580-01E				9/21/2005	Aqueous	OGB-W	ogb	1
L67580-01F				9/21/2005		NH3-W	sept 7 - nh3	1
				9/21/2005		NH3-W-PREP	sept 7 - nh3	1
L67580-02A	Sulfur Springs	9/6/2005 11:30:00 AM		9/21/2005		SS	ww - tss/tds/ss	1
				9/21/2005		TDS-W	ww - tss/tds/ss	1
				9/21/2005		TSS-W	ww - tss/tds/ss	1
L67580-02B				9/21/2005		2320B-ALK-W	sept 7 - wc	1
				9/21/2005		300.0-W	sept 7 - wc	1
				9/21/2005		ACIDITY-W	sept 7 - wc	1
				9/21/2005		NO2-W	sept 7 - wc	1
				9/21/2005		NO3-W	sept 7 - wc	1

L67580

WORK ORDER Summary

07-Sep-05

Work Order L67580

Client ID: WALKIN **QC Level:** 1

Project: Carbon Resources / Whiskey Creek **Location:**

Comments: QCLevel: 1

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L67580-02B	Sulfur Springs	9/6/2005 11:30:00 AM	9/7/2005	9/21/2005	Aqueous	PO4-O	sept 7 - wc	1
L67580-02C				9/21/2005		3005A-ICPMS	sept 7 - metals	1
				9/21/2005		6020-W	sept 7 - metals	1
				9/21/2005		ICP-W	sept 7 - metals	1
L67580-02D				9/21/2005	Aqueous-Dissolved	3005A-Diss	sept 7 - dis met	1
				9/21/2005		6020-W-DISS	sept 7 - dis met	1
				9/21/2005		HARD	sept 7 - dis met	1
				9/21/2005		ICP-W-DIS	sept 7 - dis met	1
L67580-02E				9/21/2005	Aqueous	OGB-W	ogb	1
L67580-02F				9/21/2005		NH3-W	sept 7 - nh3	1
				9/21/2005		NH3-W-PREP	sept 7 - nh3	1
L67580-03A	Angle Spring	9/6/2005 12:30:00 PM		9/21/2005		SS	ww - tss/tds/ss	1
				9/21/2005		TDS-W	ww - tss/tds/ss	1
				9/21/2005		TSS-W	ww - tss/tds/ss	1
L67580-03B				9/21/2005		2320B-ALK-W	sept 7 - wc	1
				9/21/2005		300.0-W	sept 7 - wc	1
				9/21/2005		ACIDITY-W	sept 7 - wc	1
				9/21/2005		NO2-W	sept 7 - wc	1
				9/21/2005		NO3-W	sept 7 - wc	1
				9/21/2005		PO4-O	sept 7 - wc	1
L67580-03C				9/21/2005		3005A-ICPMS	sept 7 - metals	1
				9/21/2005		6020-W	sept 7 - metals	1
				9/21/2005		ICP-W	sept 7 - metals	1
L67580-03D				9/21/2005	Aqueous-Dissolved	3005A-Diss	sept 7 - dis met	1
				9/21/2005		6020-W-DISS	sept 7 - dis met	1
				9/21/2005		HARD	sept 7 - dis met	1
				9/21/2005		ICP-W-DIS	sept 7 - dis met	1
L67580-03E				9/21/2005	Aqueous	OGB-W	ogb	1

WORK ORDER Summary

07-Sep-05

Work Order L67580

Client ID: WALKIN **QC Level:** 1

Project: Carbon Resources / Whiskey Creek **Location:**

Comments: QCLevel: 1

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L67580-03F	Angle Spring	9/6/2005 12:30:00 PM	9/7/2005	9/21/2005	Aqueous	NH3-W	sept 7 - nh3	1
				9/21/2005		NH3-W-PREP	sept 7 - nh3	1
L67580-04A	Mud Creek	9/6/2005 2:00:00 PM		9/21/2005		SS	ww - tss/tds/ss	1
				9/21/2005		TDS-W	ww - tss/tds/ss	1
				9/21/2005		TSS-W	ww - tss/tds/ss	1
L67580-04B				9/21/2005		2320B-ALK-W	sept 7 - wc	1
				9/21/2005		300.0-W	sept 7 - wc	1
				9/21/2005		ACIDITY-W	sept 7 - wc	1
				9/21/2005		NO2-W	sept 7 - wc	1
				9/21/2005		NO3-W	sept 7 - wc	1
				9/21/2005		PO4-O	sept 7 - wc	1
L67580-04C				9/21/2005		3005A-ICPMS	sept 7 - metals	1
				9/21/2005		6020-W	sept 7 - metals	1
				9/21/2005		ICP-W	sept 7 - metals	1
L67580-04D				9/21/2005	Aqueous-Dissolved	3005A-Diss	sept 7 - dis met	1
				9/21/2005		6020-W-DISS	sept 7 - dis met	1
				9/21/2005		HARD	sept 7 - dis met	1
				9/21/2005		ICP-W-DIS	sept 7 - dis met	1
L67580-04E				9/21/2005	Aqueous	OGB-W	ogb	1
L67580-04F				9/21/2005		NH3-W	sept 7 - nh3	1
				9/21/2005		NH3-W-PREP	sept 7 - nh3	1

Client Carbon Resources - Whiskey Creek

Address _____

City State Zip

Phone 970-835-3715 Fax _____

Contact Brad Lindsay

E-mail lindsay.Brad@gmail.com

Project Name Cofield Baseline

Project Number/P.O.# _____

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 675880

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Please indicate tests needed below

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	See Table 3 on file										COMMENTS
Eagle Outlook	9-6-05 / 1015	W	6	✓										
Sulfer Springs	9-6-05 / 1130	W	6	✓										
Angle Spring	9-6-05 / 1230	W	6	✓										
Mud Creek	9-6-05 / 1400	W	6	✓										

Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME BRAD LINDSAY	Time 15:30	PRINT NAME
Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME

Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME
Relinquished By: *Signature*	Date	Received By: *Signature* Elma Hay
PRINT NAME	Time	PRINT NAME Elma Hayward

Special Instructions:

PLEASE FILTER FOR DISOLVED METALS

ANALYSIS THE SAME AS THE PREVIOUS SET (TABLE 3 SURFACE WATER)

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 3.5°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package Y N NA

2 Unbroken on Outer Package Y N NA

3 Present on Sample Y N NA

4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS		
*	-	Total Dissolved Solids		mg/l
*	-	Total Settleable Solids		(UPDES)
*	-	Total Suspended Solids		mg/l
*	-	Total Hardness ($CaCO_3$)		mg/l
*	-	Total Alkalinity		mg/l
	-	Acidity		mg/l
	-	Aluminum (Dissolved)		mg/l
	-	Arsenic (Dissolved)		mg/l
	-	Boron (Dissolved)[1]		mg/l
*	-	Carbonate		mg/l
*	-	Bicarbonate		mg/l
	-	Cadmium (Dissolved)		mg/l
*	-	Calcium (Dissolved)		mg/l
*	-	Chloride	mg/l	
	-	Copper (Dissolved)		mg/l
*	-	Iron (Dissolved)		mg/l
*	-	Iron (Total)		mg/l
	-	Lead (Dissolved)	mg/l	
*	-	Magnesium (Dissolved)		mg/l
*	-	Manganese (Dissolved)		mg/l
*	-	Manganese (Total)		mg/l
	-	Molybdenum (Dissolved)		mg/l
	-	Ammonia		mg/l
	-	Nitrates		mg/l
	-	Nitrites		mg/l
*	-	Potassium (Dissolved)		mg/l
	-	Phosphates(Ortho)		mg/l
	-	Selenium[1] (Dissolved)		mg/l
*	-	Sodium (Dissolved)		mg/l
*	-	Sulfate		mg/l
	-	Zinc (Dissolved)	mg/l	
*	-	Oil & Grease[2]		mg/l
*	-	Cations		meq/l
*	-	Anions		meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Preservation Check Sheet

Sample Set: 67580

Sample Set Extension and pH

Bottle Type	Preservative	All OK														
Ammonia[1]	pH <2 H_2SO_4	✓														
COD[1]	pH <2 H_2SO_4															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO_3	✓														
NO_2 & NO_3[1]	pH <2 H_2SO_4															
Nutrients[1]	pH <2 H_2SO_4															
O & G	pH <2 HCL	✓														
Phenols[2]	pH <2 H_2SO_4															
Sulfide	pH > 9 NaOH, ZnAC															
TKN[1]	pH <2 H_2SO_4															
TOC[1]	pH <2 H_2SO_4															
TOX[2]	pH <2 H_2SO_4															
T PO4[1]	pH <2 H_2SO_4															
Mixed Analysis[1]	pH <2 H_2SO_4															
Mixed Analysis[2]	pH <2 H_2SO_4															

Procedure:
1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 H_2SO_4 in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 H_2SO_4 in a B.R.

Frequency: All samples requiring preservation

November 13, 2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L74688

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 10/31/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-01E
Field Sample ID: **Mud Creek**
Collected: 10/30/2006 1:00:00 PM
Received: 10/31/2006

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Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/13/2006 1:40:40 PM	6010B	0.050	**0.34**
Manganese	mg/L	11/13/2006 1:40:40 PM	6010B	0.0050	**0.031**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-02E
Field Sample ID: **Sulfer Spring**
Collected: 10/30/2006 2:00:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

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Salt Lake City, Utah
84115

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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/13/2006 1:56:56 PM	6010B	0.050	< 0.050
Manganese	mg/L	11/13/2006 1:56:56 PM	6010B	0.0050	**0.030**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-03E
Field Sample ID: **Res-1**
Collected: 10/30/2006 2:30:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/13/2006 2:00:55 PM	6010B	0.050	**10**
Manganese	mg/L	11/13/2006 2:00:55 PM	6010B	0.0050	**1.1**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-04E
Field Sample ID: **Miller Outlet**
Collected: 10/30/2006 3:00:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/13/2006 2:04:52 PM	6010B	0.050	**1.5**
Manganese	mg/L	11/13/2006 2:04:52 PM	6010B	0.0050	**0.077**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-01F
Field Sample ID: **Mud Creek**
Collected: 10/30/2006 1:00:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	11/13/2006 1:01:17 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	11/6/2006 12:41:08 PM	6020	0.0050	< 0.0050	
Boron	mg/L	11/13/2006 1:01:17 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/6/2006 12:41:08 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	11/13/2006 12:20:17 PM	6010B	10	**67**	[2] *
Copper	mg/L	11/6/2006 12:41:08 PM	6020	0.0040	< 0.0040	
Iron	mg/L	11/13/2006 1:01:17 PM	6010B	0.050	< 0.050	
Lead	mg/L	11/6/2006 12:41:08 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	11/13/2006 12:20:17 PM	6010B	10	**42**	*
Manganese	mg/L	11/6/2006 12:41:08 PM	6020	0.0050	**0.019**	
Molybdenum	mg/L	11/13/2006 1:01:17 PM	6010B	0.10	< 0.10	
Potassium	mg/L	11/13/2006 1:01:17 PM	6010B	1.0	**6.9**	
Selenium	mg/L	11/6/2006 12:41:08 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	11/13/2006 1:01:17 PM	6010B	1.0	**36**	[1]
Zinc	mg/L	11/6/2006 12:41:08 PM	6020	0.010	**0.020**	

[2] Analyte concentration is too high for accurate spike recovery.

** The reporting limits were raised due to high analyte concentration.*

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-02F
Field Sample ID: **Sulfer Spring**
Collected: 10/30/2006 2:00:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	11/13/2006 1:17:25 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	11/6/2006 1:08:07 PM	6020	0.0050	< 0.0050	
Boron	mg/L	11/13/2006 1:17:25 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/6/2006 1:08:07 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	11/13/2006 12:37:59 PM	6010B	10	**89**	*
Copper	mg/L	11/6/2006 1:08:07 PM	6020	0.0040	< 0.0040	
Iron	mg/L	11/13/2006 1:17:25 PM	6010B	0.050	< 0.050	
Lead	mg/L	11/6/2006 1:08:07 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	11/13/2006 12:37:59 PM	6010B	10	**37**	*
Manganese	mg/L	11/6/2006 1:08:07 PM	6020	0.0050	**0.032**	
Molybdenum	mg/L	11/13/2006 1:17:25 PM	6010B	0.10	< 0.10	
Potassium	mg/L	11/13/2006 1:17:25 PM	6010B	1.0	**5.1**	
Selenium	mg/L	11/6/2006 1:08:07 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	11/13/2006 1:17:25 PM	6010B	1.0	**8.9**	
Zinc	mg/L	11/6/2006 1:08:07 PM	6020	0.010	< 0.010	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-03F
Field Sample ID: **Res-1**
Collected: 10/30/2006 2:30:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	11/13/2006 1:21:25 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	11/6/2006 1:13:31 PM	6020	0.0050	< 0.0050	
Boron	mg/L	11/13/2006 1:21:25 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/6/2006 1:13:31 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	11/13/2006 12:41:56 PM	6010B	10	71	*
Copper	mg/L	11/6/2006 1:13:31 PM	6020	0.0040	< 0.0040	
Iron	mg/L	11/13/2006 1:21:25 PM	6010B	0.050	< 0.050	
Lead	mg/L	11/6/2006 1:13:31 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	11/13/2006 12:41:56 PM	6010B	10	33	*
Manganese	mg/L	11/6/2006 1:13:31 PM	6020	0.0050	0.29	
Molybdenum	mg/L	11/13/2006 1:21:25 PM	6010B	0.10	< 0.10	
Potassium	mg/L	11/13/2006 1:21:25 PM	6010B	1.0	4.8	
Selenium	mg/L	11/6/2006 1:13:31 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	11/13/2006 1:21:25 PM	6010B	1.0	26	
Zinc	mg/L	11/6/2006 1:13:31 PM	6020	0.010	< 0.010	

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-04F
Field Sample ID: **Miller Outlet**
Collected: 10/30/2006 3:00:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	11/13/2006 1:25:22 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	11/6/2006 1:18:51 PM	6020	0.0050	< 0.0050	
Boron	mg/L	11/13/2006 1:25:22 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/6/2006 1:18:51 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	11/13/2006 12:45:51 PM	6010B	10	**80**	*
Copper	mg/L	11/6/2006 1:18:51 PM	6020	0.0040	< 0.0040	
Iron	mg/L	11/13/2006 1:25:22 PM	6010B	0.050	< 0.050	
Lead	mg/L	11/6/2006 1:18:51 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	11/13/2006 12:45:51 PM	6010B	10	**17**	*
Manganese	mg/L	11/6/2006 1:18:51 PM	6020	0.0050	**0.016**	
Molybdenum	mg/L	11/13/2006 1:25:22 PM	6010B	0.10	< 0.10	
Potassium	mg/L	11/13/2006 1:25:22 PM	6010B	1.0	**2.1**	
Selenium	mg/L	11/6/2006 1:18:51 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	11/13/2006 1:25:22 PM	6010B	1.0	**6.2**	
Zinc	mg/L	11/6/2006 1:18:51 PM	6020	0.010	< 0.010	

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-01
Field Sample ID: **Mud Creek**
Collected: 10/30/2006 1:00:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/1/2006 6:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	20	**230**
Ammonia (as N)	mg/L	11/3/2006 2:01:00 PM	350.1	0.050	< 0.050 [1]
Bicarbonate (As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	20	**210**
Carbonate (As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	20	**28**
Chloride	mg/L	11/9/2006 12:55:43 AM	300.0	10	**17**
Hardness (as CaCO3)	mg/L	11/13/2006	2340B	10	**340**
Nitrate (as N)	mg/L	11/1/2006 9:28:00 AM	353.2	0.010	**0.13** [1]
Nitrite (as N)	mg/L	11/1/2006 9:28:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/1/2006 1:15:00 PM	EPA 1664	3.0	**3.3**
Phosphate, ortho (as P)	mg/L	11/1/2006 8:46:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	11/1/2006	160.5	0.10	< 0.10
Sulfate	mg/L	11/9/2006 12:55:43 AM	300.0	100	**160**
TDS	mg/L	11/1/2006 2:00:00 PM	160.1	20	**460**
TSS	mg/L	11/1/2006 4:00:00 PM	160.2	3.0	**14**

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-02
Field Sample ID: **Sulfer Spring**
Collected: 10/30/2006 2:00:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
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Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/1/2006 6:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	20	**350**
Ammonia (as N)	mg/L	11/3/2006 2:01:00 PM	350.1	0.050	**0.064**
Bicarbonate (As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	20	**350**
Carbonate (As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/9/2006 3:08:41 AM	300.0	1.0	**6.5**
Hardness (as CaCO3)	mg/L	11/13/2006	2340B	10	**380**
Nitrate (as N)	mg/L	11/1/2006 9:28:00 AM	353.2	0.010	**0.019**
Nitrite (as N)	mg/L	11/1/2006 9:28:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/1/2006 1:15:00 PM	EPA 1664	3.0	**3.7**
Phosphate, ortho (as P)	mg/L	11/1/2006 8:46:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	11/1/2006	160.5	0.10	< 0.10
Sulfate	mg/L	11/9/2006 3:08:41 AM	300.0	10	**46**
TDS	mg/L	11/1/2006 2:00:00 PM	160.1	20	**360**
TSS	mg/L	11/1/2006 4:00:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-03
Field Sample ID: **Res-1**
Collected: 10/30/2006 2:30:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/1/2006 6:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	20	**260**
Ammonia (as N)	mg/L	11/3/2006 2:01:00 PM	350.1	0.050	**0.073**
Bicarbonate (As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	20	**260**
Carbonate (As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/9/2006 4:48:25 AM	300.0	10	**20**
Hardness (as CaCO3)	mg/L	11/13/2006	2340B	10	**310**
Nitrate (as N)	mg/L	11/1/2006 9:28:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	11/1/2006 9:28:00 AM	353.2	0.010	**0.024**
Oil & Grease	mg/L	11/1/2006 1:15:00 PM	EPA 1664	3.0	**3.9**
Phosphate, ortho (as P)	mg/L	11/1/2006 8:46:00 AM	365.1	0.050	**0.059**
Settable Solids	ml/L	11/1/2006	160.5	0.10	**1.5**
Sulfate	mg/L	11/9/2006 4:48:25 AM	300.0	10	**74**
TDS	mg/L	11/1/2006 2:00:00 PM	160.1	20	**400**
TSS	mg/L	11/1/2006 4:00:00 PM	160.2	3.0	**430**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-04
Field Sample ID: **Miller Outlet**
Collected: 10/30/2006 3:00:00 PM
Received: 10/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/1/2006 6:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	20	**260**
Ammonia (as N)	mg/L	11/3/2006 2:01:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	20	**250**
Carbonate (As CaCO3)	mg/L	11/1/2006 6:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/9/2006 6:28:10 AM	300.0	1.0	**9.7**
Hardness (as CaCO3)	mg/L	11/13/2006	2340B	10	**270**
Nitrate (as N)	mg/L	11/1/2006 9:28:00 AM	353.2	0.010	**0.24**
Nitrite (as N)	mg/L	11/1/2006 9:28:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/1/2006 1:15:00 PM	EPA 1664	3.0	**4.1**
Phosphate, ortho (as P)	mg/L	11/1/2006 8:46:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	11/1/2006	160.5	0.10	< 0.10
Sulfate	mg/L	11/9/2006 6:28:10 AM	300.0	10	**25**
TDS	mg/L	11/1/2006 2:00:00 PM	160.1	20	**310**
TSS	mg/L	11/1/2006 4:00:00 PM	160.2	3.0	**51**

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-31458	Arsenic	mg/L	6020	0.2177	0.2	0	109	80-120				11/6/2006
LCS-31458	Cadmium	mg/L	6020	0.2096	0.2	0	105	80-120				11/6/2006
LCS-31458	Copper	mg/L	6020	0.2105	0.2	0	105	80-120				11/6/2006
LCS-31458	Lead	mg/L	6020	0.2040	0.2	0	102	80-120				11/6/2006
LCS-31458	Manganese	mg/L	6020	0.2204	0.2	0	110	80-120				11/6/2006
LCS-31458	Selenium	mg/L	6020	0.1967	0.2	0	98.4	80-120				11/6/2006
LCS-31458	Zinc	mg/L	6020	1.071	1	0.003383	107	80-120				11/6/2006
LCS-31426	Iron	mg/L	6010B	1.092	1	0	109	75-125				11/13/2006
LCS-31426	Manganese	mg/L	6010B	0.2229	0.2	0	111	75-125				11/13/2006
LCS-31458	Aluminum	mg/L	6010B	1.042	1	0	104	75-125				11/13/2006
LCS-31458	Boron	mg/L	6010B	1.097	1	0	110	75-125				11/13/2006
LCS-31458	Calcium	mg/L	6010B	10.58	10	0	106	75-125				11/13/2006
LCS-31458	Iron	mg/L	6010B	1.099	1	0	110	75-125				11/13/2006
LCS-31458	Magnesium	mg/L	6010B	10.97	10	0	110	75-125				11/13/2006
LCS-31458	Molybdenum	mg/L	6010B	0.2180	0.2	0	109	75-125				11/13/2006
LCS-31458	Potassium	mg/L	6010B	10.59	10	0	106	75-125				11/13/2006
LCS-31458	Sodium	mg/L	6010B	9.689	10	0	96.9	75-125				11/13/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-31458	Arsenic	mg/L	6020	< 0.0050				-				11/6/2006
MB-31458	Cadmium	mg/L	6020	< 0.0040				-				11/6/2006
MB-31458	Copper	mg/L	6020	< 0.0040				-				11/6/2006
MB-31458	Lead	mg/L	6020	< 0.0050				-				11/6/2006
MB-31458	Manganese	mg/L	6020	< 0.0050				-				11/6/2006
MB-31458	Selenium	mg/L	6020	< 0.0050				-				11/6/2006
MB-31458	Zinc	mg/L	6020	< 0.010				-				11/6/2006
MB-31426	Iron	mg/L	6010B	< 0.050				-				11/13/2006
MB-31426	Manganese	mg/L	6010B	< 0.0050				-				11/13/2006
MB-31458	Aluminum	mg/L	6010B	< 0.10				-				11/13/2006
MB-31458	Boron	mg/L	6010B	< 0.50				-				11/13/2006
MB-31458	Calcium	mg/L	6010B	< 1.0				-				11/13/2006
MB-31458	Iron	mg/L	6010B	< 0.050				-				11/13/2006
MB-31458	Magnesium	mg/L	6010B	< 1.0				-				11/13/2006
MB-31458	Molybdenum	mg/L	6010B	< 0.10				-				11/13/2006
MB-31458	Potassium	mg/L	6010B	< 1.0				-				11/13/2006
MB-31458	Sodium	mg/L	6010B	< 1.0				-				11/13/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74688-01FMS	Arsenic	mg/L	6020	0.2242	0.2	0	112	70-130				11/6/2006
L74688-01FMS	Cadmium	mg/L	6020	0.2164	0.2	0	108	70-130				11/6/2006
L74688-01FMS	Copper	mg/L	6020	0.2078	0.2	0	104	70-130				11/6/2006
L74688-01FMS	Lead	mg/L	6020	0.2060	0.2	0	103	70-130				11/6/2006
L74688-01FMS	Manganese	mg/L	6020	0.2418	0.2	0.01915	111	70-130				11/6/2006
L74688-01FMS	Selenium	mg/L	6020	0.2027	0.2	0	101	70-130				11/6/2006
L74688-01FMS	Zinc	mg/L	6020	1.119	1	0.02046	110	70-130				11/6/2006
L74688-01EMS	Iron	mg/L	6010B	1.442	1	0.342	110	75-125				11/13/2006
L74688-01EMS	Manganese	mg/L	6010B	0.2500	0.2	0.0312	109	75-125				11/13/2006
L74688-01FMS	Calcium	mg/L	6010B	79.89	10	67.04	129	75-125			2	11/13/2006
L74688-01FMS	Magnesium	mg/L	6010B	53.40	10	42.39	110	75-125				11/13/2006
L74688-01FMS	Aluminum	mg/L	6010B	1.058	1	0.03809	102	75-125				11/13/2006
L74688-01FMS	Boron	mg/L	6010B	1.240	1	0.1239	112	75-125				11/13/2006
L74688-01FMS	Iron	mg/L	6010B	1.068	1	0.0109	106	75-125				11/13/2006
L74688-01FMS	Molybdenum	mg/L	6010B	0.2144	0.2	0	107	75-125				11/13/2006
L74688-01FMS	Potassium	mg/L	6010B	17.44	10	6.94	105	75-125				11/13/2006
L74688-01FMS	Sodium	mg/L	6010B	46.59	10	35.58	110	75-125				11/13/2006

[2] Analyte concentration is too high for accurate spike recovery.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74688-01FMSD	Arsenic	mg/L	6020	0.2264	0.2	0	113	70-130	0.944	20		11/6/2006
L74688-01FMSD	Cadmium	mg/L	6020	0.2174	0.2	0	109	70-130	0.450	20		11/6/2006
L74688-01FMSD	Copper	mg/L	6020	0.2092	0.2	0	105	70-130	0.663	20		11/6/2006
L74688-01FMSD	Lead	mg/L	6020	0.2090	0.2	0	105	70-130	1.47	20		11/6/2006
L74688-01FMSD	Manganese	mg/L	6020	0.2440	0.2	0.01915	112	70-130	0.872	20		11/6/2006
L74688-01FMSD	Selenium	mg/L	6020	0.2050	0.2	0	103	70-130	1.14	20		11/6/2006
L74688-01FMSD	Zinc	mg/L	6020	1.093	1	0.02046	107	70-130	2.38	20		11/6/2006
L74688-01EMSD	Iron	mg/L	6010B	1.536	1	0.342	119	75-125	6.28	20		11/13/2006
L74688-01EMSD	Manganese	mg/L	6010B	0.2511	0.2	0.0312	110	75-125	0.443	20		11/13/2006
L74688-01FMSD	Calcium	mg/L	6010B	79.97	10	67.04	129	75-125	0.0949	20	[2]	11/13/2006
L74688-01FMSD	Magnesium	mg/L	6010B	52.80	10	42.39	104	75-125	1.13	20		11/13/2006
L74688-01FMSD	Aluminum	mg/L	6010B	1.083	1	0.03809	104	75-125	2.32	20		11/13/2006
L74688-01FMSD	Boron	mg/L	6010B	1.300	1	0.1239	118	75-125	4.72	20		11/13/2006
L74688-01FMSD	Iron	mg/L	6010B	1.136	1	0.0109	112	75-125	6.17	20		11/13/2006
L74688-01FMSD	Molybdenum	mg/L	6010B	0.2156	0.2	0	108	75-125	0.578	20		11/13/2006
L74688-01FMSD	Potassium	mg/L	6010B	19.04	10	6.94	121	75-125	8.78	20		11/13/2006
L74688-01FMSD	Sodium	mg/L	6010B	50.80	10	35.58	152	75-125	8.64	20	[1]	11/13/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74425-01ADUP	TDS	mg/L	160.1	252.0	0	250		-	0.797	20		11/1/2006
L74426-05ADUP	TDS	mg/L	160.1	956.0	0	968		-	1.25	20		11/1/2006
L74688-04ADUP	TDS	mg/L	160.1	312.0	0	308		-	1.29	20		11/1/2006
L74699-01CDUP	TDS	mg/L	160.1	7700	0	7200		-	6.71	20		11/1/2006
L74688-01ADUP	TSS	mg/L	160.2	15.00	0	14		-	6.90	20		11/1/2006
L74697-02ADUP	TSS	mg/L	160.2	6.000	0	8		-	28.6	20	*	11/1/2006

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R63329	Alkalinity,(As CaCO3)	mg/L	2320B	49880	50000	0	99.8	90-110				11/1/2006
LCS-R63681	Chloride	mg/L	300.0	4.971	5	0	99.4	90-110				11/8/2006
LCS-R63681	Sulfate	mg/L	300.0	5.221	5	0	104	90-110				11/8/2006
LCS-R63328	Acidity	mg/L	305.1	50.00	50	0	100	80-120				11/1/2006
LCS-31422	Ammonia (as N)	mg/L	350.1	0.9860	1	0	98.6	90-110				11/3/2006
LCS-63342	Nitrite (as N)	mg/L	353.2	1.035	1	0	104	90-110				11/1/2006
LCS-63347	Nitrate (as N)	mg/L	353.2	0.9450	1	0	94.5	90-110				11/1/2006
LCS-R63385	Oil & Grease	mg/L	EPA 1664	42.20	40	0	106	79-114				11/1/2006
LCS-63337	Phosphate, ortho (as P)	mg/L	365.1	0.9820	1	0	98.2	90-110				11/1/2006
LCS-R63439	TDS	mg/L	160.1	200.0	205	0	97.6	80-120				11/1/2006
LCS-R63412	TSS	mg/L	160.2	105.0	100	0	105	80-120				11/1/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R63329	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				11/1/2006
MB-R63329	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				11/1/2006
MB-R63329	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				11/1/2006
MB-R63681	Chloride	mg/L	300.0	< 1.0				-				11/8/2006
MB-R63681	Sulfate	mg/L	300.0	< 1.0				-				11/8/2006
MB-R63328	Acidity	mg/L	305.1	< 15				-				11/1/2006
MB-31422	Ammonia (as N)	mg/L	350.1	< 0.050				-				11/3/2006
MB-63342	Nitrite (as N)	mg/L	353.2	< 0.010				-				11/1/2006
MB-63347	Nitrate (as N)	mg/L	353.2	< 0.010				-				11/1/2006
MB-R63385	Oil & Grease	mg/L	EPA 1664	< 3.0				-				11/1/2006
MB-63337	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				11/1/2006
MB-R63439	TDS	mg/L	160.1	< 10				-				11/1/2006
MB-R63412	TSS	mg/L	160.2	< 3.0				-				11/1/2006

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74688-03BMS	Alkalinity,(As CaCO3)	mg/L	2320B	366.0	100	263	103	80-120				11/1/2006
L74695-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	372.0	100	273	99.0	80-120				11/1/2006
L74688-01BMS	Chloride	mg/L	300.0	67.26	50	17.46	99.6	90-110				11/9/2006
L74688-01BMS	Sulfate	mg/L	300.0	681.4	500	158.6	105	90-110				11/9/2006
L74688-02BMS	Acidity	mg/L	305.1	46.00	50	0	92.0	80-120				11/1/2006
L74688-01CMS	Ammonia (as N)	mg/L	350.1	0.9200	1	0	92.0	90-110				11/3/2006
L74688-01BMS	Nitrite (as N)	mg/L	353.2	1.059	1	0	106	90-110				11/1/2006
L74688-01BMS	Nitrate (as N)	mg/L	353.2	1.040	1	0.131	90.9	90-110				11/1/2006
L74688-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.9590	1	0	95.9	90-110				11/1/2006

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Kyle F. Gross
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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74688-03BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	372.0	100	263	109	80-120	1.63	10		11/1/2006
L74695-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	375.0	100	273	102	80-120	0.803	10		11/1/2006
L74688-01BMSD	Chloride	mg/L	300.0	66.94	50	17.46	99.0	90-110	0.463	20		11/9/2006
L74688-01BMSD	Sulfate	mg/L	300.0	681.2	500	158.6	105	90-110	0.0324	20		11/9/2006
L74688-02BMSD	Acidity	mg/L	305.1	50.00	50	0	100	80-120	8.33	20		11/1/2006
L74688-01CMSD	Ammonia (as N)	mg/L	350.1	0.8970	1	0	89.7	90-110	2.53	10	[1]	11/3/2006
L74688-01BMSD	Nitrite (as N)	mg/L	353.2	1.048	1	0	105	90-110	1.04	10		11/1/2006
L74688-01BMSD	Nitrate (as N)	mg/L	353.2	0.9950	1	0.131	86.4	90-110	4.42	10	[1]	11/1/2006
L74688-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.9990	1	0	99.9	90-110	4.09	10		11/1/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R63385	Oil & Grease	mg/L	EPA 1664	39.90	40	0	99.8	79-114				11/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R63385	Oil & Grease	mg/L	EPA 1664	40.00	40	0	100	79-114	0.250	18		11/1/2006

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American West Analytical Labs

WORK ORDER Summary

31-Oct-06

Work Order L74688

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+ HOK-DB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L74688-01A	Mud Creek	10/30/2006 1:00:00 PM	10/31/2006	11/14/2006	Aqueous	SS	ww - tss/tds/ss	1
				11/14/2006		TDS-W	ww - tss/tds/ss	1
				11/14/2006		TSS-W	ww - tss/tds/ss	1
L74688-01B				11/14/2006		2320B-ALK-W	oct 31 - wc	1
				11/14/2006		300.0-W	oct 31 - wc	1
				11/14/2006		ACIDITY-W	oct 31 - wc	1
				11/14/2006		NO2-W	oct 31 - wc	1
				11/14/2006		NO3-W	oct 31 - wc	1
				11/14/2006		PO4-O	oct 31 - wc	1
L74688-01C				11/14/2006		NH3-W	oct 31 - nh3	1
				11/14/2006		NH3-W-PREP	oct 31 - nh3	1
L74688-01D				11/14/2006		OGB-W	ogb	1
L74688-01E				11/14/2006		3005A-ICPMS	oct 31 - met	1
				11/14/2006		ICP-W	oct 31 - met	1
L74688-01F				11/14/2006	Aqueous-Dissolved	3005A-Diss	oct 31 - met	1
				11/14/2006		6020-W-DISS	oct 31 - met	1
				11/14/2006		HARD	oct 31 - met	1
				11/14/2006		ICP-W-DIS	oct 31 - met	1
L74688-02A	Sulfer Spring	10/30/2006 2:00:00 PM		11/14/2006	Aqueous	SS	ww - tss/tds/ss	1
				11/14/2006		TDS-W	ww - tss/tds/ss	1
				11/14/2006		TSS-W	ww - tss/tds/ss	1
L74688-02B				11/14/2006		2320B-ALK-W	oct 31 - wc	1
				11/14/2006		300.0-W	oct 31 - wc	1
				11/14/2006		ACIDITY-W	oct 31 - wc	1
				11/14/2006		NO2-W	oct 31 - wc	1
				11/14/2006		NO3-W	oct 31 - wc	1
				11/14/2006		PO4-O	oct 31 - wc	1

WORK ORDER Summary

31-Oct-06

Work Order L74688

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L74688-02C	Sulfer Spring	10/30/2006 2:00:00 PM	10/31/2006	11/14/2006	Aqueous	NH3-W	oct 31 - nh3	1
				11/14/2006		NH3-W-PREP	oct 31 - nh3	1
L74688-02D				11/14/2006		OGB-W	ogb	1
L74688-02E				11/14/2006		3005A-ICPMS	oct 31 - met	1
				11/14/2006		ICP-W	oct 31 - met	1
L74688-02F				11/14/2006	Aqueous-Dissolved	3005A-Diss	oct 31 - met	1
				11/14/2006		6020-W-DISS	oct 31 - met	1
				11/14/2006		HARD	oct 31 - met	1
				11/14/2006		ICP-W-DIS	oct 31 - met	1
L74688-03A	Res-1	10/30/2006 2:30:00 PM		11/14/2006	Aqueous	SS	ww - tss/tds/ss	1
				11/14/2006		TDS-W	ww - tss/tds/ss	1
				11/14/2006		TSS-W	ww - tss/tds/ss	1
L74688-03B				11/14/2006		2320B-ALK-W	oct 31 - wc	1
				11/14/2006		300.0-W	oct 31 - wc	1
				11/14/2006		ACIDITY-W	oct 31 - wc	1
				11/14/2006		NO2-W	oct 31 - wc	1
				11/14/2006		NO3-W	oct 31 - wc	1
				11/14/2006		PO4-O	oct 31 - wc	1
L74688-03C				11/14/2006		NH3-W	oct 31 - nh3	1
				11/14/2006		NH3-W-PREP	oct 31 - nh3	1
L74688-03D				11/14/2006		OGB-W	ogb	1
L74688-03E				11/14/2006		3005A-ICPMS	oct 31 - met	1
				11/14/2006		ICP-W	oct 31 - met	1
L74688-03F				11/14/2006	Aqueous-Dissolved	3005A-Diss	oct 31 - met	1
				11/14/2006		6020-W-DISS	oct 31 - met	1
				11/14/2006		HARD	oct 31 - met	1
				11/14/2006		ICP-W-DIS	oct 31 - met	1
L74688-04A	Miller Outlet	10/30/2006 3:00:00 PM		11/14/2006	Aqueous	SS	ww - tss/tds/ss	1

WORK ORDER Summary

31-Oct-06

Work Order L74688

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L74688-04A	Miller Outlet	10/30/2006 3:00:00 PM	10/31/2006	11/14/2006	Aqueous	TDS-W	ww - tss/tds/ss	1
				11/14/2006		TSS-W	ww - tss/tds/ss	1
L74688-04B				11/14/2006		2320B-ALK-W	oct 31 - wc	1
				11/14/2006		300.0-W	oct 31 - wc	1
				11/14/2006		ACIDITY-W	oct 31 - wc	1
				11/14/2006		NO2-W	oct 31 - wc	1
				11/14/2006		NO3-W	oct 31 - wc	1
				11/14/2006		PO4-O	oct 31 - wc	1
L74688-04C				11/14/2006		NH3-W	oct 31 - nh3	1
				11/14/2006		NH3-W-PREP	oct 31 - nh3	1
L74688-04D				11/14/2006		OGB-W	ogb	1
L74688-04E				11/14/2006		3005A-ICPMS	oct 31 - met	1
				11/14/2006		ICP-W	oct 31 - met	1
L74688-04F				11/14/2006	Aqueous-Dissolved	3005A-Diss	oct 31 - met	1
				11/14/2006		6020-W-DISS	oct 31 - met	1
				11/14/2006		HARD	oct 31 - met	1
				11/14/2006		ICP-W-DIS	oct 31 - met	1

Client Carbon Resources / Rock Logic

Address PO Box 544

Cedaredge CO 81413

City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 74688

Page 1 of 1

Turn Around Time (Circle One)

1 day	2 day	3 day	4 day	5 day	Standard
QC	1	2	2+	3	3+	4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Table 3	COMMENTS
Mud Creek	10-30-06 13:00	W	6	✓	
Cutler Spring	10-30-06 14:00	W	6	✓	
Res-1	10-30-06 14:30	W	6	✓	
Miller Outlet	10-30-06 15:00	W	6	✓	

Please indicate tests needed below

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 16:30	PRINT NAME UPS
Relinquished By: Signature	Date 10/31/06	Received By: Signature
PRINT NAME	Time 16:17	PRINT NAME ABBEY WINKLER
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

Please filter for dissolved metals

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature 5.5°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 74688

Preservation Check Sheet

			Sample Set Extension and pH														
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

December 13, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L75142

Dear Brad Lindsay:

American West Analytical Labs received 2 samples on 11/29/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-01E
Field Sample ID: **Mud Creek**
Collected: 11/27/2006 3:45:00 PM
Received: 11/29/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/11/2006 11:38:57 AM	6010B	0.050	**0.30**
Manganese	mg/L	12/11/2006 11:38:57 AM	6010B	0.0050	**0.026**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-02E
Field Sample ID: **Sulfer Spring**
Collected: 11/27/2006 4:10:00 PM
Received: 11/29/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/11/2006 11:43:09 AM	6010B	0.050	< 0.050
Manganese	mg/L	12/11/2006 11:43:09 AM	6010B	0.0050	**0.030**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-01F
Field Sample ID: **Mud Creek**
Collected: 11/27/2006 3:45:00 PM
Received: 11/29/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	12/13/2006 10:44:42 AM	6010B	0.10	< 0.10
Arsenic	mg/L	11/30/2006 10:49:53 AM	6020	0.0050	< 0.0050
Boron	mg/L	12/11/2006 12:17:59 PM	6010B	0.50	< 0.50
Cadmium	mg/L	11/30/2006 10:49:53 AM	6020	0.0040	< 0.0040
Calcium	mg/L	12/13/2006 10:21:20 AM	6010B	10	**89** *
Copper	mg/L	11/30/2006 10:49:53 AM	6020	0.0040	< 0.0040
Iron	mg/L	12/11/2006 12:17:59 PM	6010B	0.050	< 0.050
Lead	mg/L	11/30/2006 10:49:53 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	12/11/2006 12:17:59 PM	6010B	1.0	**44**
Manganese	mg/L	11/30/2006 10:49:53 AM	6020	0.0050	**0.023**
Molybdenum	mg/L	12/11/2006 12:17:59 PM	6010B	0.10	< 0.10
Potassium	mg/L	12/11/2006 12:17:59 PM	6010B	1.0	**7.6**
Selenium	mg/L	11/30/2006 10:49:53 AM	6020	0.0050	< 0.0050
Sodium	mg/L	12/13/2006 10:44:42 AM	6010B	1.0	**42**
Zinc	mg/L	11/30/2006 10:49:53 AM	6020	0.010	< 0.010

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-02F
Field Sample ID: **Sulfer Spring**
Collected: 11/27/2006 4:10:00 PM
Received: 11/29/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	12/13/2006 10:48:35 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	11/30/2006 10:55:16 AM	6020	0.0050	< 0.0050	
Boron	mg/L	12/11/2006 12:26:20 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/30/2006 10:55:16 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	12/13/2006 10:25:15 AM	6010B	10	**93**	*
Copper	mg/L	11/30/2006 10:55:16 AM	6020	0.0040	< 0.0040	
Iron	mg/L	12/11/2006 12:26:20 PM	6010B	0.050	< 0.050	
Lead	mg/L	11/30/2006 10:55:16 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	12/11/2006 12:26:20 PM	6010B	1.0	**38**	[1]
Manganese	mg/L	11/30/2006 10:55:16 AM	6020	0.0050	**0.032**	
Molybdenum	mg/L	12/11/2006 12:26:20 PM	6010B	0.10	< 0.10	
Potassium	mg/L	12/11/2006 12:26:20 PM	6010B	1.0	**5.2**	
Selenium	mg/L	11/30/2006 10:55:16 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	12/13/2006 10:48:35 AM	6010B	1.0	**9.0**	
Zinc	mg/L	11/30/2006 10:55:16 AM	6020	0.010	< 0.010	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

* *The reporting limits were raised due to high analyte concentration.*

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-01
Field Sample ID: **Mud Creek**
Collected: 11/27/2006 3:45:00 PM
Received: 11/29/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	11/29/2006 11:30:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	11/29/2006 10:40:00 AM	2320B	20	**250**	
Ammonia (as N)	mg/L	12/1/2006 12:10:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	11/29/2006 10:40:00 AM	2320B	20	**220**	
Carbonate (As CaCO3)	mg/L	11/29/2006 10:40:00 AM	2320B	20	**31**	
Chloride	mg/L	11/29/2006 6:24:53 PM	300.0	10	**15**	
Hardness (as CaCO3)	mg/L	12/13/2006	2340B	10	**400**	
Nitrate (as N)	mg/L	11/29/2006 11:13:00 AM	353.2	0.010	**0.26**	[1]@
Nitrite (as N)	mg/L	11/29/2006 11:13:00 AM	353.2	0.010	< 0.010	[1]@
Oil & Grease	mg/L	11/29/2006 10:15:00 AM	EPA 1664	3.0	**3.4**	
Phosphate, ortho (as P)	mg/L	11/29/2006 12:51:00 PM	365.1	0.050	< 0.050	
Settable Solids	ml/L	11/29/2006 1:45:00 PM	160.5	0.10	< 0.10	
Sulfate	mg/L	11/29/2006 6:24:53 PM	300.0	100	**160**	
TDS	mg/L	12/1/2006 3:45:00 PM	160.1	20	**490**	
TSS	mg/L	11/29/2006 3:30:00 PM	160.2	3.0	**13**	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
@ High RPD due to suspected matrix interference.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-02
Field Sample ID: **Sulfer Spring**
Collected: 11/27/2006 4:10:00 PM
Received: 11/29/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/29/2006 11:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	11/29/2006 10:40:00 AM	2320B	20	**350**
Ammonia (as N)	mg/L	12/1/2006 12:10:00 PM	350.1	0.050	**0.084**
Bicarbonate (As CaCO3)	mg/L	11/29/2006 10:40:00 AM	2320B	20	**350**
Carbonate (As CaCO3)	mg/L	11/29/2006 10:40:00 AM	2320B	10	< 10
Chloride	mg/L	11/29/2006 8:37:51 PM	300.0	1.0	**6.1**
Hardness (as CaCO3)	mg/L	12/13/2006	2340B	10	**390**
Nitrate (as N)	mg/L	11/29/2006 11:13:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	11/29/2006 11:13:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/29/2006 10:15:00 AM	EPA 1664	3.0	**3.6**
Phosphate, ortho (as P)	mg/L	11/29/2006 12:51:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	11/29/2006 1:45:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	11/29/2006 8:37:51 PM	300.0	10	**43**
TDS	mg/L	12/1/2006 3:45:00 PM	160.1	20	**350**
TSS	mg/L	11/29/2006 3:30:00 PM	160.2	3.0	< 3.0

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-31858	Arsenic	mg/L	6020	0.2236	0.2	0	112	80-120				11/30/2006
LCS-31858	Cadmium	mg/L	6020	0.2089	0.2	0	104	80-120				11/30/2006
LCS-31858	Copper	mg/L	6020	0.2117	0.2	0	106	80-120				11/30/2006
LCS-31858	Lead	mg/L	6020	0.2152	0.2	0	108	80-120				11/30/2006
LCS-31858	Manganese	mg/L	6020	0.2112	0.2	0.00154	105	80-120				11/30/2006
LCS-31858	Selenium	mg/L	6020	0.1907	0.2	0	95.4	80-120				11/30/2006
LCS-31858	Zinc	mg/L	6020	1.039	1	0.005562	103	80-120				11/30/2006
LCS-31861	Iron	mg/L	6010B	1.100	1	0	110	75-125				12/11/2006
LCS-31861	Manganese	mg/L	6010B	0.2290	0.2	0	114	75-125				12/11/2006
LCS-31858	Boron	mg/L	6010B	1.189	1	0	119	75-125				12/11/2006
LCS-31858	Calcium	mg/L	6010B	11.47	10	0	115	75-125				12/11/2006
LCS-31858	Iron	mg/L	6010B	1.151	1	0	115	75-125				12/11/2006
LCS-31858	Magnesium	mg/L	6010B	11.28	10	0	113	75-125				12/11/2006
LCS-31858	Molybdenum	mg/L	6010B	0.2224	0.2	0	111	75-125				12/11/2006
LCS-31858	Potassium	mg/L	6010B	11.11	10	0	111	75-125				12/11/2006
LCS-31858	Aluminum	mg/L	6010B	1.165	1	0	116	75-125				12/13/2006
LCS-31858	Sodium	mg/L	6010B	10.60	10	0	106	75-125				12/13/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-31858	Arsenic	mg/L	6020	< 0.0050				-				11/30/2006
MB-31858	Cadmium	mg/L	6020	< 0.0040				-				11/30/2006
MB-31858	Copper	mg/L	6020	< 0.0040				-				11/30/2006
MB-31858	Lead	mg/L	6020	< 0.0050				-				11/30/2006
MB-31858	Manganese	mg/L	6020	< 0.0050				-				11/30/2006
MB-31858	Selenium	mg/L	6020	< 0.0050				-				11/30/2006
MB-31858	Zinc	mg/L	6020	< 0.010				-				11/30/2006
MB-31861	Iron	mg/L	6010B	< 0.050				-				12/11/2006
MB-31858	Boron	mg/L	6010B	< 0.50				-				12/11/2006
MB-31858	Calcium	mg/L	6010B	< 1.0				-				12/11/2006
MB-31858	Iron	mg/L	6010B	< 0.050				-				12/11/2006
MB-31858	Magnesium	mg/L	6010B	< 1.0				-				12/11/2006
MB-31858	Molybdenum	mg/L	6010B	< 0.040				-				12/11/2006
MB-31858	Potassium	mg/L	6010B	< 1.0				-				12/11/2006
MB-31858	Aluminum	mg/L	6010B	< 0.10				-				12/13/2006
MB-31858	Sodium	mg/L	6010B	< 1.0				-				12/13/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75142-02FMS	Arsenic	mg/L	6020	0.2269	0.2	0	113	70-130				11/30/2006
L75142-02FMS	Cadmium	mg/L	6020	0.2086	0.2	0	104	70-130				11/30/2006
L75142-02FMS	Copper	mg/L	6020	0.2013	0.2	0	101	70-130				11/30/2006
L75142-02FMS	Lead	mg/L	6020	0.2102	0.2	0	105	70-130				11/30/2006
L75142-02FMS	Manganese	mg/L	6020	0.2359	0.2	0.03151	102	70-130				11/30/2006
L75142-02FMS	Selenium	mg/L	6020	0.1967	0.2	0	98.3	70-130				11/30/2006
L75142-02FMS	Zinc	mg/L	6020	1.019	1	0.008702	101	70-130				11/30/2006
L75137-01HMS	Iron	mg/L	6010B	1.137	1	0.0105	113	75-125				12/11/2006
L75142-02EMS	Iron	mg/L	6010B	1.141	1	0.016	113	75-125				12/11/2006
L75142-02EMS	Manganese	mg/L	6010B	0.2419	0.2	0.03003	106	75-125				12/11/2006
L75142-02FMS	Boron	mg/L	6010B	1.196	1	0.03563	116	75-125				12/11/2006
L75142-02FMS	Iron	mg/L	6010B	1.139	1	0.00868	113	75-125				12/11/2006
L75142-02FMS	Magnesium	mg/L	6010B	46.61	10	37.9	87.2	75-125				12/11/2006
L75142-02FMS	Molybdenum	mg/L	6010B	0.2139	0.2	0	107	75-125				12/11/2006
L75142-02FMS	Potassium	mg/L	6010B	16.32	10	5.237	111	75-125				12/11/2006
L75142-02FMS	Calcium	mg/L	6010B	100.5	10	92.51	80.0	75-125				12/13/2006
L75142-02FMS	Aluminum	mg/L	6010B	1.175	1	0.06557	111	75-125				12/13/2006
L75142-02FMS	Sodium	mg/L	6010B	19.91	10	9.03	109	75-125				12/13/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75142-02FMSD	Arsenic	mg/L	6020	0.2198	0.2	0	110	70-130	3.18	20		11/30/2006
L75142-02FMSD	Cadmium	mg/L	6020	0.2034	0.2	0	102	70-130	2.55	20		11/30/2006
L75142-02FMSD	Copper	mg/L	6020	0.1957	0.2	0	97.9	70-130	2.78	20		11/30/2006
L75142-02FMSD	Lead	mg/L	6020	0.2064	0.2	0	103	70-130	1.84	20		11/30/2006
L75142-02FMSD	Manganese	mg/L	6020	0.2273	0.2	0.03151	97.9	70-130	3.74	20		11/30/2006
L75142-02FMSD	Selenium	mg/L	6020	0.1828	0.2	0	91.4	70-130	7.34	20		11/30/2006
L75142-02FMSD	Zinc	mg/L	6020	0.9925	1	0.008702	98.4	70-130	2.66	20		11/30/2006
L75137-01HMSD	Iron	mg/L	6010B	1.127	1	0.0105	112	75-125	0.935	20		12/11/2006
L75142-02EMSD	Iron	mg/L	6010B	1.148	1	0.016	113	75-125	0.572	20		12/11/2006
L75142-02EMSD	Manganese	mg/L	6010B	0.2405	0.2	0.03003	105	75-125	0.568	20		12/11/2006
L75142-02FMSD	Boron	mg/L	6010B	1.207	1	0.03563	117	75-125	0.934	20		12/11/2006
L75142-02FMSD	Iron	mg/L	6010B	1.065	1	0.00868	106	75-125	6.71	20		12/11/2006
L75142-02FMSD	Magnesium	mg/L	6010B	44.47	10	37.9	65.7	75-125	4.70	20	[1]	12/11/2006
L75142-02FMSD	Molybdenum	mg/L	6010B	0.2140	0.2	0	107	75-125	0.0451	20		12/11/2006
L75142-02FMSD	Potassium	mg/L	6010B	15.42	10	5.237	102	75-125	5.67	20		12/11/2006
L75142-02FMSD	Calcium	mg/L	6010B	102.8	10	92.51	102	75-125	2.21	20		12/13/2006
L75142-02FMSD	Aluminum	mg/L	6010B	1.187	1	0.06557	112	75-125	1.03	20		12/13/2006
L75142-02FMSD	Sodium	mg/L	6010B	19.62	10	9.03	106	75-125	1.45	20		12/13/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75162-01CDUP	TDS	mg/L	160.1	5120	0	4960		-	3.17	20		12/1/2006
L75190-02DDUP	TDS	mg/L	160.1	1116	0	1088		-	2.54	20		12/1/2006
L75193-01DDUP	TDS	mg/L	160.1	1760	0	1736		-	1.37	20		12/1/2006
L75205-01ADUP	TDS	mg/L	160.1	300.0	0	280		-	6.90	20		12/1/2006
L75134-02ADUP	TSS	mg/L	160.2	10.00	0	10		-	0	20		11/29/2006
L75142-02ADUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		11/29/2006

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R64229	Alkalinity,(As CaCO3)	mg/L	2320B	51160	50000	0	102	90-110				11/29/2006
LCS-R64262	Chloride	mg/L	300.0	4.848	5	0	97.0	90-110				11/29/2006
LCS-R64262	Sulfate	mg/L	300.0	5.435	5	0	109	90-110				11/29/2006
LCS-R64231	Acidity	mg/L	305.1	50.00	50	0	100	80-120				11/29/2006
LCS-31875	Ammonia (as N)	mg/L	350.1	0.9990	1	0	99.9	90-110				12/1/2006
LCS-64232	Nitrite (as N)	mg/L	353.2	1.030	1	0	103	90-110				11/29/2006
LCS-64234	Nitrate (as N)	mg/L	353.2	1.024	1	0	102	90-110				11/29/2006
LCS-R64252	Oil & Grease	mg/L	EPA 1664	40.80	40	0	102	79-114				11/29/2006
LCS-64243	Phosphate, ortho (as P)	mg/L	365.1	0.9830	1	0	98.3	90-110				11/29/2006
LCS-R64411	TDS	mg/L	160.1	200.0	205	0	97.6	80-120				12/1/2006
LCS-R64274	TSS	mg/L	160.2	102.0	100	0	102	80-120				11/29/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R64229	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				11/29/2006
MB-R64229	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				11/29/2006
MB-R64229	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				11/29/2006
MB-R64262	Chloride	mg/L	300.0	< 1.0				-				11/29/2006
MB-R64262	Sulfate	mg/L	300.0	< 1.0				-				11/29/2006
MB-R64231	Acidity	mg/L	305.1	< 15				-				11/29/2006
MB-31875	Ammonia (as N)	mg/L	350.1	< 0.050				-				12/1/2006
MB-64232	Nitrite (as N)	mg/L	353.2	< 0.010				-				11/29/2006
MB-64234	Nitrate (as N)	mg/L	353.2	< 0.010				-				11/29/2006
MB-R64252	Oil & Grease	mg/L	EPA 1664	< 3.0				-				11/29/2006
MB-64243	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				11/29/2006
MB-R64411	TDS	mg/L	160.1	< 10				-				12/1/2006
MB-R64274	TSS	mg/L	160.2	< 3.0				-				11/29/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75142-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	351.0	100	251	100	80-120				11/29/2006
L75142-01BMS	Chloride	mg/L	300.0	63.24	50	15.48	95.5	90-110				11/29/2006
L75142-01BMS	Sulfate	mg/L	300.0	695.7	500	161.5	107	90-110				11/29/2006
L75137-01CMS	Chloride	mg/L	300.0	822.7	500	348.3	94.9	90-110				11/29/2006
L75137-01CMS	Sulfate	mg/L	300.0	737.0	500	154.9	116	90-110			[1]	11/29/2006
L75142-02BMS	Acidity	mg/L	305.1	46.00	50	0	92.0	80-120				11/29/2006
L75074-01FMS	Ammonia (as N)	mg/L	350.1	2.980	1	2.062	91.8	90-110				12/1/2006
L75142-01CMS	Ammonia (as N)	mg/L	350.1	1.023	1	0	102	90-110				12/1/2006
L75142-01BMS	Nitrite (as N)	mg/L	353.2	0.9990	1	0	99.9	90-110				11/29/2006
L75142-01BMS	Nitrate (as N)	mg/L	353.2	1.195	1	0.264	93.1	90-110				11/29/2006
L75142-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.067	1	0	107	90-110				11/29/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: WC
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75142-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	346.0	100	251	95.0	80-120	1.43	10		11/29/2006
L75142-01BMSD	Chloride	mg/L	300.0	63.22	50	15.48	95.5	90-110	0.0427	20		11/29/2006
L75142-01BMSD	Sulfate	mg/L	300.0	689.3	500	161.5	106	90-110	0.929	20		11/29/2006
L75137-01CMSD	Chloride	mg/L	300.0	822.6	500	348.3	94.9	90-110	0.0120	20		11/29/2006
L75137-01CMSD	Sulfate	mg/L	300.0	711.1	500	154.9	111	90-110	3.57	20	[1]	11/29/2006
L75142-02BMSD	Acidity	mg/L	305.1	40.00	50	0	80.0	80-120	14.0	20		11/29/2006
L75074-01FMSD	Ammonia (as N)	mg/L	350.1	3.014	1	2.062	95.2	90-110	1.13	10		12/1/2006
L75142-01CMSD	Ammonia (as N)	mg/L	350.1	1.025	1	0	103	90-110	0.195	10		12/1/2006
L75142-01BMSD	Nitrite (as N)	mg/L	353.2	1.140	1	0	114	90-110	13.2	10	[1]@	11/29/2006
L75142-01BMSD	Nitrate (as N)	mg/L	353.2	1.417	1	0.264	115	90-110	17.0	10	[1]@	11/29/2006
L75142-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.081	1	0	108	90-110	1.30	10		11/29/2006

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R64252	Oil & Grease	mg/L	EPA 1664	38.40	40	0	96.0	79-114				11/29/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R64252	Oil & Grease	mg/L	EPA 1664	40.60	40	0	102	79-114	5.57	18		11/29/2006

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American West Analytical Labs

WORK ORDER Summary

29-Nov-06

Work Order L75142

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Contact: Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L75142-01A	Mud Creek	11/27/2006 3:45:00 PM	11/29/2006	12/13/2006	Aqueous	SS	ww - tss/tds/ss	1
				12/13/2006		TDS-W	ww - tss/tds/ss	1
				12/13/2006		TSS-W	ww - tss/tds/ss	1
L75142-01B				12/13/2006		2320B-ALK-W	Nov. 29 - wc	1
				12/13/2006		300.0-W	Nov. 29 - wc	1
				12/13/2006		ACIDITY-W	Nov. 29 - wc	1
				12/13/2006		NO2-W	Nov. 29 - wc	1
				12/13/2006		NO3-W	Nov. 29 - wc	1
				12/13/2006		PO4-O	Nov. 29 - wc	1
L75142-01C				12/13/2006		NH3-W	Nov. 29 - nh3	1
				12/13/2006		NH3-W-PREP	Nov. 29 - nh3	1
L75142-01D				12/13/2006		OGB-W	OGBFridge	1
L75142-01E				12/13/2006		3005A-ICPMS	Nov. 29 - met	1
				12/13/2006		ICP-W	Nov. 29 - met	1
L75142-01F				12/13/2006	Aqueous-Dissolved	3005A-Diss	Nov. 29 - met	1
				12/13/2006		6020-W-DISS	Nov. 29 - met	1
				12/13/2006		HARD	Nov. 29 - met	1
				12/13/2006		ICP-W-DIS	Nov. 29 - met	1
L75142-02A	Sulfer Spring	11/27/2006 4:10:00 PM		12/13/2006	Aqueous	SS	ww - tss/tds/ss	1
				12/13/2006		TDS-W	ww - tss/tds/ss	1
				12/13/2006		TSS-W	ww - tss/tds/ss	1
L75142-02B				12/13/2006		2320B-ALK-W	Nov. 29 - wc	1
				12/13/2006		300.0-W	Nov. 29 - wc	1
				12/13/2006		ACIDITY-W	Nov. 29 - wc	1
				12/13/2006		NO2-W	Nov. 29 - wc	1
				12/13/2006		NO3-W	Nov. 29 - wc	1
				12/13/2006		PO4-O	Nov. 29 - wc	1

WORK ORDER Summary

29-Nov-06

Work Order L75142

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L75142-02C	Sulfer Spring	11/27/2006 4:10:00 PM	11/29/2006	12/13/2006	Aqueous	NH3-W	Nov. 29 - nh3	1
				12/13/2006		NH3-W-PREP	Nov. 29 - nh3	1
L75142-02D				12/13/2006		OGB-W	OGBFridge	1
L75142-02E				12/13/2006		3005A-ICPMS	Nov. 29 - met	1
				12/13/2006		ICP-W	Nov. 29 - met	1
L75142-02F				12/13/2006	Aqueous-Dissolved	3005A-Diss	Nov. 29 - met	1
				12/13/2006		6020-W-DISS	Nov. 29 - met	1
				12/13/2006		HARD	Nov. 29 - met	1
				12/13/2006		ICP-W-DIS	Nov. 29 - met	1

Client Carbon Resources | Rock Logic
Address PO Box 544
Cedaredge CO 81413
City State Zip
Phone 935-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name Scofield Baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 25142
Page of

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	table 3	COMMENTS
Mud Creek	11-27-06 ~~15:45~~ 15:45	W	6	✓	
Sulfer Spring	11-27-06 16:10	W	6	✓	
~~Res-1~~	~~11-27-06~~	~~W~~	~~6~~	~~✓~~	
~~Miller Outlet~~	~~11-27-06 16:45~~	~~W~~	~~6~~	~~✓~~	

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 (Shipped) or hand delivered
Notes: UPS
2 Ambient or (Chilled)
Notes: on ice
3 Temperature 0.5°
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 (Properly) Preserved
Y N
Notes:
6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package
(Y) N NA
2 Unbroken on Outer Package
(Y) N NA
3 Present on Sample
Y N (NA)
4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME Brad Lindsay BRAD LINDSAY	Time 14:30	PRINT NAME UPS
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date 11/29/06	Received By: Signature
PRINT NAME	Time 1001	PRINT NAME Elma Hanks

Special Instructions:

* please filter for dissolved metals
need to filter

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 75142

Preservation Check Sheet

			Sample Set Extension and pH														
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

December 14, 2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L75205

Dear Brad Lindsay:

American West Analytical Labs received 1 sample on 12/1/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75205-01E
Field Sample ID: **Miller Outlet**
Collected: 11/28/2006 5:00:00 PM
Received: 12/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
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Toll Free (888) 263-8686
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TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	12/13/2006 2:19:34 PM	6010B	0.050	**1.4**
Manganese	mg/L	12/13/2006 2:19:34 PM	6010B	0.0050	**0.082**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

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84115

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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L75205-01F
Field Sample ID: **Miller Outlet**
Collected: 11/28/2006 5:00:00 PM
Received: 12/1/2006

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	12/13/2006 12:58:57 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	12/5/2006 1:44:14 PM	6020	0.0050	< 0.0050	
Boron	mg/L	12/13/2006 12:58:57 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	12/5/2006 1:44:14 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	12/13/2006 12:03:46 PM	6010B	10	**94**	[2] *
Copper	mg/L	12/5/2006 1:44:14 PM	6020	0.0040	< 0.0040	
Iron	mg/L	12/13/2006 12:58:57 PM	6010B	0.050	< 0.050	
Lead	mg/L	12/5/2006 1:44:14 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	12/13/2006 12:58:57 PM	6010B	1.0	**18**	
Manganese	mg/L	12/5/2006 1:44:14 PM	6020	0.0050	**0.024**	
Molybdenum	mg/L	12/13/2006 12:58:57 PM	6010B	0.10	< 0.10	
Potassium	mg/L	12/13/2006 12:58:57 PM	6010B	1.0	**2.1**	
Selenium	mg/L	12/5/2006 1:44:14 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	12/14/2006 10:19:49 AM	6010B	1.0	**6.8**	
Zinc	mg/L	12/5/2006 1:44:14 PM	6020	0.010	**0.011**	

[2] *Analyte concentration is too high for accurate spike recovery.*
* *The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75205-01
Field Sample ID: **Miller Outlet**
Collected: 11/28/2006 5:00:00 PM
Received: 12/1/2006

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Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	12/4/2006 10:00:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	12/4/2006 7:44:00 AM	2320B	20	**260**	
Ammonia (as N)	mg/L	12/5/2006 8:56:00 AM	350.1	0.050	**0.097**	
Bicarbonate (As CaCO3)	mg/L	12/4/2006 7:44:00 AM	2320B	20	**260**	
Carbonate (As CaCO3)	mg/L	12/4/2006 7:44:00 AM	2320B	10	< 10	
Chloride	mg/L	12/2/2006 5:43:10 AM	300.0	5.0	**9.7**	
Hardness (as CaCO3)	mg/L	12/13/2006	2340B	10	**310**	
Nitrate (as N)	mg/L	12/1/2006 4:09:00 PM	353.2	0.010	**0.65**	H
Nitrite (as N)	mg/L	12/1/2006 4:09:00 PM	353.2	0.010	< 0.010	[1]@H
Oil & Grease	mg/L	12/4/2006 1:00:00 PM	EPA 1664	3.0	**3.1**	
Phosphate, ortho (as P)	mg/L	12/1/2006 1:05:00 PM	365.1	0.050	< 0.050	H
Settable Solids	ml/L	12/1/2006 1:00:00 PM	160.5	0.10	< 0.10	
Sulfate	mg/L	12/2/2006 5:43:10 AM	300.0	5.0	**24**	
TDS	mg/L	12/1/2006 3:45:00 PM	160.1	20	**280**	
TSS	mg/L	12/1/2006 5:15:00 PM	160.2	3.0	**47**	

H - Sample was received outside of holding time.
[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
@ High RPD due to suspected matrix interference.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-31930	Arsenic	mg/L	6020	0.2143	0.2	0	107	80-120				12/5/2006
LCS-31930	Cadmium	mg/L	6020	0.2102	0.2	0	105	80-120				12/5/2006
LCS-31930	Copper	mg/L	6020	0.2101	0.2	0	105	80-120				12/5/2006
LCS-31930	Lead	mg/L	6020	0.2068	0.2	0	103	80-120				12/5/2006
LCS-31930	Manganese	mg/L	6020	0.2105	0.2	0	105	80-120				12/5/2006
LCS-31930	Selenium	mg/L	6020	0.2056	0.2	0	103	80-120				12/5/2006
LCS-31930	Zinc	mg/L	6020	1.052	1	0.005493	105	80-120				12/5/2006
LCS-31931	Iron	mg/L	6010B	1.098	1	0	110	75-125				12/13/2006
LCS-31931	Manganese	mg/L	6010B	0.2129	0.2	0	106	75-125				12/13/2006
LCS-31930	Aluminum	mg/L	6010B	1.151	1	0	115	75-125				12/13/2006
LCS-31930	Boron	mg/L	6010B	1.089	1	0	109	75-125				12/13/2006
LCS-31930	Calcium	mg/L	6010B	10.99	10	0	110	75-125				12/13/2006
LCS-31930	Iron	mg/L	6010B	1.111	1	0	111	75-125				12/13/2006
LCS-31930	Magnesium	mg/L	6010B	11.04	10	0	110	75-125				12/13/2006
LCS-31930	Molybdenum	mg/L	6010B	0.2096	0.2	0	105	75-125				12/13/2006
LCS-31930	Potassium	mg/L	6010B	10.67	10	0	107	75-125				12/13/2006
LCS-31930	Sodium	mg/L	6010B	10.64	10	0	106	75-125				12/13/2006

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-31930	Arsenic	mg/L	6020	< 0.0050				-				12/5/2006
MB-31930	Cadmium	mg/L	6020	< 0.0040				-				12/5/2006
MB-31930	Copper	mg/L	6020	< 0.0040				-				12/5/2006
MB-31930	Lead	mg/L	6020	< 0.0050				-				12/5/2006
MB-31930	Manganese	mg/L	6020	< 0.0050				-				12/5/2006
MB-31930	Selenium	mg/L	6020	< 0.0050				-				12/5/2006
MB-31930	Zinc	mg/L	6020	< 0.010				-				12/5/2006
MB-31931	Iron	mg/L	6010B	< 0.050				-				12/13/2006
MB-31931	Manganese	mg/L	6010B	< 0.0050				-				12/13/2006
MB-31930	Aluminum	mg/L	6010B	< 0.10				-				12/13/2006
MB-31930	Boron	mg/L	6010B	< 0.50				-				12/13/2006
MB-31930	Calcium	mg/L	6010B	< 1.0				-				12/13/2006
MB-31930	Iron	mg/L	6010B	< 0.050				-				12/13/2006
MB-31930	Magnesium	mg/L	6010B	< 1.0				-				12/13/2006
MB-31930	Molybdenum	mg/L	6010B	< 0.040				-				12/13/2006
MB-31930	Potassium	mg/L	6010B	< 1.0				-				12/13/2006
MB-31930	Sodium	mg/L	6010B	< 1.0				-				12/13/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75205-01FMS	Arsenic	mg/L	6020	0.2184	0.2	0	109	70-130				12/5/2006
L75205-01FMS	Cadmium	mg/L	6020	0.2084	0.2	0	104	70-130				12/5/2006
L75205-01FMS	Copper	mg/L	6020	0.2036	0.2	0	102	70-130				12/5/2006
L75205-01FMS	Lead	mg/L	6020	0.2019	0.2	0	101	70-130				12/5/2006
L75205-01FMS	Manganese	mg/L	6020	0.2292	0.2	0.02417	103	70-130				12/5/2006
L75205-01FMS	Selenium	mg/L	6020	0.2090	0.2	0.001478	104	70-130				12/5/2006
L75205-01FMS	Zinc	mg/L	6020	1.054	1	0.0106	104	70-130				12/5/2006
L75205-01EMS	Iron	mg/L	6010B	2.508	1	1.448	106	75-125				12/13/2006
L75205-01EMS	Manganese	mg/L	6010B	0.2888	0.2	0.08233	103	75-125				12/13/2006
L75205-01FMS	Calcium	mg/L	6010B	100.6	10	93.92	66.6	75-125			2	12/13/2006
L75205-01FMS	Aluminum	mg/L	6010B	1.139	1	0.0592	108	75-125				12/13/2006
L75205-01FMS	Boron	mg/L	6010B	1.104	1	0.0154	109	75-125				12/13/2006
L75205-01FMS	Iron	mg/L	6010B	1.099	1	0.00789	109	75-125				12/13/2006
L75205-01FMS	Magnesium	mg/L	6010B	27.41	10	17.84	95.7	75-125				12/13/2006
L75205-01FMS	Molybdenum	mg/L	6010B	0.2032	0.2	0	102	75-125				12/13/2006
L75205-01FMS	Potassium	mg/L	6010B	12.99	10	2.094	109	75-125				12/13/2006
L75205-01FMS	Sodium	mg/L	6010B	17.78	10	6.8	110	75-125				12/14/2006

[2] Analyte concentration is too high for accurate spike recovery.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75205-01FMSD	Arsenic	mg/L	6020	0.2196	0.2	0	110	70-130	0.537	20		12/5/2006
L75205-01FMSD	Cadmium	mg/L	6020	0.2129	0.2	0	106	70-130	2.11	20		12/5/2006
L75205-01FMSD	Copper	mg/L	6020	0.2147	0.2	0	107	70-130	5.31	20		12/5/2006
L75205-01FMSD	Lead	mg/L	6020	0.2101	0.2	0	105	70-130	3.99	20		12/5/2006
L75205-01FMSD	Manganese	mg/L	6020	0.2375	0.2	0.02417	107	70-130	3.55	20		12/5/2006
L75205-01FMSD	Selenium	mg/L	6020	0.2164	0.2	0.001478	107	70-130	3.46	20		12/5/2006
L75205-01FMSD	Zinc	mg/L	6020	1.064	1	0.0106	105	70-130	0.927	20		12/5/2006
L75205-01EMSD	Iron	mg/L	6010B	2.551	1	1.448	110	75-125	1.71	20		12/13/2006
L75205-01EMSD	Manganese	mg/L	6010B	0.2863	0.2	0.08233	102	75-125	0.871	20		12/13/2006
L75205-01FMSD	Calcium	mg/L	6010B	101.4	10	93.92	75.0	75-125	0.824	20	2	12/13/2006
L75205-01FMSD	Aluminum	mg/L	6010B	1.159	1	0.0592	110	75-125	1.73	20		12/13/2006
L75205-01FMSD	Boron	mg/L	6010B	1.119	1	0.0154	110	75-125	1.35	20		12/13/2006
L75205-01FMSD	Iron	mg/L	6010B	1.098	1	0.00789	109	75-125	0.140	20		12/13/2006
L75205-01FMSD	Magnesium	mg/L	6010B	27.42	10	17.84	95.8	75-125	0.0426	20		12/13/2006
L75205-01FMSD	Molybdenum	mg/L	6010B	0.2091	0.2	0	105	75-125	2.85	20		12/13/2006
L75205-01FMSD	Potassium	mg/L	6010B	12.82	10	2.094	107	75-125	1.36	20		12/13/2006
L75205-01FMSD	Sodium	mg/L	6010B	17.64	10	6.8	108	75-125	0.794	20		12/14/2006

[2] Analyte concentration is too high for accurate spike recovery.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75162-01CDUP	TDS	mg/L	160.1	5120	0	4960		-	3.17	20		12/1/2006
L75190-02DDUP	TDS	mg/L	160.1	1116	0	1088		-	2.54	20		12/1/2006
L75193-01DDUP	TDS	mg/L	160.1	1760	0	1736		-	1.37	20		12/1/2006
L75205-01ADUP	TDS	mg/L	160.1	300.0	0	280		-	6.90	20		12/1/2006
L75196-01ADUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		12/1/2006
L75205-01ADUP	TSS	mg/L	160.2	48.00	0	47		-	2.11	20		12/1/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R64377	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				12/4/2006
LCS-R64386	Chloride	mg/L	300.0	5.015	5	0	100	90-110				12/1/2006
LCS-R64386	Sulfate	mg/L	300.0	5.327	5	0	107	90-110				12/1/2006
LCS-R64393	Acidity	mg/L	305.1	50.00	50	0	100	80-120				12/4/2006
LCS-31900	Ammonia (as N)	mg/L	350.1	1.006	1	0	101	90-110				12/5/2006
LCS-64336	Nitrite (as N)	mg/L	353.2	1.051	1	0	105	90-110				12/1/2006
LCS-64337	Nitrate (as N)	mg/L	353.2	1.007	1	0	101	90-110				12/1/2006
LCS-R64408	Oil & Grease	mg/L	EPA 1664	42.90	40	0	107	79-114				12/4/2006
LCS-64321	Phosphate, ortho (as P)	mg/L	365.1	0.9870	1	0	98.7	90-110				12/1/2006
LCS-R64411	TDS	mg/L	160.1	200.0	205	0	97.6	80-120				12/1/2006
LCS-R64389	TSS	mg/L	160.2	100.0	100	0	100	80-120				12/1/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R64377	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				12/4/2006
MB-R64377	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				12/4/2006
MB-R64377	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				12/4/2006
MB-R64386	Chloride	mg/L	300.0	< 1.0				-				12/1/2006
MB-R64386	Sulfate	mg/L	300.0	< 1.0				-				12/1/2006
MB-R64393	Acidity	mg/L	305.1	< 15				-				12/4/2006
MB-31900	Ammonia (as N)	mg/L	350.1	< 0.050				-				12/5/2006
MB-64336	Nitrite (as N)	mg/L	353.2	< 0.010				-				12/1/2006
MB-64337	Nitrate (as N)	mg/L	353.2	< 0.010				-				12/1/2006
MB-R64408	Oil & Grease	mg/L	EPA 1664	< 3.0				-				12/4/2006
MB-64321	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				12/1/2006
MB-R64411	TDS	mg/L	160.1	< 10				-				12/1/2006
MB-R64389	TSS	mg/L	160.2	< 3.0				-				12/1/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75190-02CMS	Alkalinity,(As CaCO3)	mg/L	2320B	617.0	100	511	106	80-120				12/4/2006
L75193-01CMS	Alkalinity,(As CaCO3)	mg/L	2320B	471.0	100	375	96.0	80-120				12/4/2006
L75205-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	359.0	100	263	96.0	80-120				12/4/2006
L75190-02CMS	Chloride	mg/L	300.0	862.7	500	348.2	103	90-110				12/1/2006
L75190-02CMS	Sulfate	mg/L	300.0	63.57	50	17.35	92.4	90-110				12/1/2006
L75193-01CMS	Sulfate	mg/L	300.0	832.6	500	227.3	121	90-110			[1]	12/2/2006
L75205-01BMS	Chloride	mg/L	300.0	35.42	25	9.667	103	90-110				12/2/2006
L75205-01BMS	Sulfate	mg/L	300.0	49.31	25	24.08	101	90-110				12/2/2006
L75205-01BMS	Acidity	mg/L	305.1	46.00	50	0	92.0	80-120				12/4/2006
L75190-02FMS	Ammonia (as N)	mg/L	350.1	12.09	1	10.87	122	90-110			[2]	12/5/2006
L75193-01FMS	Ammonia (as N)	mg/L	350.1	0.9900	1	0	99.0	90-110				12/5/2006
L75205-01CMS	Ammonia (as N)	mg/L	350.1	1.060	1	0.097	96.3	90-110				12/5/2006
L75205-01BMS	Nitrite (as N)	mg/L	353.2	0.9400	1	0.007	93.3	90-110			H	12/1/2006
L75190-02CMS	Nitrate (as N)	mg/L	353.2	0.9380	1	0	93.8	90-110				12/1/2006
L75193-01CMS	Nitrate (as N)	mg/L	353.2	5.240	1	4.271	96.9	90-110				12/1/2006
L75205-01BMS	Nitrate (as N)	mg/L	353.2	1.569	1	0.653	91.6	90-110			H	12/1/2006
L75205-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.109	1	0.03	108	90-110			H	12/1/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

[2] Analyte concentration is too high for accurate spike recovery.

H - Sample was received outside of holding time.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75190-02CMSD	Alkalinity,(As CaCO3)	mg/L	2320B	612.0	100	511	101	80-120	0.814	10		12/4/2006
L75193-01CMSD	Alkalinity,(As CaCO3)	mg/L	2320B	476.0	100	375	101	80-120	1.06	10		12/4/2006
L75205-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	356.0	100	263	93.0	80-120	0.839	10		12/4/2006
L75190-02CMSD	Chloride	mg/L	300.0	860.1	500	348.2	102	90-110	0.298	20		12/1/2006
L75190-02CMSD	Sulfate	mg/L	300.0	63.16	50	17.35	91.6	90-110	0.650	20		12/1/2006
L75193-01CMSD	Sulfate	mg/L	300.0	795.2	500	227.3	114	90-110	4.59	20	[1]	12/2/2006
L75205-01BMSD	Chloride	mg/L	300.0	35.21	25	9.667	102	90-110	0.592	20		12/2/2006
L75205-01BMSD	Sulfate	mg/L	300.0	48.85	25	24.08	99.1	90-110	0.925	20		12/2/2006
L75205-01BMSD	Acidity	mg/L	305.1	48.00	50	0	96.0	80-120	4.26	20		12/4/2006
L75190-02FMSD	Ammonia (as N)	mg/L	350.1	12.15	1	10.87	128	90-110	0.495	10	[2]	12/5/2006
L75193-01FMSD	Ammonia (as N)	mg/L	350.1	1.031	1	0	103	90-110	4.06	10		12/5/2006
L75205-01CMSD	Ammonia (as N)	mg/L	350.1	1.032	1	0.097	93.5	90-110	2.68	10		12/5/2006
L75205-01BMSD	Nitrite (as N)	mg/L	353.2	0.8250	1	0.007	81.8	90-110	13.0	10	[1]@H	12/1/2006
L75190-02CMSD	Nitrate (as N)	mg/L	353.2	0.9500	1	0	95.0	90-110	1.27	10		12/1/2006
L75193-01CMSD	Nitrate (as N)	mg/L	353.2	5.332	1	4.271	106	90-110	1.74	10		12/1/2006
L75205-01BMSD	Nitrate (as N)	mg/L	353.2	1.604	1	0.653	95.1	90-110	2.21	10	H	12/1/2006
L75205-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.086	1	0.03	106	90-110	2.10	10	H	12/1/2006

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

[2] Analyte concentration is too high for accurate spike recovery.

H - Sample was received outside of holding time.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R64408	Oil & Grease	mg/L	EPA 1664	39.10	40	0	97.8	79-114				12/4/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R64408	Oil & Grease	mg/L	EPA 1664	39.80	40	0	99.5	79-114	1.77	18		12/4/2006

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American West Analytical Labs

WORK ORDER Summary

01-Dec-06

Work Order L75205

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Contact: Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L75205-01A	Miller Outlet	11/28/2006 5:00:00 PM	12/1/2006	12/15/2006	Aqueous	SS	ww - tss/tds/ss	1
				12/15/2006		TDS-W	ww - tss/tds/ss	1
				12/15/2006		TSS-W	ww - tss/tds/ss	1
L75205-01B				12/15/2006		2320B-ALK-W	dec 1 - wc	1
				12/15/2006		300.0-W	dec 1 - wc	1
				12/15/2006		ACIDITY-W	dec 1 - wc	1
				12/15/2006		NO2-W	dec 1 - wc	1
				12/15/2006		NO3-W	dec 1 - wc	1
				12/15/2006		PO4-O	dec 1 - wc	1
L75205-01C				12/15/2006		NH3-W	dec 1 - nh3	1
				12/15/2006		NH3-W-PREP	dec 1 - nh3	1
L75205-01D				12/15/2006		OGB-W	OGBFridge	1
L75205-01E				12/15/2006		3005A-ICPMS	dec 1 - met	1
				12/15/2006		ICP-W	dec 1 - met	1
L75205-01F				12/15/2006	Aqueous-Dissolved	3005A-Diss	dec 1 - met	1
				12/15/2006		6020-W-DISS	dec 1 - met	1
				12/15/2006		HARD	dec 1 - met	1
				12/15/2006		ICP-W-DIS	dec 1 - met	1

Client CARBON RESOURCES / ROCK LOGIC

Address PO BOX 544

CEDAREDGE CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact BRAD LINDSAY

E-mail lindsay.brad@gmail.com

Project Name Scofield BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 75205

Page _____ of _____

Turn Around Time (Circle One)

1 day	2 day	3 day	4 day	5 day	Standard
QC	1	2	2+	3	3+	4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 3										COMMENTS
MILLER OUTLET	11-28-06/17:00	W	6	X										

Please indicate tests needed below

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 9:30	PRINT NAME UPS
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date 12/1/06	Received By: Signature
PRINT NAME	Time 1000	PRINT NAME Tina Hayward

Special Instructions:

PLEASE FILTER FOR

DISOLVED METALS

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or (Chilled)
Notes:

3 Temperature 2.5°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y N (NA)

4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 75205

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

January 09, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX

RE: Scofield Baseline

Lab Set ID: L75586

Dear Brad Lindsay:

American West Analytical Labs received 3 samples on 12/28/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75586-01E
Field Sample ID: **Mud Creek**
Collected: 12/26/2006 5:45:00 PM
Received: 12/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	1/3/2007 1:24:16 PM	6010B	0.050	**0.58**
Manganese	mg/L	1/3/2007 1:24:16 PM	6010B	0.0050	**0.040**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L75586-02E
Field Sample ID: **Sulfur Spring**
Collected: 12/26/2006 5:20:00 PM
Received: 12/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	1/3/2007 1:32:21 PM	6010B	0.050	< 0.050
Manganese	mg/L	1/3/2007 1:32:21 PM	6010B	0.0050	**0.026**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75586-03E
Field Sample ID: **Miller Outlet**
Collected: 12/26/2006 5:00:00 PM
Received: 12/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	1/3/2007 1:48:40 PM	6010B	0.050	**2.1**
Manganese	mg/L	1/3/2007 1:48:40 PM	6010B	0.0050	**0.11**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L75586-01F
Field Sample ID: **Mud Creek**
Collected: 12/26/2006 5:45:00 PM
Received: 12/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	1/5/2007 4:04:07 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	1/3/2007 11:43:58 AM	6020	0.0050	< 0.0050	
Boron	mg/L	1/5/2007 4:04:07 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	1/3/2007 11:43:58 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	1/5/2007 10:54:30 AM	6010B	10	**76**	*
Copper	mg/L	1/3/2007 11:43:58 AM	6020	0.0040	< 0.0040	
Iron	mg/L	1/5/2007 4:04:07 PM	6010B	0.050	< 0.050	
Lead	mg/L	1/3/2007 11:43:58 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	1/5/2007 10:54:30 AM	6010B	10	**44**	*
Manganese	mg/L	1/3/2007 11:43:58 AM	6020	0.0050	**0.016**	
Molybdenum	mg/L	1/5/2007 4:04:07 PM	6010B	0.10	< 0.10	
Potassium	mg/L	1/5/2007 4:04:07 PM	6010B	1.0	**7.6**	
Selenium	mg/L	1/3/2007 11:43:58 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	1/5/2007 10:54:30 AM	6010B	10	**45**	*
Zinc	mg/L	1/3/2007 11:43:58 AM	6020	0.010	< 0.010	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75586-02F
Field Sample ID: **Sulfur Spring**
Collected: 12/26/2006 5:20:00 PM
Received: 12/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	1/5/2007 4:19:57 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	1/3/2007 12:21:42 PM	6020	0.0050	< 0.0050	
Boron	mg/L	1/5/2007 4:19:57 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	1/3/2007 12:21:42 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	1/5/2007 11:06:17 AM	6010B	10	**93**	*
Copper	mg/L	1/3/2007 12:21:42 PM	6020	0.0040	< 0.0040	
Iron	mg/L	1/5/2007 4:19:57 PM	6010B	0.050	< 0.050	
Lead	mg/L	1/3/2007 12:21:42 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	1/5/2007 11:06:17 AM	6010B	10	**36**	*
Manganese	mg/L	1/3/2007 12:21:42 PM	6020	0.0050	**0.029**	
Molybdenum	mg/L	1/5/2007 4:19:57 PM	6010B	0.10	< 0.10	
Potassium	mg/L	1/5/2007 4:19:57 PM	6010B	1.0	**5.5**	
Selenium	mg/L	1/3/2007 12:21:42 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	1/5/2007 4:19:57 PM	6010B	1.0	**9.1**	
Zinc	mg/L	1/3/2007 12:21:42 PM	6020	0.010	< 0.010	

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L75586-03F
Field Sample ID: **Miller Outlet**
Collected: 12/26/2006 5:00:00 PM
Received: 12/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	1/5/2007 4:23:52 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	1/3/2007 12:27:06 PM	6020	0.0050	< 0.0050	
Boron	mg/L	1/5/2007 4:23:52 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	1/3/2007 12:27:06 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	1/5/2007 11:10:12 AM	6010B	10	**95**	*
Copper	mg/L	1/3/2007 12:27:06 PM	6020	0.0040	< 0.0040	
Iron	mg/L	1/5/2007 4:23:52 PM	6010B	0.050	< 0.050	
Lead	mg/L	1/3/2007 12:27:06 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	1/5/2007 11:10:12 AM	6010B	10	**17**	*
Manganese	mg/L	1/3/2007 12:27:06 PM	6020	0.0050	**0.023**	
Molybdenum	mg/L	1/5/2007 4:23:52 PM	6010B	0.10	< 0.10	
Potassium	mg/L	1/5/2007 4:23:52 PM	6010B	1.0	**1.8**	
Selenium	mg/L	1/3/2007 12:27:06 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	1/5/2007 4:23:52 PM	6010B	1.0	**7.1**	
Zinc	mg/L	1/3/2007 12:27:06 PM	6020	0.010	**0.029**	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L75586-01
Field Sample ID: **Mud Creek**
Collected: 12/26/2006 5:45:00 PM
Received: 12/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	1/2/2007 7:00:00 AM	305.1	15	< 15	
Alkalinity,(AsCaCO3)	mg/L	1/2/2007 6:40:00 AM	2320B	20	**240**	
Ammonia (as N)	mg/L	12/29/2006 1:11:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	1/2/2007 6:40:00 AM	2320B	20	**220**	
Carbonate (As CaCO3)	mg/L	1/2/2007 6:40:00 AM	2320B	20	**21**	
Chloride	mg/L	1/2/2007 12:21:10 PM	300.0	5.0	**16**	
Hardness (as CaCO3)	mg/L	1/5/2007	2340B	10	**370**	
Nitrate (as N)	mg/L	12/28/2006 11:26:00 AM	353.2	0.010	**0.30**	1
Nitrite (as N)	mg/L	12/28/2006 11:26:00 AM	353.2	0.010	< 0.010	1
Oil & Grease	mg/L	12/29/2006 12:45:00 PM	EPA1664	3.0	**3.5**	
Phosphate, ortho (as P)	mg/L	12/28/2006 1:10:00 PM	365.1	0.050	< 0.050	1
SettableSolids	ml/L	12/28/2006	160.5	0.10	**0.10**	
Sulfate	mg/L	1/2/2007 12:21:10 PM	300.0	50	**150**	1
TDS	mg/L	12/29/2006 3:00:00 PM	160.1	20	**490**	
TSS	mg/L	12/28/2006 3:20:00 PM	160.2	3.0	**33**	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L75586-02
Field Sample ID: **SulfurSpring**
Collected: 12/26/2006 5:20:00 PM
Received: 12/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	1/2/2007 7:00:00 AM	305.1	15	< 15
Alkalinity,(AsCaCO3)	mg/L	1/2/2007 6:40:00 AM	2320B	20	**340**
Ammonia (as N)	mg/L	12/29/2006 1:11:00 PM	350.1	0.050	**0.093**
Bicarbonate (As CaCO3)	mg/L	1/2/2007 6:40:00 AM	2320B	20	**340**
Carbonate (As CaCO3)	mg/L	1/2/2007 6:40:00 AM	2320B	10	< 10
Chloride	mg/L	1/2/2007 4:14:07 AM	300.0	1.0	**6.5**
Hardness (as CaCO3)	mg/L	1/5/2007	2340B	10	**380**
Nitrate (as N)	mg/L	12/28/2006 11:26:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	12/28/2006 11:26:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	12/29/2006 12:45:00 PM	EPA1664	3.0	**3.3**
Phosphate, ortho (as P)	mg/L	12/28/2006 1:10:00 PM	365.1	0.050	< 0.050
SettableSolids	ml/L	12/28/2006	160.5	0.10	< 0.10
Sulfate	mg/L	1/2/2007 4:14:07 AM	300.0	5.0	**42**
TDS	mg/L	12/29/2006 3:00:00 PM	160.1	20	**370**
TSS	mg/L	12/28/2006 3:20:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L75586-03
Field Sample ID: **Miller Outlet**
Collected: 12/26/2006 5:00:00 PM
Received: 12/28/2006

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Salt Lake City, Utah
84115

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Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	1/2/2007 7:00:00 AM	305.1	15	< 15
Alkalinity,(AsCaCO3)	mg/L	1/2/2007 6:40:00 AM	2320B	20	**280**
Ammonia (as N)	mg/L	12/29/2006 1:11:00 PM	350.1	0.050	**0.067**
Bicarbonate (As CaCO3)	mg/L	1/2/2007 6:40:00 AM	2320B	20	**270**
Carbonate (As CaCO3)	mg/L	1/2/2007 6:40:00 AM	2320B	10	**10**
Chloride	mg/L	1/2/2007 5:53:58 AM	300.0	2.0	**11**
Hardness (as CaCO3)	mg/L	1/5/2007	2340B	10	**310**
Nitrate (as N)	mg/L	12/28/2006 11:26:00 AM	353.2	0.010	**0.82**
Nitrite (as N)	mg/L	12/28/2006 11:26:00 AM	353.2	0.010	**0.011**
Oil & Grease	mg/L	12/29/2006 12:45:00 PM	EPA1664	3.0	**4.8**
Phosphate, ortho (as P)	mg/L	12/28/2006 1:10:00 PM	365.1	0.050	**< 0.050**
SettableSolids	ml/L	12/28/2006	160.5	0.10	**0.10**
Sulfate	mg/L	1/2/2007 5:53:58 AM	300.0	5.0	**20**
TDS	mg/L	12/29/2006 3:00:00 PM	160.1	20	**300**
TSS	mg/L	12/28/2006 3:20:00 PM	160.2	3.0	**75**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-32334	Arsenic	mg/L	6020	0.2227	0.2	0	111	80-120				1/3/2007
LCS-32334	Cadmium	mg/L	6020	0.2153	0.2	0	108	80-120				1/3/2007
LCS-32334	Copper	mg/L	6020	0.2103	0.2	0	105	80-120				1/3/2007
LCS-32334	Lead	mg/L	6020	0.2026	0.2	0	101	80-120				1/3/2007
LCS-32334	Manganese	mg/L	6020	0.2101	0.2	0	105	80-120				1/3/2007
LCS-32334	Selenium	mg/L	6020	0.2087	0.2	0	104	80-120				1/3/2007
LCS-32334	Zinc	mg/L	6020	1.097	1	0.004632	109	80-120				1/3/2007
LCS-32335	Iron	mg/L	6010B	1.016	1	0	102	75-125				1/3/2007
LCS-32335	Manganese	mg/L	6010B	0.1913	0.2	0	95.7	75-125				1/3/2007
LCS-32334	Aluminum	mg/L	6010B	1.018	1	0	102	75-125				1/5/2007
LCS-32334	Boron	mg/L	6010B	1.067	1	0	107	75-125				1/5/2007
LCS-32334	Calcium	mg/L	6010B	10.57	10	0	106	75-125				1/5/2007
LCS-32334	Magnesium	mg/L	6010B	10.36	10	0	104	75-125				1/5/2007
LCS-32334	Molybdenum	mg/L	6010B	0.2067	0.2	0	103	75-125				1/5/2007
LCS-32334	Potassium	mg/L	6010B	10.11	10	0	101	75-125				1/5/2007
LCS-32334	Sodium	mg/L	6010B	10.92	10	0	109	75-125				1/5/2007
LCS-32334	Iron	mg/L	6010B	1.070	1	0	107	75-125				1/5/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-32334	Arsenic	mg/L	6020	< 0.0050				-				1/3/2007
MB-32334	Cadmium	mg/L	6020	< 0.0040				-				1/3/2007
MB-32334	Copper	mg/L	6020	< 0.0040				-				1/3/2007
MB-32334	Lead	mg/L	6020	< 0.0050				-				1/3/2007
MB-32334	Manganese	mg/L	6020	< 0.0050				-				1/3/2007
MB-32334	Selenium	mg/L	6020	< 0.0050				-				1/3/2007
MB-32334	Zinc	mg/L	6020	< 0.010				-				1/3/2007
MB-32335	Iron	mg/L	6010B	< 0.050				-				1/3/2007
MB-32335	Manganese	mg/L	6010B	< 0.0050				-				1/3/2007
MB-32334	Aluminum	mg/L	6010B	< 0.10				-				1/5/2007
MB-32334	Boron	mg/L	6010B	< 0.50				-				1/5/2007
MB-32334	Calcium	mg/L	6010B	< 1.0				-				1/5/2007
MB-32334	Magnesium	mg/L	6010B	< 1.0				-				1/5/2007
MB-32334	Molybdenum	mg/L	6010B	< 0.040				-				1/5/2007
MB-32334	Potassium	mg/L	6010B	< 1.0				-				1/5/2007
MB-32334	Sodium	mg/L	6010B	< 1.0				-				1/5/2007
MB-32334	Iron	mg/L	6010B	< 0.050				-				1/5/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75586-01FMS	Arsenic	mg/L	6020	0.2258	0.2	0	113	70-130				1/3/2007
L75586-01FMS	Cadmium	mg/L	6020	0.2137	0.2	0	107	70-130				1/3/2007
L75586-01FMS	Copper	mg/L	6020	0.2171	0.2	0	109	70-130				1/3/2007
L75586-01FMS	Lead	mg/L	6020	0.2028	0.2	0	101	70-130				1/3/2007
L75586-01FMS	Manganese	mg/L	6020	0.2315	0.2	0.01555	108	70-130				1/3/2007
L75586-01FMS	Selenium	mg/L	6020	0.2098	0.2	0	105	70-130				1/3/2007
L75586-01FMS	Zinc	mg/L	6020	1.077	1	0.003491	107	70-130				1/3/2007
L75586-02EMS	Iron	mg/L	6010B	1.020	1	0.01167	101	75-125				1/3/2007
L75586-02EMS	Manganese	mg/L	6010B	0.2129	0.2	0.02627	93.3	75-125				1/3/2007
L75586-01FMS	Calcium	mg/L	6010B	83.35	10	75.74	76.1	75-125				1/5/2007
L75586-01FMS	Magnesium	mg/L	6010B	53.07	10	44.43	86.4	75-125				1/5/2007
L75586-01FMS	Sodium	mg/L	6010B	52.62	10	44.7	79.3	75-125				1/5/2007
L75586-01FMS	Aluminum	mg/L	6010B	1.073	1	0	107	75-125				1/5/2007
L75586-01FMS	Boron	mg/L	6010B	1.362	1	0.1502	121	75-125				1/5/2007
L75586-01FMS	Iron	mg/L	6010B	1.092	1	0.01152	108	75-125				1/5/2007
L75586-01FMS	Molybdenum	mg/L	6010B	0.2234	0.2	0	112	75-125				1/5/2007
L75586-01FMS	Potassium	mg/L	6010B	20.03	10	7.64	124	75-125				1/5/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75586-01FMSD	Arsenic	mg/L	6020	0.2261	0.2	0	113	70-130	0.120	20		1/3/2007
L75586-01FMSD	Cadmium	mg/L	6020	0.2123	0.2	0	106	70-130	0.640	20		1/3/2007
L75586-01FMSD	Copper	mg/L	6020	0.2170	0.2	0	108	70-130	0.0838	20		1/3/2007
L75586-01FMSD	Lead	mg/L	6020	0.2059	0.2	0	103	70-130	1.52	20		1/3/2007
L75586-01FMSD	Manganese	mg/L	6020	0.2335	0.2	0.01555	109	70-130	0.843	20		1/3/2007
L75586-01FMSD	Selenium	mg/L	6020	0.2105	0.2	0	105	70-130	0.322	20		1/3/2007
L75586-01FMSD	Zinc	mg/L	6020	1.080	1	0.003491	108	70-130	0.254	20		1/3/2007
L75586-02EMSD	Iron	mg/L	6010B	0.9799	1	0.01167	96.8	75-125	4.00	20		1/3/2007
L75586-02EMSD	Manganese	mg/L	6010B	0.2012	0.2	0.02627	87.4	75-125	5.66	20		1/3/2007
L75586-01FMSD	Calcium	mg/L	6010B	86.20	10	75.74	105	75-125	3.36	20		1/5/2007
L75586-01FMSD	Magnesium	mg/L	6010B	53.67	10	44.43	92.4	75-125	1.13	20		1/5/2007
L75586-01FMSD	Sodium	mg/L	6010B	54.31	10	44.7	96.2	75-125	3.16	20		1/5/2007
L75586-01FMSD	Aluminum	mg/L	6010B	0.9916	1	0	99.2	75-125	7.84	20		1/5/2007
L75586-01FMSD	Boron	mg/L	6010B	1.285	1	0.1502	113	75-125	5.86	20		1/5/2007
L75586-01FMSD	Iron	mg/L	6010B	1.103	1	0.01152	109	75-125	0.986	20		1/5/2007
L75586-01FMSD	Molybdenum	mg/L	6010B	0.2131	0.2	0	107	75-125	4.70	20		1/5/2007
L75586-01FMSD	Potassium	mg/L	6010B	20.08	10	7.64	124	75-125	0.255	20		1/5/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75568-03DDUP	TDS	mg/L	160.1	1752	0	1784		-	1.81	20		12/29/2006
L75586-03ADUP	TDS	mg/L	160.1	292.0	0	304		-	4.03	20		12/29/2006
L75595-01BDUP	TDS	mg/L	160.1	5820	0	5880		-	1.03	20		12/29/2006
L75573-02ADUP	TSS	mg/L	160.2	520.0	0	515		-	0.966	20		12/28/2006
L75578-02ADUP	TSS	mg/L	160.2	8.000	0	8		-	0	20		12/28/2006
L75586-02ADUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		12/28/2006
L75595-01ADUP	TSS	mg/L	160.2	29.00	0	27		-	7.14	20		12/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R65146	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				1/2/2007
LCS-R65183	Chloride	mg/L	300.0	5.088	5	0.033	101	90-110				1/2/2007
LCS-R65183	Sulfate	mg/L	300.0	4.874	5	0	97.5	90-110				1/2/2007
LCS-R65147	Acidity	mg/L	305.1	50.00	50	0	100	80-120				1/2/2007
LCS-32308	Ammonia (as N)	mg/L	350.1	0.9950	1	0	99.5	90-110				12/29/2006
LCS-65090	Nitrite (as N)	mg/L	353.2	1.025	1	0	103	90-110				12/28/2006
LCS-65091	Nitrate (as N)	mg/L	353.2	0.9820	1	0	98.2	90-110				12/28/2006
LCS-R65130	Oil & Grease	mg/L	EPA 1664	44.00	40	0	110	79-114				12/29/2006
LCS-65093	Phosphate, ortho (as P)	mg/L	365.1	1.063	1	0	106	90-110				12/28/2006
LCS-R65179	TDS	mg/L	160.1	200.0	205	0	97.6	80-120				12/29/2006
LCS-R65140	TSS	mg/L	160.2	104.0	100	0	104	80-120				12/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R65146	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				1/2/2007
MB-R65146	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				1/2/2007
MB-R65146	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				1/2/2007
MB-R65183	Chloride	mg/L	300.0	< 1.0				-				1/2/2007
MB-R65183	Sulfate	mg/L	300.0	< 1.0				-				1/2/2007
MB-R65147	Acidity	mg/L	305.1	< 15				-				1/2/2007
MB-32308	Ammonia (as N)	mg/L	350.1	< 0.050				-				12/29/2006
MB-65090	Nitrite (as N)	mg/L	353.2	< 0.010				-				12/28/2006
MB-65091	Nitrate (as N)	mg/L	353.2	< 0.010				-				12/28/2006
MB-R65130	Oil & Grease	mg/L	EPA 1664	< 3.0				-				12/29/2006
MB-65093	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				12/28/2006
MB-R65179	TDS	mg/L	160.1	< 10				-				12/29/2006
MB-SPLP-32279	TDS	mg/L	160.1	< 10				-				12/29/2006
MB-R65140	TSS	mg/L	160.2	< 3.0				-				12/28/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75586-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	347.0	100	244	103	80-120				1/2/2007
L75586-01BMS	Chloride	mg/L	300.0	40.56	25	15.53	100	90-110				1/2/2007
L75586-01BMS	Sulfate	mg/L	300.0	418.3	250	149	108	90-110				1/2/2007
L75586-01BMS	Acidity	mg/L	305.1	50.00	50	0	100	80-120				1/2/2007
L75586-01CMS	Ammonia (as N)	mg/L	350.1	0.9900	1	0	99.0	90-110				12/29/2006
L75586-01BMS	Nitrite (as N)	mg/L	353.2	1.071	1	0	107	90-110				12/28/2006
L75586-01BMS	Nitrate (as N)	mg/L	353.2	1.393	1	0.304	109	90-110				12/28/2006
L75586-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.291	1	0	129	90-110			[1]	12/28/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75586-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	342.0	100	244	98.0	80-120	1.45	10		1/2/2007
L75586-01BMSD	Chloride	mg/L	300.0	40.54	25	15.53	100	90-110	0.0543	20		1/2/2007
L75586-01BMSD	Sulfate	mg/L	300.0	428.1	250	149	112	90-110	2.33	20	1	1/2/2007
L75586-01BMSD	Acidity	mg/L	305.1	50.00	50	0	100	80-120	0	20		1/2/2007
L75586-01CMSD	Ammonia (as N)	mg/L	350.1	0.9970	1	0	99.7	90-110	0.705	10		12/29/2006
L75586-01BMSD	Nitrite (as N)	mg/L	353.2	1.109	1	0	111	90-110	3.49	10	1	12/28/2006
L75586-01BMSD	Nitrate (as N)	mg/L	353.2	1.450	1	0.304	115	90-110	4.01	10	1	12/28/2006
L75586-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.251	1	0	125	90-110	3.15	10	1	12/28/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R65130	Oil & Grease	mg/L	EPA 1664	41.30	40	0	103	79-114				12/29/2006

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R65130	Oil & Grease	mg/L	EPA 1664	40.80	40	0	102	79-114	1.22	18		12/29/2006

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American West Analytical Labs

WORK ORDER Summary

28-Dec-06

Work Order L75586

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** HK.L RW

Contact: Brad Lindsay

Comments: QCLevel: 2+

DB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L75586-01A	Mud Creek	12/26/2006 5:45:00 PM	12/28/2006	1/12/2007	Aqueous	SS	ww - tss/tds/ss	1
				1/12/2007		TDS-W	ww - tss/tds/ss	1
				1/12/2007		TSS-W	ww - tss/tds/ss	1
L75586-01B				1/12/2007		2320B-ALK-W	Dec 28 - wc	1
				1/12/2007		300.0-W	Dec 28 - wc	1
				1/12/2007		ACIDITY-W	Dec 28 - wc	1
				1/12/2007		NO2-W	Dec 28 - wc	1
				1/12/2007		NO3-W	Dec 28 - wc	1
				1/12/2007		PO4-O	Dec 28 - wc	1
L75586-01C				1/12/2007		NH3-W	Dec. 28 - nh3	1
				1/12/2007		NH3-W-PREP	Dec. 28 - nh3	1
L75586-01D				1/12/2007		OGB-W	OGBFridge	1
L75586-01E				1/12/2007		3005A-ICPMS	Dec. 28 - met	1
				1/12/2007		ICP-W	Dec. 28 - met	1
L75586-01F				1/12/2007	Aqueous-Dissolved	3005A-Diss	Dec. 28 - met	1
				1/12/2007		6020-W-DISS	Dec. 28 - met	1
				1/12/2007		HARD	Dec. 28 - met	1
				1/12/2007		ICP-W-DIS	Dec. 28 - met	1
L75586-02A	Sulfur Spring	12/26/2006 5:20:00 PM		1/12/2007	Aqueous	SS	ww - tss/tds/ss	1
				1/12/2007		TDS-W	ww - tss/tds/ss	1
				1/12/2007		TSS-W	ww - tss/tds/ss	1
L75586-02B				1/12/2007		2320B-ALK-W	Dec 28 - wc	1
				1/12/2007		300.0-W	Dec 28 - wc	1
				1/12/2007		ACIDITY-W	Dec 28 - wc	1
				1/12/2007		NO2-W	Dec 28 - wc	1
				1/12/2007		NO3-W	Dec 28 - wc	1
				1/12/2007		PO4-O	Dec 28 - wc	1

WORK ORDER Summary

28-Dec-06

Work Order L75586

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Contact: Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L75586-02C	Sulfur Spring	12/26/2006 5:20:00 PM	12/28/2006	1/12/2007	Aqueous	NH3-W	Dec. 28 - nh3	1
				1/12/2007		NH3-W-PREP	Dec. 28 - nh3	1
L75586-02D				1/12/2007		OGB-W	OGBFridge	1
L75586-02E				1/12/2007		3005A-ICPMS	Dec. 28 - met	1
				1/12/2007		ICP-W	Dec. 28 - met	1
L75586-02F				1/12/2007	Aqueous-Dissolved	3005A-Diss	Dec. 28 - met	1
				1/12/2007		6020-W-DISS	Dec. 28 - met	1
				1/12/2007		HARD	Dec. 28 - met	1
				1/12/2007		ICP-W-DIS	Dec. 28 - met	1
L75586-03A	Miller Outlet	12/26/2006 5:00:00 PM		1/12/2007	Aqueous	SS	ww - tss/tds/ss	1
				1/12/2007		TDS-W	ww - tss/tds/ss	1
				1/12/2007		TSS-W	ww - tss/tds/ss	1
L75586-03B				1/12/2007		2320B-ALK-W	Dec 28 - wc	1
				1/12/2007		300.0-W	Dec 28 - wc	1
				1/12/2007		ACIDITY-W	Dec 28 - wc	1
				1/12/2007		NO2-W	Dec 28 - wc	1
				1/12/2007		NO3-W	Dec 28 - wc	1
				1/12/2007		PO4-O	Dec 28 - wc	1
L75586-03C				1/12/2007		NH3-W	Dec. 28 - nh3	1
				1/12/2007		NH3-W-PREP	Dec. 28 - nh3	1
L75586-03D				1/12/2007		OGB-W	OGBFridge	1
L75586-03E				1/12/2007		3005A-ICPMS	Dec. 28 - met	1
				1/12/2007		ICP-W	Dec. 28 - met	1
L75586-03F				1/12/2007	Aqueous-Dissolved	3005A-Diss	Dec. 28 - met	1
				1/12/2007		6020-W-DISS	Dec. 28 - met	1
				1/12/2007		HARD	Dec. 28 - met	1
				1/12/2007		ICP-W-DIS	Dec. 28 - met	1

Client Carbon Resources / Rock Logic Consulting
Address PO Box 544
Cedaredge Co 81413
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail Lindsay.brad@gmail.com
Project Name Scofield baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 75586
Page _____ of _____

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Please indicate tests needed below: Table										COMMENTS
Mud Creek	12-26-06 17:45	W	6	3										
Sulfur Spring	12-26-06 17:20	W	6	3										
Miller Outlet	12-26-06 17:00	W	6	3										

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 16:00	PRINT NAME UPS
Relinquished By: Signature UPS	Date	Received By: Signature Denise Bruun 12/28/06
PRINT NAME	Time	PRINT NAME Denise Bruun 9:33
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:
please filter for dissolved metals

LABORATORY USE ONLY

SAMPLES WERE:
1 (Shipped) or hand delivered
Notes: UPS
2 Ambient or (Chilled)
Notes:
3 Temperature 0.5°
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Notes:
6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package
(Y) N NA
2 Unbroken on Outer Package
(Y) N NA
3 Present on Sample
Y (N) NA
4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 75586

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested.
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
e-mail: awal@awal-labs.com

February 06, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L69847

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 1/23/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-01F
Field Sample ID: **Angle Spring**
Collected: 1/22/2006 6:00:00 PM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	2/4/2006 3:47:42 PM	6010B	0.10	< 0.10
Arsenic	mg/L	1/31/2006 12:03:47 PM	6020	0.0050	< 0.0050
Boron	mg/L	2/4/2006 3:47:42 PM	6010B	0.50	< 0.50
Cadmium	mg/L	1/31/2006 12:03:47 PM	6020	0.0040	**0.088**
Calcium	mg/L	2/4/2006 3:47:42 PM	6010B	10	**100**
Copper	mg/L	1/31/2006 12:03:47 PM	6020	0.0040	**0.020**
Iron	mg/L	2/4/2006 3:47:42 PM	6010B	0.050	< 0.050
Lead	mg/L	1/31/2006 12:03:47 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	2/4/2006 3:47:42 PM	6010B	10	**19**
Manganese	mg/L	1/31/2006 12:03:47 PM	6020	0.0050	**0.012**
Molybdenum	mg/L	2/4/2006 3:47:42 PM	6010B	0.10	< 0.10
Potassium	mg/L	2/4/2006 3:47:42 PM	6010B	1.0	**1.5**
Selenium	mg/L	1/31/2006 12:03:47 PM	6020	0.0050	**0.052**
Sodium	mg/L	2/4/2006 3:47:42 PM	6010B	1.0	**9.4**
Zinc	mg/L	1/31/2006 12:03:47 PM	6020	0.010	**0.091**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69847-02F
Field Sample ID: **Eagle Outlet**
Collected: 1/23/2006 8:30:00 AM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	2/4/2006 4:03:28 PM	6010B	0.10	< 0.10
Arsenic	mg/L	1/31/2006 12:09:10 PM	6020	0.0050	< 0.0050
Boron	mg/L	2/4/2006 4:03:28 PM	6010B	0.50	< 0.50
Cadmium	mg/L	1/31/2006 12:09:10 PM	6020	0.0040	**0.053**
Calcium	mg/L	2/4/2006 4:03:28 PM	6010B	10	**98**
Copper	mg/L	1/31/2006 12:09:10 PM	6020	0.0040	**0.0063**
Iron	mg/L	2/4/2006 4:03:28 PM	6010B	0.050	< 0.050
Lead	mg/L	1/31/2006 12:09:10 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	2/4/2006 4:03:28 PM	6010B	10	**17**
Manganese	mg/L	1/31/2006 12:09:10 PM	6020	0.0050	**0.071**
Molybdenum	mg/L	2/4/2006 4:03:28 PM	6010B	0.10	< 0.10
Potassium	mg/L	2/4/2006 4:03:28 PM	6010B	1.0	**1.9**
Selenium	mg/L	1/31/2006 12:09:10 PM	6020	0.0050	**0.031**
Sodium	mg/L	2/4/2006 4:03:28 PM	6010B	1.0	**6.6**
Zinc	mg/L	1/31/2006 12:09:10 PM	6020	0.010	**0.090**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69847-03F
Field Sample ID: **Sulfur Spring**
Collected: 1/23/2006 9:00:00 AM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	2/4/2006 4:07:22 PM	6010B	0.10	< 0.10
Arsenic	mg/L	1/31/2006 12:14:30 PM	6020	0.0050	< 0.0050
Boron	mg/L	2/4/2006 4:07:22 PM	6010B	0.50	< 0.50
Cadmium	mg/L	1/31/2006 12:14:30 PM	6020	0.0040	< 0.0040
Calcium	mg/L	2/4/2006 4:07:22 PM	6010B	10	**89**
Copper	mg/L	1/31/2006 12:14:30 PM	6020	0.0040	< 0.0040
Iron	mg/L	2/4/2006 4:07:22 PM	6010B	0.050	< 0.050
Lead	mg/L	1/31/2006 12:14:30 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	2/4/2006 4:07:22 PM	6010B	10	**36**
Manganese	mg/L	1/31/2006 12:14:30 PM	6020	0.0050	**0.030**
Molybdenum	mg/L	2/4/2006 4:07:22 PM	6010B	0.10	< 0.10
Potassium	mg/L	2/4/2006 4:07:22 PM	6010B	1.0	**4.7**
Selenium	mg/L	1/31/2006 12:14:30 PM	6020	0.0050	< 0.0050
Sodium	mg/L	2/4/2006 4:07:22 PM	6010B	1.0	**8.4**
Zinc	mg/L	1/31/2006 12:14:30 PM	6020	0.010	**0.029**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-04F
Field Sample ID: **Mud Creek**
Collected: 1/23/2006 9:30:00 AM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	2/4/2006 4:11:17 PM	6010B	0.10	< 0.10
Arsenic	mg/L	1/31/2006 12:25:17 PM	6020	0.0050	< 0.0050
Boron	mg/L	2/4/2006 4:11:17 PM	6010B	0.50	< 0.50
Cadmium	mg/L	1/31/2006 12:25:17 PM	6020	0.0040	**0.053** [1]
Calcium	mg/L	2/4/2006 4:11:17 PM	6010B	10	**100**
Copper	mg/L	1/31/2006 12:25:17 PM	6020	0.0040	**0.0070**
Iron	mg/L	2/4/2006 4:11:17 PM	6010B	0.050	< 0.050
Lead	mg/L	1/31/2006 12:25:17 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	2/4/2006 4:11:17 PM	6010B	10	**58**
Manganese	mg/L	1/31/2006 12:25:17 PM	6020	0.0050	**0.037**
Molybdenum	mg/L	2/4/2006 4:11:17 PM	6010B	0.10	< 0.10
Potassium	mg/L	2/4/2006 4:11:17 PM	6010B	1.0	**9.1**
Selenium	mg/L	1/31/2006 12:25:17 PM	6020	0.0050	**0.033**
Sodium	mg/L	2/4/2006 4:11:17 PM	6010B	1.0	**50**
Zinc	mg/L	1/31/2006 12:25:17 PM	6020	0.010	**0.063**

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-01E
Field Sample ID: **Angle Spring**
Collected: 1/22/2006 6:00:00 PM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	1/27/2006 1:06:04 PM	6010B	0.050	< 0.050
Manganese	mg/L	1/30/2006 2:30:36 PM	6020	0.0050	< 0.0050

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-02E
Field Sample ID: **Eagle Outlet**
Collected: 1/23/2006 8:30:00 AM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	1/27/2006 1:09:58 PM	6010B	0.050	**1.4**
Manganese	mg/L	1/30/2006 2:36:00 PM	6020	0.0050	**0.14**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-03E
Field Sample ID: **Sulfur Spring**
Collected: 1/23/2006 9:00:00 AM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	1/27/2006 1:13:56 PM	6010B	0.050	< 0.050
Manganese	mg/L	1/30/2006 2:41:25 PM	6020	0.0050	**0.032**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-04E
Field Sample ID: **Mud Creek**
Collected: 1/23/2006 9:30:00 AM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	1/27/2006 1:21:43 PM	6010B	0.050	**0.11**
Manganese	mg/L	1/30/2006 2:52:14 PM	6020	0.0050	**0.030**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-01
Field Sample ID: **Angle Spring**
Collected: 1/22/2006 6:00:00 PM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	01/24/06	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	01/24/06	2320B	10	**300**	
Ammonia (as N)	mg/L	02/01/06	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	01/24/06	2320B	10	**300**	
Carbonate (As CaCO3)	mg/L	01/24/06	2320B	10	< 10	
Chloride	mg/L	01/27/06	300.0	10	**33**	[1]
Hardness (as CaCO3)	mg/L	01/27/06	2340B	10	**330**	
Nitrate (as N)	mg/L	01/24/06 12:05 pm	353.2	0.010	**1.1**	[1@]
Nitrite (as N)	mg/L	01/24/06 12:05 pm	353.2	0.010	< 0.010	
Oil & Grease	mg/L	01/24/06	EPA 1664	3.0	**4.8**	
Phosphate, ortho (as P)	mg/L	01/24/06 8:43 am	365.1	0.050	< 0.050	
Settable Solids	ml/L	01/24/06 10:45 am	160.5	0.10	< 0.10	
Sulfate	mg/L	01/27/06	300.0	2.0	**16**	
TDS	mg/L	01/24/06	160.1	10	**350**	
TSS	mg/L	01/24/06	160.2	3.0	< 3.0	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

@ High RPD due to suspected matrix interference.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69847-02
Field Sample ID: **Eagle Outlet**
Collected: 1/23/2006 8:30:00 AM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	01/24/06	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	01/24/06	2320B	10	**300**
Ammonia (as N)	mg/L	02/01/06	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	01/24/06	2320B	10	**300**
Carbonate (As CaCO3)	mg/L	01/24/06	2320B	10	< 10
Chloride	mg/L	01/27/06	300.0	2.0	**10**
Hardness (as CaCO3)	mg/L	01/27/06	2340B	10	**310**
Nitrate (as N)	mg/L	01/24/06 12:05 pm	353.2	0.010	**0.67**
Nitrite (as N)	mg/L	01/24/06 12:05 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	01/24/06	EPA 1664	3.0	**3.9**
Phosphate, ortho (as P)	mg/L	01/24/06 8:43 am	365.1	0.050	< 0.050
Settable Solids	ml/L	01/24/06 10:45 am	160.5	0.10	**0.10**
Sulfate	mg/L	01/27/06	300.0	10	**26**
TDS	mg/L	01/24/06	160.1	10	**310**
TSS	mg/L	01/24/06	160.2	3.0	**58**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69847-03
Field Sample ID: **Sulfur Spring**
Collected: 1/23/2006 9:00:00 AM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	01/24/06	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	01/24/06	2320B	10	**350**
Ammonia (as N)	mg/L	02/01/06	350.1	0.050	**0.059**
Bicarbonate (As CaCO3)	mg/L	01/24/06	2320B	10	**350**
Carbonate (As CaCO3)	mg/L	01/24/06	2320B	10	< 10
Chloride	mg/L	01/27/06	300.0	1.0	**6.4**
Hardness (as CaCO3)	mg/L	01/27/06	2340B	10	**360**
Nitrate (as N)	mg/L	01/24/06 12:05 pm	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	01/24/06 12:05 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	01/24/06	EPA 1664	3.0	**4.3**
Phosphate, ortho (as P)	mg/L	01/24/06 8:43 am	365.1	0.050	< 0.050
Settable Solids	ml/L	01/24/06 10:45 am	160.5	0.10	< 0.10
Sulfate	mg/L	01/27/06	300.0	10	**44**
TDS	mg/L	01/24/06	160.1	10	**380**
TSS	mg/L	01/24/06	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-04
Field Sample ID: **Mud Creek**
Collected: 1/23/2006 9:30:00 AM
Received: 1/23/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	01/24/06	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	01/24/06	2320B	10	**280**
Ammonia (as N)	mg/L	02/01/06	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	01/24/06	2320B	10	**280**
Carbonate (As CaCO3)	mg/L	01/24/06	2320B	10	< 10
Chloride	mg/L	01/27/06	300.0	5.0	**16**
Hardness (as CaCO3)	mg/L	01/27/06	2340B	10	**480**
Nitrate (as N)	mg/L	01/24/06 12:05 pm	353.2	0.010	**0.44**
Nitrite (as N)	mg/L	01/24/06 12:05 pm	353.2	0.010	< 0.010
Oil & Grease	mg/L	01/24/06	EPA 1664	3.0	**4.8**
Phosphate, ortho (as P)	mg/L	01/24/06 8:43 am	365.1	0.050	< 0.050
Settable Solids	ml/L	01/24/06 10:45 am	160.5	0.10	< 0.10
Sulfate	mg/L	01/27/06	300.0	50	**290**
TDS	mg/L	01/24/06	160.1	10	**720**
TSS	mg/L	01/24/06	160.2	3.0	**4.0** *

** High RPD due to low analyte concentration. In this range, high RPD's may be expected.*

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
LCS-26894	Manganese	mg/L	6020	0.1892	0.2	0	94.6	85-115				1/30/2006
LCS-26893	Arsenic	mg/L	6020	0.2183	0.2	0	109	85-115				1/31/2006
LCS-26893	Cadmium	mg/L	6020	0.2271	0.2	0	114	85-115				1/31/2006
LCS-26893	Copper	mg/L	6020	0.1986	0.2	0	99.3	85-115				1/31/2006
LCS-26893	Lead	mg/L	6020	0.1934	0.2	0	96.7	85-115				1/31/2006
LCS-26893	Manganese	mg/L	6020	0.2011	0.2	0	101	85-115				1/31/2006
LCS-26893	Selenium	mg/L	6020	0.2298	0.2	0	115	85-115				1/31/2006
LCS-26893	Zinc	mg/L	6020	1.047	1	0	105	85-115				1/31/2006
LCS-26894	Iron	mg/L	6010B	0.9996	1	0	100	75-125				1/27/2006
LCS-27019	Aluminum	mg/L	6010B	1.042	1	0	104	75-125				2/4/2006
LCS-27019	Boron	mg/L	6010B	1.040	1	0	104	75-125				2/4/2006
LCS-27019	Calcium	mg/L	6010B	10.36	10	0	104	75-125				2/4/2006
LCS-27019	Iron	mg/L	6010B	1.053	1	0	105	75-125				2/4/2006
LCS-27019	Magnesium	mg/L	6010B	10.25	10	0	102	75-125				2/4/2006
LCS-27019	Molybdenum	mg/L	6010B	0.2060	0.2	0	103	75-125				2/4/2006
LCS-27019	Potassium	mg/L	6010B	9.939	10	0	99.4	75-125				2/4/2006
LCS-27019	Sodium	mg/L	6010B	9.789	10	0	97.9	75-125				2/4/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
MB-26894	Manganese	mg/L	6020	< 0.0050				-				1/30/2006
MB-26893	Arsenic	mg/L	6020	< 0.0050				-				1/31/2006
MB-26893	Cadmium	mg/L	6020	< 0.0040				-				1/31/2006
MB-26893	Copper	mg/L	6020	< 0.0040				-				1/31/2006
MB-26893	Lead	mg/L	6020	< 0.0050				-				1/31/2006
MB-26893	Manganese	mg/L	6020	< 0.0050				-				1/31/2006
MB-26893	Selenium	mg/L	6020	< 0.0050				-				1/31/2006
MB-26893	Zinc	mg/L	6020	< 0.010				-				1/31/2006
MB-26894	Iron	mg/L	6010B	< 0.050				-				1/27/2006
MB-27019	Aluminum	mg/L	6010B	< 0.10				-				2/4/2006
MB-27019	Boron	mg/L	6010B	< 0.50				-				2/4/2006
MB-27019	Calcium	mg/L	6010B	< 1.0				-				2/4/2006
MB-27019	Iron	mg/L	6010B	< 0.050				-				2/4/2006
MB-27019	Magnesium	mg/L	6010B	< 1.0				-				2/4/2006
MB-27019	Molybdenum	mg/L	6010B	< 0.10				-				2/4/2006
MB-27019	Potassium	mg/L	6010B	< 1.0				-				2/4/2006
MB-27019	Sodium	mg/L	6010B	< 1.0				-				2/4/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
L69847-04EMS	Manganese	mg/L	6020	0.2128	0.2	0.03037	91.2	70-130				1/30/2006
L69847-04FMS	Arsenic	mg/L	6020	0.2017	0.2	0.00126	100	70-130				1/31/2006
L69847-04FMS	Cadmium	mg/L	6020	0.1859	0.2	0.05297	66.5	70-130			[1]	1/31/2006
L69847-04FMS	Copper	mg/L	6020	0.1749	0.2	0.006976	83.9	70-130				1/31/2006
L69847-04FMS	Lead	mg/L	6020	0.1797	0.2	0.001615	89.0	70-130				1/31/2006
L69847-04FMS	Manganese	mg/L	6020	0.2066	0.2	0.03657	85.0	70-130				1/31/2006
L69847-04FMS	Selenium	mg/L	6020	0.1973	0.2	0.03324	82.1	70-130				1/31/2006
L69847-04FMS	Zinc	mg/L	6020	0.9630	1	0.06329	90.0	70-130				1/31/2006
L69847-04EMS	Iron	mg/L	6010B	1.106	1	0.1096	99.7	75-125				1/27/2006
L69847-01FMS	Aluminum	mg/L	6010B	1.066	1	0.09681	96.9	75-125				2/4/2006
L69847-01FMS	Boron	mg/L	6010B	1.023	1	0	102	75-125				2/4/2006
L69847-01FMS	Calcium	mg/L	6010B	110.1	10	101.5	86.0	75-125				2/4/2006
L69847-01FMS	Iron	mg/L	6010B	1.021	1	0.01913	100	75-125				2/4/2006
L69847-01FMS	Magnesium	mg/L	6010B	26.85	10	19.26	75.9	75-125				2/4/2006
L69847-01FMS	Molybdenum	mg/L	6010B	0.1930	0.2	0	96.5	75-125				2/4/2006
L69847-01FMS	Potassium	mg/L	6010B	11.43	10	1.495	99.3	75-125				2/4/2006
L69847-01FMS	Sodium	mg/L	6010B	18.76	10	9.389	93.7	75-125				2/4/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
L69847-04EMSD	Manganese	mg/L	6020	0.2193	0.2	0.03037	94.5	70-130	3.04	20		1/30/2006
L69847-04FMSD	Arsenic	mg/L	6020	0.2138	0.2	0.00126	106	70-130	5.81	20		1/31/2006
L69847-04FMSD	Cadmium	mg/L	6020	0.1994	0.2	0.05297	73.2	70-130	6.99	20		1/31/2006
L69847-04FMSD	Copper	mg/L	6020	0.1842	0.2	0.006976	88.6	70-130	5.19	20		1/31/2006
L69847-04FMSD	Lead	mg/L	6020	0.1916	0.2	0.001615	95.0	70-130	6.39	20		1/31/2006
L69847-04FMSD	Manganese	mg/L	6020	0.2213	0.2	0.03657	92.4	70-130	6.85	20		1/31/2006
L69847-04FMSD	Selenium	mg/L	6020	0.2086	0.2	0.03324	87.7	70-130	5.53	20		1/31/2006
L69847-04FMSD	Zinc	mg/L	6020	1.020	1	0.06329	95.7	70-130	5.77	20		1/31/2006
L69847-04EMSD	Iron	mg/L	6010B	1.114	1	0.1096	100	75-125	0.720	20		1/27/2006
L69847-01FMSD	Aluminum	mg/L	6010B	1.104	1	0.09681	101	75-125	3.54	20		2/4/2006
L69847-01FMSD	Boron	mg/L	6010B	1.026	1	0	103	75-125	0.257	20		2/4/2006
L69847-01FMSD	Calcium	mg/L	6010B	112.0	10	101.5	105	75-125	1.71	20		2/4/2006
L69847-01FMSD	Iron	mg/L	6010B	1.022	1	0.01913	100	75-125	0.120	20		2/4/2006
L69847-01FMSD	Magnesium	mg/L	6010B	28.41	10	19.26	91.5	75-125	5.65	20		2/4/2006
L69847-01FMSD	Molybdenum	mg/L	6010B	0.2018	0.2	0	101	75-125	4.47	20		2/4/2006
L69847-01FMSD	Potassium	mg/L	6010B	11.59	10	1.495	101	75-125	1.44	20		2/4/2006
L69847-01FMSD	Sodium	mg/L	6010B	19.29	10	9.389	99.0	75-125	2.82	20		2/4/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
L69847-01BDUP	Chloride	mg/L	300.0	32.31	0	33.08		-	2.35	20		1/27/2006
L69847-01BDUP	Sulfate	mg/L	300.0	15.26	0	15.94		-	4.37	20		1/27/2006
L69847-04ADUP	TDS	mg/L	160.1	692.0	0	720		-	3.97	20		1/24/2006
L69847-04ADUP	TSS	mg/L	160.2	5.000	0	4		-	22.2	20	*	1/24/2006
L69859-02ADUP	TSS	mg/L	160.2	405.0	0	415		-	2.44	20		1/24/2006
L69860-03ADUP	TSS	mg/L	160.2	3.000	0	4		-	28.6	20	*	1/24/2006

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R54275	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				1/24/2006
LCS-R54412	Chloride	mg/L	300.0	4.851	5	0	97.0	90-110				1/27/2006
LCS-R54412	Sulfate	mg/L	300.0	4.974	5	0	99.5	90-110				1/27/2006
LCS-R54277	Acidity	mg/L	305.1	50.00	50	0	100	80-120				1/24/2006
LCS-26985	Ammonia (as N)	mg/L	350.1	0.9790	1	0	97.9	90-110				2/1/2006
LCS-54291	Nitrite (as N)	mg/L	353.2	0.9970	1	0	99.7	90-110				1/24/2006
LCS-54292	Nitrate (as N)	mg/L	353.2	1.008	1	0	101	90-110				1/24/2006
LCS-R54355	Oil & Grease	mg/L	EPA 1664	41.60	40	0	104	79-114				1/24/2006
LCS-54278	Phosphate, ortho (as P)	mg/L	365.1	1.065	1	0.009	106	90-110				1/24/2006
LCS-R54343	TDS	mg/L	160.1	212.0	205	0	103	80-120				1/24/2006
LCS-R54312	TSS	mg/L	160.2	100.0	100	0	100	80-120				1/24/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
MB-R54275	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				1/24/2006
MB-R54275	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				1/24/2006
MB-R54275	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				1/24/2006
MB-R54412	Chloride	mg/L	300.0	< 1.0				-				1/27/2006
MB-R54412	Sulfate	mg/L	300.0	< 1.0				-				1/27/2006
MB-R54277	Acidity	mg/L	305.1	< 15				-				1/24/2006
MB-26985	Ammonia (as N)	mg/L	350.1	< 0.050				-				2/1/2006
MB-54291	Nitrite (as N)	mg/L	353.2	< 0.010				-				1/24/2006
MB-54292	Nitrate (as N)	mg/L	353.2	< 0.010				-				1/24/2006
MB-R54355	Oil & Grease	mg/L	EPA 1664	< 3.0				-				1/24/2006
MB-54278	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				1/24/2006
MB-R54343	TDS	mg/L	160.1	< 10				-				1/24/2006
MB-R54312	TSS	mg/L	160.2	< 3.0				-				1/24/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
L69847-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	397.0	100	298	99.0	80-120				1/24/2006
L69847-01BMS	Chloride	mg/L	300.0	70.87	50	33.08	75.6	90-110			[1]	1/27/2006
L69847-01BMS	Sulfate	mg/L	300.0	25.82	10	15.94	98.7	90-110				1/27/2006
L69847-01BMS	Acidity	mg/L	305.1	46.00	50	0	92.0	80-120				1/24/2006
L69847-01CMS	Ammonia (as N)	mg/L	350.1	0.9720	1	0	97.2	90-110				2/1/2006
L69847-01BMS	Nitrite (as N)	mg/L	353.2	1.016	1	0	102	90-110				1/24/2006
L69847-01BMS	Nitrate (as N)	mg/L	353.2	2.598	1	1.053	154	90-110			[1]	1/24/2006
L69847-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.028	1	0.044	98.4	90-110				1/24/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

Dept: WC
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L69847-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	401.0	100	298	103	80-120	1.00	10		1/24/2006
L69847-01BMSD	Chloride	mg/L	300.0	70.36	50	33.08	74.6	90-110	0.734	20	[1]	1/27/2006
L69847-01BMSD	Sulfate	mg/L	300.0	25.39	10	15.94	94.4	90-110	1.68	20		1/27/2006
L69847-01BMSD	Acidity	mg/L	305.1	52.00	50	0	104	80-120	12.2	20		1/24/2006
L69847-01CMSD	Ammonia (as N)	mg/L	350.1	0.9440	1	0	94.4	90-110	2.92	10		2/1/2006
L69847-01BMSD	Nitrite (as N)	mg/L	353.2	1.015	1	0	102	90-110	0.0985	10		1/24/2006
L69847-01BMSD	Nitrate (as N)	mg/L	353.2	1.663	1	1.053	61.0	90-110	43.9	10	[1]@	1/24/2006
L69847-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.027	1	0.044	98.3	90-110	0.0973	10		1/24/2006

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

American West Analytical Labs

WORK ORDER Summary

23-Jan-06

Work Order L69847

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ EDD in Excel format

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L69847-01A	Angle Spring	1/22/2006 6:00:00 PM	1/23/2006	2/6/2006	Aqueous	SS	ww - tss/tds/ss	1
				2/6/2006		TDS-W	ww - tss/tds/ss	1
				2/6/2006		TSS-W	ww - tss/tds/ss	1
L69847-01B				2/6/2006		2320B-ALK-W	jan 23 wc	1
				2/6/2006		300.0-W	jan 23 wc	1
				2/6/2006		ACIDITY-W	jan 23 wc	1
				2/6/2006		NO2-W	jan 23 wc	1
				2/6/2006		NO3-W	jan 23 wc	1
				2/6/2006		PO4-O	jan 23 wc	1
L69847-01C				2/6/2006		NH3-W	jan 23 nh3	1
				2/6/2006		NH3-W-PREP	jan 23 nh3	1
L69847-01D				2/6/2006		OGB-W	OGBFridge	1
L69847-01E				2/6/2006		3005A-ICPMS	jan 23 metals	1
				2/6/2006		6020-W	jan 23 metals	1
				2/6/2006		ICP-W	jan 23 metals	1
L69847-01F				2/6/2006	Aqueous-Dissolved	3005A-Diss	jan 23 metals	1
				2/6/2006		6020-W-DISS	jan 23 metals	1
				2/6/2006		HARD	jan 23 metals	1
				2/6/2006		ICP-W-DIS	jan 23 metals	1
L69847-02A	Eagle Outlet	1/23/2006 8:30:00 AM		2/6/2006	Aqueous	SS	ww - tss/tds/ss	1
				2/6/2006		TDS-W	ww - tss/tds/ss	1
				2/6/2006		TSS-W	ww - tss/tds/ss	1
L69847-02B				2/6/2006		2320B-ALK-W	jan 23 wc	1
				2/6/2006		300.0-W	jan 23 wc	1
				2/6/2006		ACIDITY-W	jan 23 wc	1
				2/6/2006		NO2-W	jan 23 wc	1
				2/6/2006		NO3-W	jan 23 wc	1

L69847

WORK ORDER Summary

23-Jan-06

Work Order L69847

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ EDD in Excel format

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L69847-02B	Eagle Outlet	1/23/2006 8:30:00 AM	1/23/2006	2/6/2006	Aqueous	PO4-O	jan 23 wc	1
L69847-02C				2/6/2006		NH3-W	jan 23 nh3	1
				2/6/2006		NH3-W-PREP	jan 23 nh3	1
L69847-02D				2/6/2006		OGB-W	OGBFridge	1
L69847-02E				2/6/2006		3005A-ICPMS	jan 23 metals	1
				2/6/2006		6020-W	jan 23 metals	1
				2/6/2006		ICP-W	jan 23 metals	1
L69847-02F				2/6/2006	Aqueous-Dissolved	3005A-Diss	jan 23 metals	1
				2/6/2006		6020-W-DISS	jan 23 metals	1
				2/6/2006		HARD	jan 23 metals	1
				2/6/2006		ICP-W-DIS	jan 23 metals	1
L69847-03A	Sulfur Spring	1/23/2006 9:00:00 AM		2/6/2006	Aqueous	SS	ww - tss/tds/ss	1
				2/6/2006		TDS-W	ww - tss/tds/ss	1
				2/6/2006		TSS-W	ww - tss/tds/ss	1
L69847-03B				2/6/2006		2320B-ALK-W	jan 23 wc	1
				2/6/2006		300.0-W	jan 23 wc	1
				2/6/2006		ACIDITY-W	jan 23 wc	1
				2/6/2006		NO2-W	jan 23 wc	1
				2/6/2006		NO3-W	jan 23 wc	1
				2/6/2006		PO4-O	jan 23 wc	1
L69847-03C				2/6/2006		NH3-W	jan 23 nh3	1
				2/6/2006		NH3-W-PREP	jan 23 nh3	1
L69847-03D				2/6/2006		OGB-W	OGBFridge	1
L69847-03E				2/6/2006		3005A-ICPMS	jan 23 metals	1
				2/6/2006		6020-W	jan 23 metals	1
				2/6/2006		ICP-W	jan 23 metals	1
L69847-03F				2/6/2006	Aqueous-Dissolved	3005A-Diss	jan 23 metals	1
				2/6/2006		6020-W-DISS	jan 23 metals	1

WORK ORDER Summary

23-Jan-06

Work Order L69847

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ EDD in Excel format

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L69847-03F	Sulfur Spring	1/23/2006 9:00:00 AM	1/23/2006	2/6/2006	Aqueous-Dissolved	HARD	jan 23 metals	1
				2/6/2006		ICP-W-DIS	jan 23 metals	1
L69847-04A	Mud Creek	1/23/2006 9:30:00 AM		2/6/2006	Aqueous	SS	ww - tss/tds/ss	1
				2/6/2006		TDS-W	ww - tss/tds/ss	1
				2/6/2006		TSS-W	ww - tss/tds/ss	1
L69847-04B				2/6/2006		2320B-ALK-W	jan 23 wc	1
				2/6/2006		300.0-W	jan 23 wc	1
				2/6/2006		ACIDITY-W	jan 23 wc	1
				2/6/2006		NO2-W	jan 23 wc	1
				2/6/2006		NO3-W	jan 23 wc	1
				2/6/2006		PO4-O	jan 23 wc	1
L69847-04C				2/6/2006		NH3-W	jan 23 nh3	1
				2/6/2006		NH3-W-PREP	jan 23 nh3	1
L69847-04D				2/6/2006		OGB-W	OGBFridge	1
L69847-04E				2/6/2006		3005A-ICPMS	jan 23 metals	1
				2/6/2006		6020-W	jan 23 metals	1
				2/6/2006		ICP-W	jan 23 metals	1
L69847-04F				2/6/2006	Aqueous-Dissolved	3005A-Diss	jan 23 metals	1
				2/6/2006		6020-W-DISS	jan 23 metals	1
				2/6/2006		HARD	jan 23 metals	1
				2/6/2006		ICP-W-DIS	jan 23 metals	1

Client Carbon Resources · Rock Logic

Address 3757 W. Highway 96
Scofield UT
City State Zip

Phone 435·448·9693 Fax 435·448·9693

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield Baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 609847

Page _____ of _____

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	see table 3 on file										COMMENTS
Angle Spring	1·22·06 | 1800	W	6	✓										
Eagle Outlet	1·23·06 | 0830	W	6	✓										
Sutter Spring	1·23·06 | 0900	W	6	✓										
Mud Creek	1·23·06 | 0930	W	6	✓										

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature 0.5

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 14:00	PRINT NAME Elena Hayward
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

Please filter for dissolved metals

Analysis the same as the previous set (table 3 surface water)

PLEASE SEND PDF & .XLS

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)[1]	mg/l
	-	Arsenic (Dissolved)[1]	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)[1]	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)[1]	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)[1]	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)[1]	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)[1]	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Preservation Check Sheet

Sample Set: 609847

Sample Set Extension and pH

Bottle Type	Preservative	All OK														
Ammonia[1]	pH <2 H_2SO_4	✓														
COD[1]	pH <2 H_2SO_4															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO_3	✓														
NO_2 & NO_3[1]	pH <2 H_2SO_4															
Nutrients[1]	pH <2 H_2SO_4															
O & G	pH <2 HCL	✓														
Phenols[2]	pH <2 H_2SO_4															
Sulfide	pH > 9 NaOH, ZnAC															
TKN[1]	pH <2 H_2SO_4															
TOC[1]	pH <2 H_2SO_4															
TOX[2]	pH <2 H_2SO_4															
T PO4[1]	pH <2 H_2SO_4															
Mixed Analysis[1]	pH <2 H_2SO_4															
Mixed Analysis[2]	pH <2 H_2SO_4															

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 H_2SO_4 in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 H_2SO_4 in a B.R.

Frequency: All samples requiring preservation

March 15, 2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L70355

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 2/27/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-01E
Field Sample ID: **Sulfer Spring**
Collected: 2/26/2006 1:45:00 PM
Received: 2/27/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/28/2006 4:03:04 PM	6010B	0.050	< 0.050
Manganese	mg/L	2/28/2006 4:03:04 PM	6010B	0.0050	**0.030**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-02E
Field Sample ID: **Mud Creek**
Collected: 2/26/2006 2:30:00 PM
Received: 2/27/2006

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Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/28/2006 4:07:26 PM	6010B	0.050	**0.25**
Manganese	mg/L	2/28/2006 4:07:26 PM	6010B	0.0050	**0.031**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-03E
Field Sample ID: **Eagle Outlet**
Collected: 2/26/2006 3:00:00 PM
Received: 2/27/2006

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463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/28/2006 4:11:51 PM	6010B	0.050	**3.2**
Manganese	mg/L	2/28/2006 4:11:51 PM	6010B	0.0050	**0.22**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-04E
Field Sample ID: **Angle Spring**
Collected: 2/26/2006 6:00:00 PM
Received: 2/27/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/28/2006 4:20:59 PM	6010B	0.050	< 0.050
Manganese	mg/L	2/28/2006 4:20:59 PM	6010B	0.0050	< 0.0050

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-01F
Field Sample ID: **Sulfer Spring**
Collected: 2/26/2006 1:45:00 PM
Received: 2/27/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	3/7/2006 12:11:32 PM	6010B	0.10	< 0.10
Arsenic	mg/L	3/10/2006 5:50:42 PM	6020	0.0050	< 0.0050
Boron	mg/L	3/7/2006 12:11:32 PM	6010B	0.50	< 0.50
Cadmium	mg/L	3/10/2006 5:50:42 PM	6020	0.0040	< 0.0040
Calcium	mg/L	3/7/2006 12:11:32 PM	6010B	10	**93**
Copper	mg/L	3/10/2006 5:50:42 PM	6020	0.0040	**0.0079**
Iron	mg/L	3/7/2006 12:11:32 PM	6010B	0.050	< 0.050
Lead	mg/L	3/10/2006 5:50:42 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	3/7/2006 12:11:32 PM	6010B	1.0	**36**
Manganese	mg/L	3/13/2006 9:49:33 PM	6010B	0.0050	**0.030**
Molybdenum	mg/L	3/7/2006 12:11:32 PM	6010B	0.10	< 0.10
Potassium	mg/L	3/7/2006 12:11:32 PM	6010B	1.0	**5.3**
Selenium	mg/L	3/10/2006 5:50:42 PM	6020	0.0050	< 0.0050
Sodium	mg/L	3/7/2006 12:11:32 PM	6010B	1.0	**9.6**
Zinc	mg/L	3/10/2006 5:50:42 PM	6020	0.010	**0.12**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-02F
Field Sample ID: **Mud Creek**
Collected: 2/26/2006 2:30:00 PM
Received: 2/27/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	3/7/2006 12:15:23 PM	6010B	0.10	< 0.10
Arsenic	mg/L	3/10/2006 5:56:07 PM	6020	0.0050	< 0.0050
Boron	mg/L	3/7/2006 12:15:23 PM	6010B	0.50	< 0.50
Cadmium	mg/L	3/10/2006 5:56:07 PM	6020	0.0040	< 0.0040
Calcium	mg/L	3/7/2006 12:15:23 PM	6010B	10	**97**
Copper	mg/L	3/10/2006 5:56:07 PM	6020	0.0040	< 0.0040
Iron	mg/L	3/7/2006 12:15:23 PM	6010B	0.050	< 0.050
Lead	mg/L	3/10/2006 5:56:07 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	3/7/2006 12:15:23 PM	6010B	1.0	**55**
Manganese	mg/L	3/10/2006 5:56:07 PM	6020	0.0050	**0.028**
Molybdenum	mg/L	3/7/2006 12:15:23 PM	6010B	0.10	< 0.10
Potassium	mg/L	3/7/2006 12:15:23 PM	6010B	1.0	**9.3**
Selenium	mg/L	3/10/2006 5:56:07 PM	6020	0.0050	< 0.0050
Sodium	mg/L	3/7/2006 12:15:23 PM	6010B	1.0	**56**
Zinc	mg/L	3/10/2006 5:56:07 PM	6020	0.010	**0.16**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-03F
Field Sample ID: **Eagle Outlet**
Collected: 2/26/2006 3:00:00 PM
Received: 2/27/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	3/7/2006 12:19:20 PM	6010B	0.10	< 0.10
Arsenic	mg/L	3/10/2006 6:01:33 PM	6020	0.0050	< 0.0050
Boron	mg/L	3/7/2006 12:19:20 PM	6010B	0.50	< 0.50
Cadmium	mg/L	3/10/2006 6:01:33 PM	6020	0.0040	< 0.0040
Calcium	mg/L	3/7/2006 12:19:20 PM	6010B	10	**100**
Copper	mg/L	3/10/2006 6:01:33 PM	6020	0.0040	**0.0046**
Iron	mg/L	3/7/2006 12:19:20 PM	6010B	0.050	< 0.050
Lead	mg/L	3/10/2006 6:01:33 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	3/7/2006 12:19:20 PM	6010B	1.0	**18**
Manganese	mg/L	3/10/2006 6:01:33 PM	6020	0.0050	**0.065**
Molybdenum	mg/L	3/7/2006 12:19:20 PM	6010B	0.10	< 0.10
Potassium	mg/L	3/7/2006 12:19:20 PM	6010B	1.0	**1.7**
Selenium	mg/L	3/10/2006 6:01:33 PM	6020	0.0050	**0.0057**
Sodium	mg/L	3/7/2006 12:19:20 PM	6010B	1.0	**12**
Zinc	mg/L	3/10/2006 6:01:33 PM	6020	0.010	**0.070**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-04F
Field Sample ID: **Angle Spring**
Collected: 2/26/2006 6:00:00 PM
Received: 2/27/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	3/7/2006 11:52:51 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	3/10/2006 6:12:24 PM	6020	0.0050	< 0.0050	
Boron	mg/L	3/7/2006 11:52:51 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	3/10/2006 6:12:24 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	3/7/2006 11:52:51 AM	6010B	10	**100**	[2]
Copper	mg/L	3/10/2006 6:12:24 PM	6020	0.0040	< 0.0040	
Iron	mg/L	3/7/2006 11:52:51 AM	6010B	0.050	< 0.050	
Lead	mg/L	3/10/2006 6:12:24 PM	6020	0.0050	< 0.0050	@
Magnesium	mg/L	3/7/2006 11:52:51 AM	6010B	1.0	**19**	
Manganese	mg/L	3/10/2006 6:12:24 PM	6020	0.0050	< 0.0050	
Molybdenum	mg/L	3/7/2006 11:52:51 AM	6010B	0.10	< 0.10	
Potassium	mg/L	3/7/2006 11:52:51 AM	6010B	1.0	**1.6**	
Selenium	mg/L	3/10/2006 6:12:24 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	3/7/2006 11:52:51 AM	6010B	1.0	**9.9**	
Zinc	mg/L	3/10/2006 6:12:24 PM	6020	0.010	**0.073**	

[2] *Analyte concentration is too high for accurate spike recovery.*
@ - High RPD due to suspected sample non-homogeneity.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-01
Field Sample ID: **Sulfer Spring**
Collected: 2/26/2006 1:45:00 PM
Received: 2/27/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	2/28/2006 10:30:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	**340**	
Ammonia (as N)	mg/L	3/2/2006 3:27:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	**340**	
Carbonate (As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	< 10	
Chloride	mg/L	3/1/2006 4:47:33 AM	300.0	1.0	**6.4**	
Hardness (as CaCO3)	mg/L	3/7/2006	2340B	10	**380**	
Nitrate (as N)	mg/L	2/27/2006 12:55:00 PM	353.2	0.010	< 0.010	
Nitrite (as N)	mg/L	2/27/2006 12:55:00 PM	353.2	0.010	< 0.010	[1]
Oil & Grease	mg/L	2/27/2006	EPA 1664	3.0	**3.5**	
Phosphate, ortho (as P)	mg/L	2/27/2006 1:59:00 PM	365.1	0.050	< 0.050	@
Settable Solids	ml/L	2/27/2006 1:40:00 PM	160.5	0.10	< 0.10	
Sulfate	mg/L	3/1/2006 5:20:48 AM	300.0	10	**43**	
TDS	mg/L	3/3/2006 1:30:00 PM	160.1	10	**300**	
TSS	mg/L	2/28/2006 3:45:00 PM	160.2	3.0	< 3.0	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
@ High RPD due to suspected matrix interference.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-02
Field Sample ID: **Mud Creek**
Collected: 2/26/2006 2:30:00 PM
Received: 2/27/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	2/28/2006 10:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	**260**
Ammonia (as N)	mg/L	3/2/2006 3:27:00 PM	350.1	0.050	**0.57**
Bicarbonate (As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	**260**
Carbonate (As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/1/2006 5:54:02 AM	300.0	5.0	**22**
Hardness (as CaCO3)	mg/L	3/7/2006	2340B	10	**470**
Nitrate (as N)	mg/L	2/27/2006 12:55:00 PM	353.2	0.010	**0.38**
Nitrite (as N)	mg/L	2/27/2006 12:55:00 PM	353.2	0.010	**0.018**
Oil & Grease	mg/L	2/27/2006	EPA 1664	3.0	**5.1**
Phosphate, ortho (as P)	mg/L	2/27/2006 1:59:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	2/27/2006 1:40:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	3/1/2006 6:27:17 AM	300.0	50	**250**
TDS	mg/L	3/3/2006 1:30:00 PM	160.1	10	**570**
TSS	mg/L	2/28/2006 3:45:00 PM	160.2	3.0	**10**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-03
Field Sample ID: **Eagle Outlet**
Collected: 2/26/2006 3:00:00 PM
Received: 2/27/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	2/28/2006 10:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	**290**
Ammonia (as N)	mg/L	3/2/2006 3:27:00 PM	350.1	0.050	**0.16**
Bicarbonate (As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	**290**
Carbonate (As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/1/2006 7:33:46 AM	300.0	10	**11**
Hardness (as CaCO3)	mg/L	3/7/2006	2340B	10	**320**
Nitrate (as N)	mg/L	2/27/2006 12:55:00 PM	353.2	0.010	**0.69**
Nitrite (as N)	mg/L	2/27/2006 12:55:00 PM	353.2	0.010	**0.042**
Oil & Grease	mg/L	2/27/2006	EPA 1664	3.0	**5.6**
Phosphate, ortho (as P)	mg/L	2/27/2006 1:59:00 PM	365.1	0.050	**0.13**
Settable Solids	ml/L	2/27/2006 1:40:00 PM	160.5	0.10	**0.10**
Sulfate	mg/L	3/1/2006 7:33:46 AM	300.0	10	**24**
TDS	mg/L	3/3/2006 1:30:00 PM	160.1	10	**240**
TSS	mg/L	2/28/2006 3:45:00 PM	160.2	3.0	**100**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-04
Field Sample ID: **Angle Spring**
Collected: 2/26/2006 6:00:00 PM
Received: 2/27/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	2/28/2006 10:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	**300**
Ammonia (as N)	mg/L	3/2/2006 3:27:00 PM	350.1	0.050	**0.17**
Bicarbonate (As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	**300**
Carbonate (As CaCO3)	mg/L	2/28/2006 10:00:00 AM	2320B	10	< 10
Chloride	mg/L	2/28/2006 11:48:25 AM	300.0	10	**22**
Hardness (as CaCO3)	mg/L	3/7/2006	2340B	10	**330**
Nitrate (as N)	mg/L	2/27/2006 12:55:00 PM	353.2	0.010	**1.1**
Nitrite (as N)	mg/L	2/27/2006 12:55:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	2/27/2006	EPA 1664	3.0	**5.5**
Phosphate, ortho (as P)	mg/L	2/27/2006 1:59:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	2/27/2006 1:40:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	2/28/2006 11:48:25 AM	300.0	10	**14**
TDS	mg/L	3/3/2006 1:30:00 PM	160.1	10	**240**
TSS	mg/L	2/28/2006 3:45:00 PM	160.2	3.0	< 3.0

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-27336	Arsenic	mg/L	6020	0.2034	0.2	0	102	85-115				3/10/2006
LCS-27336	Cadmium	mg/L	6020	0.2007	0.2	0	100	85-115				3/10/2006
LCS-27336	Copper	mg/L	6020	0.1970	0.2	0	98.5	85-115				3/10/2006
LCS-27336	Lead	mg/L	6020	0.2046	0.2	0	102	85-115				3/10/2006
LCS-27336	Manganese	mg/L	6020	0.1963	0.2	0	98.2	85-115				3/10/2006
LCS-27336	Selenium	mg/L	6020	0.2048	0.2	0	102	85-115				3/10/2006
LCS-27336	Zinc	mg/L	6020	1.027	1	0	103	85-115				3/10/2006
LCS-27352	Iron	mg/L	6010B	1.094	1	0.02847	107	75-125				2/28/2006
LCS-27352	Manganese	mg/L	6010B	0.2040	0.2	0	102	75-125				2/28/2006
LCS-27336	Aluminum	mg/L	6010B	1.071	1	0	107	75-125				3/7/2006
LCS-27336	Boron	mg/L	6010B	1.037	1	0	104	75-125				3/7/2006
LCS-27336	Calcium	mg/L	6010B	10.70	10	0	107	75-125				3/7/2006
LCS-27336	Iron	mg/L	6010B	1.068	1	0	107	75-125				3/7/2006
LCS-27336	Magnesium	mg/L	6010B	10.47	10	0	105	75-125				3/7/2006
LCS-27336	Molybdenum	mg/L	6010B	0.2126	0.2	0	106	75-125				3/7/2006
LCS-27336	Potassium	mg/L	6010B	10.51	10	0	105	75-125				3/7/2006
LCS-27336	Sodium	mg/L	6010B	10.69	10	0	107	75-125				3/7/2006
LCS-27552	Manganese	mg/L	6010B	0.2050	0.2	0	103	75-125				3/13/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-27336	Arsenic	mg/L	6020	< 0.0050				-				3/10/2006
MB-27336	Cadmium	mg/L	6020	< 0.0040				-				3/10/2006
MB-27336	Copper	mg/L	6020	< 0.0040				-				3/10/2006
MB-27336	Lead	mg/L	6020	< 0.0050				-				3/10/2006
MB-27336	Manganese	mg/L	6020	< 0.0050				-				3/10/2006
MB-27336	Selenium	mg/L	6020	< 0.0050				-				3/10/2006
MB-27336	Zinc	mg/L	6020	< 0.010				-				3/10/2006
MB-27352	Iron	mg/L	6010B	< 0.050				-				2/28/2006
MB-27352	Manganese	mg/L	6010B	< 0.0050				-				2/28/2006
MB-27336	Aluminum	mg/L	6010B	< 0.10				-				3/7/2006
MB-27336	Boron	mg/L	6010B	< 0.50				-				3/7/2006
MB-27336	Calcium	mg/L	6010B	< 1.0				-				3/7/2006
MB-27336	Iron	mg/L	6010B	< 0.050				-				3/7/2006
MB-27336	Magnesium	mg/L	6010B	< 1.0				-				3/7/2006
MB-27336	Molybdenum	mg/L	6010B	< 0.10				-				3/7/2006
MB-27336	Potassium	mg/L	6010B	< 1.0				-				3/7/2006
MB-27336	Sodium	mg/L	6010B	< 1.0				-				3/7/2006
MB-27552	Manganese	mg/L	6010B	< 0.0050				-				3/13/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70355-04FMS	Arsenic	mg/L	6020	0.2067	0.2	0	103	70-130				3/10/2006
L70355-04FMS	Cadmium	mg/L	6020	0.2032	0.2	0	102	70-130				3/10/2006
L70355-04FMS	Copper	mg/L	6020	0.1939	0.2	0	97.0	70-130				3/10/2006
L70355-04FMS	Lead	mg/L	6020	0.2047	0.2	0	102	70-130				3/10/2006
L70355-04FMS	Manganese	mg/L	6020	0.2001	0.2	0	100	70-130				3/10/2006
L70355-04FMS	Selenium	mg/L	6020	0.2191	0.2	0	110	70-130				3/10/2006
L70355-04FMS	Zinc	mg/L	6020	1.087	1	0.07298	101	70-130				3/10/2006
L70355-04EMS	Iron	mg/L	6010B	1.103	1	0	110	75-125				2/28/2006
L70355-04EMS	Manganese	mg/L	6010B	0.2024	0.2	0	101	75-125				2/28/2006
L70355-04FMS	Aluminum	mg/L	6010B	1.139	1	0	114	75-125				3/7/2006
L70355-04FMS	Boron	mg/L	6010B	1.095	1	0.01557	108	75-125				3/7/2006
L70355-04FMS	Calcium	mg/L	6010B	112.7	10	101.3	114	75-125				3/7/2006
L70355-04FMS	Iron	mg/L	6010B	1.047	1	0	105	75-125				3/7/2006
L70355-04FMS	Magnesium	mg/L	6010B	28.77	10	18.59	102	75-125				3/7/2006
L70355-04FMS	Molybdenum	mg/L	6010B	0.2123	0.2	0	106	75-125				3/7/2006
L70355-04FMS	Potassium	mg/L	6010B	12.55	10	1.558	110	75-125				3/7/2006
L70355-04FMS	Sodium	mg/L	6010B	21.03	10	9.944	111	75-125				3/7/2006
L70355-01FMS	Manganese	mg/L	6010B	0.2331	0.2	0.03027	101	75-125				3/13/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70355-04FMSD	Arsenic	mg/L	6020	0.1992	0.2	0	99.6	70-130	3.70	20		3/10/2006
L70355-04FMSD	Cadmium	mg/L	6020	0.2017	0.2	0	101	70-130	0.749	20		3/10/2006
L70355-04FMSD	Copper	mg/L	6020	0.1936	0.2	0.001219	96.2	70-130	0.157	20		3/10/2006
L70355-04FMSD	Lead	mg/L	6020	0.1939	0.2	0	97.0	70-130	27.1	20	@	3/10/2006
L70355-04FMSD	Manganese	mg/L	6020	0.2005	0.2	0.003755	98.4	70-130	0.188	20		3/10/2006
L70355-04FMSD	Selenium	mg/L	6020	0.2154	0.2	0.003241	106	70-130	1.73	20		3/10/2006
L70355-04FMSD	Zinc	mg/L	6020	1.035	1	0.07298	96.2	70-130	4.88	20		3/10/2006
L70355-04EMSD	Iron	mg/L	6010B	1.061	1	0	106	75-125	3.84	20		2/28/2006
L70355-04EMSD	Manganese	mg/L	6010B	0.2014	0.2	0	101	75-125	0.503	20		2/28/2006
L70355-04FMSD	Aluminum	mg/L	6010B	1.111	1	0	111	75-125	2.49	20		3/7/2006
L70355-04FMSD	Boron	mg/L	6010B	1.076	1	0.01557	106	75-125	1.75	20		3/7/2006
L70355-04FMSD	Calcium	mg/L	6010B	107.1	10	101.3	58.0	75-125	5.10	20	2	3/7/2006
L70355-04FMSD	Iron	mg/L	6010B	1.076	1	0	108	75-125	2.73	20		3/7/2006
L70355-04FMSD	Magnesium	mg/L	6010B	28.52	10	18.59	99.3	75-125	0.894	20		3/7/2006
L70355-04FMSD	Molybdenum	mg/L	6010B	0.2136	0.2	0	107	75-125	0.601	20		3/7/2006
L70355-04FMSD	Potassium	mg/L	6010B	12.34	10	1.558	108	75-125	1.66	20		3/7/2006
L70355-04FMSD	Sodium	mg/L	6010B	20.66	10	9.944	107	75-125	1.80	20		3/7/2006
L70355-01FMSD	Manganese	mg/L	6010B	0.2332	0.2	0.03027	101	75-125	0.0464	20		3/13/2006

@ - High RPD due to suspected sample non-homogeneity.
[2] Analyte concentration is too high for accurate spike recovery.

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70355-04ADUP	Chloride	mg/L	300.0	21.41	0	21.72		-	1.48	20		3/1/2006
L70355-04ADUP	Sulfate	mg/L	300.0	14.79	0	14.46		-	2.20	20		3/1/2006
L70355-04BDUP	TDS	mg/L	160.1	244.0	0	244		-	0	20		3/3/2006
L70436-06BDUP	TDS	mg/L	160.1	< 10	0	0		-	0	20		3/3/2006
L70355-04BDUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		2/28/2006
L70378-03ADUP	TSS	mg/L	160.2	15.00	0	14		-	6.90	20		2/28/2006
L70382-02ADUP	TSS	mg/L	160.2	490.0	0	500		-	2.02	20		2/28/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R55136	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				2/28/2006
LCS-R55176	Chloride	mg/L	300.0	4.926	5	0	98.5	90-110				2/28/2006
LCS-R55176	Sulfate	mg/L	300.0	5.033	5	0	101	90-110				2/28/2006
LCS-R55137	Acidity	mg/L	305.1	55.00	50	0	110	80-120				2/28/2006
LCS-27395	Ammonia (as N)	mg/L	350.1	0.9150	1	0	91.5	90-110				3/2/2006
LCS-55099	Nitrite (as N)	mg/L	353.2	0.9800	1	0	98.0	90-110				2/27/2006
LCS-55103	Nitrate (as N)	mg/L	353.2	1.076	1	0	108	90-110				2/27/2006
LCS-R55142	Oil & Grease	mg/L	EPA 1664	40.20	40	0	100	79-114				2/27/2006
LCS-55108	Phosphate, ortho (as P)	mg/L	365.1	0.9830	1	0	98.3	90-110				2/27/2006
LCS-R55303	TDS	mg/L	160.1	202.0	205	0	98.5	80-120				3/3/2006
LCS-R55165	TSS	mg/L	160.2	100.0	100	0	100	80-120				2/28/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R55136	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				2/28/2006
MB-R55136	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				2/28/2006
MB-R55136	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				2/28/2006
MB-R55176	Chloride	mg/L	300.0	< 1.0				-				2/28/2006
MB-R55176	Sulfate	mg/L	300.0	< 1.0				-				2/28/2006
MB-R55137	Acidity	mg/L	305.1	< 15				-				2/28/2006
MB-27395	Ammonia (as N)	mg/L	350.1	< 0.050				-				3/2/2006
MB-55099	Nitrite (as N)	mg/L	353.2	< 0.010				-				2/27/2006
MB-55103	Nitrate (as N)	mg/L	353.2	< 0.010				-				2/27/2006
MB-R55142	Oil & Grease	mg/L	EPA 1664	< 3.0				-				2/27/2006
MB-55108	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				2/27/2006
MB-R55303	TDS	mg/L	160.1	< 10				-				3/3/2006
MB-R55165	TSS	mg/L	160.2	< 3.0				-				2/28/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70355-01AMS	Alkalinity,(As CaCO3)	mg/L	2320B	439.0	100	335	104	80-120				2/28/2006
L70355-04AMS	Chloride	mg/L	300.0	71.86	50	21.72	100	90-110				3/1/2006
L70355-04AMS	Sulfate	mg/L	300.0	65.38	50	14.46	102	90-110				3/1/2006
L70355-01AMS	Acidity	mg/L	305.1	42.00	50	0	84.0	80-120				2/28/2006
L70355-01CMS	Ammonia (as N)	mg/L	350.1	1.055	1	0	106	90-110				3/2/2006
L70355-01AMS	Nitrite (as N)	mg/L	353.2	0.9590	1	0.007	95.2	90-110				2/27/2006
L70355-01AMS	Nitrate (as N)	mg/L	353.2	1.093	1	0	109	90-110				2/27/2006
L70355-01AMS	Phosphate, ortho (as P)	mg/L	365.1	0.9360	1	0.013	92.3	90-110				2/27/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: WC
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70355-01AMSD	Alkalinity,(As CaCO3)	mg/L	2320B	433.0	100	335	98.0	80-120	1.38	10		2/28/2006
L70355-04AMSD	Chloride	mg/L	300.0	71.67	50	21.72	99.9	90-110	0.261	20		3/1/2006
L70355-04AMSD	Sulfate	mg/L	300.0	64.64	50	14.46	100	90-110	1.14	20		3/1/2006
L70355-01AMSD	Acidity	mg/L	305.1	40.00	50	0	80.0	80-120	4.88	20		2/28/2006
L70355-01CMSD	Ammonia (as N)	mg/L	350.1	1.015	1	0	102	90-110	3.86	10		3/2/2006
L70355-01AMSD	Nitrite (as N)	mg/L	353.2	0.8780	1	0.007	87.1	90-110	8.82	10	[1]	2/27/2006
L70355-01AMSD	Nitrate (as N)	mg/L	353.2	1.094	1	0	109	90-110	0.0914	10		2/27/2006
L70355-01AMSD	Phosphate, ortho (as P)	mg/L	365.1	1.041	1	0.013	103	90-110	10.6	10	@	2/27/2006

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R55142	Oil & Grease	mg/L	EPA 1664	41.90	40	0	105	79-114				2/27/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R55142	Oil & Grease	mg/L	EPA 1664	42.30	40	0	106	79-114	0.950	18		2/27/2006

American West Analytical Labs

WORK ORDER Summary

27-Feb-06

Work Order L70355

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ EDD in Excel format

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L70355-01A	Sulfer Spring	2/26/2006 1:45:00 PM	2/27/2006	3/13/2006	Aqueous	2320B-ALK-W	feb 27 wc	1
						300.0-W	feb 27 wc	1
							feb 27 wc	1
							feb 27 wc	1
							feb 27 wc	1
							feb 27 wc	1
L70355-01B							ww - tss/tds/ss	1
							ww - tss/tds/ss	1
							ww - tss/tds/ss	1
L70355-01C							feb 27 nh3	1
						EP	feb 27 nh3	1
L70355-01D							OGBFridge	1
L70355-01E						PMS	feb 27 total met	1
							feb 27 total met	1
							feb 27 total met	1
L70355-01F				3/13/2006		Diss	feb 27 dis met	1
				3/13/2006		6020-W-DISS	feb 27 dis met	1
				3/13/2006		HARD	feb 27 dis met	1
				3/13/2006		ICP-W-DIS	feb 27 dis met	1
L70355-02A	Mud Creek	2/26/2006 2:30:00 PM		3/13/2006	Aqueous	2320B-ALK-W	feb 27 wc	1
				3/13/2006		300.0-W	feb 27 wc	1
				3/13/2006		ACIDITY-W	feb 27 wc	1
				3/13/2006		NO2-W	feb 27 wc	1
				3/13/2006		NO3-W	feb 27 wc	1
				3/13/2006		PO4-O	feb 27 wc	1
L70355-02B				3/13/2006		SS	ww - tss/tds/ss	1
				3/13/2006		TDS-W	ww - tss/tds/ss	1

Re-Scan
&
replace
COC.

70355

WORK ORDER Summary

27-Feb-06

Work Order L70355

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ EDD in Excel format

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L70355-02B	Mud Creek	2/26/2006 2:30:00 PM	2/27/2006	3/13/2006	Aqueous	TSS-W	ww - tss/tds/ss	1
L70355-02C				3/13/2006		NH3-W	feb 27 nh3	1
				3/13/2006		NH3-W-PREP	feb 27 nh3	1
L70355-02D				3/13/2006		OGB-W	OGBFridge	1
L70355-02E				3/13/2006		3005A-ICPMS	feb 27 total met	1
				3/13/2006		6020-W	feb 27 total met	1
				3/13/2006		ICP-W	feb 27 total met	1
L70355-02F				3/13/2006	Aqueous-Dissolved	3005A-Diss	feb 27 dis met	1
				3/13/2006		6020-W-DISS	feb 27 dis met	1
				3/13/2006		HARD	feb 27 dis met	1
				3/13/2006		ICP-W-DIS	feb 27 dis met	1
L70355-03A	Eagle Outlet	2/26/2006 3:00:00 PM		3/13/2006	Aqueous	2320B-ALK-W	feb 27 wc	1
				3/13/2006		300.0-W	feb 27 wc	1
				3/13/2006		ACIDITY-W	feb 27 wc	1
				3/13/2006		NO2-W	feb 27 wc	1
				3/13/2006		NO3-W	feb 27 wc	1
				3/13/2006		PO4-O	feb 27 wc	1
L70355-03B				3/13/2006		SS	ww - tss/tds/ss	1
				3/13/2006		TDS-W	ww - tss/tds/ss	1
				3/13/2006		TSS-W	ww - tss/tds/ss	1
L70355-03C				3/13/2006		NH3-W	feb 27 nh3	1
				3/13/2006		NH3-W-PREP	feb 27 nh3	1
L70355-03D				3/13/2006		OGB-W	OGBFridge	1
L70355-03E				3/13/2006		3005A-ICPMS	feb 27 total met	1
				3/13/2006		6020-W	feb 27 total met	1
				3/13/2006		ICP-W	feb 27 total met	1
L70355-03F				3/13/2006	Aqueous-Dissolved	3005A-Diss	feb 27 dis met	1
				3/13/2006		6020-W-DISS	feb 27 dis met	1

WORK ORDER Summary

27-Feb-06

Work Order L70355

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ EDD in Excel format

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L70355-03F	Eagle Outlet	2/26/2006 3:00:00 PM	2/27/2006	3/13/2006	Aqueous-Dissolved	HARD	feb 27 dis met	1
				3/13/2006		ICP-W-DIS	feb 27 dis met	1
L70355-04A	Angle Spring	2/26/2006 6:00:00 PM		3/13/2006	Aqueous	2320B-ALK-W	feb 27 wc	1
				3/13/2006		300.0-W	feb 27 wc	1
				3/13/2006		ACIDITY-W	feb 27 wc	1
				3/13/2006		NO2-W	feb 27 wc	1
				3/13/2006		NO3-W	feb 27 wc	1
				3/13/2006		PO4-O	feb 27 wc	1
L70355-04B				3/13/2006		SS	ww - tss/tds/ss	1
				3/13/2006		TDS-W	ww - tss/tds/ss	1
				3/13/2006		TSS-W	ww - tss/tds/ss	1
L70355-04C				3/13/2006		NH3-W	feb 27 nh3	1
				3/13/2006		NH3-W-PREP	feb 27 nh3	1
L70355-04D				3/13/2006		OGB-W	OGBFridge	1
L70355-04E				3/13/2006		3005A-ICPMS	feb 27 total met	1
				3/13/2006		6020-W	feb 27 total met	1
				3/13/2006		ICP-W	feb 27 total met	1
L70355-04F				3/13/2006	Aqueous-Dissolved	3005A-Diss	feb 27 dis met	1
				3/13/2006		6020-W-DISS	feb 27 dis met	1
				3/13/2006		HARD	feb 27 dis met	1
				3/13/2006		ICP-W-DIS	feb 27 dis met	1

Client Carbon Resources
Address c/o Rock Logic PO Box 544
Cedar City UT 84721
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name Scofield Baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 70355
Page _____ of _____

Turn Around Time (Circle One)
1 day | 2 day | 3 day | 4 day | 5 day | Standard
QC 1 | 2 | 2+ | 3 | 3+ | 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	see table 3 on file										COMMENTS
Sulfer Spring	2-26-06 1345	W	6	✓										
Mud Creek	2-26-06 1430	W	6	✓										
Eagle outlet	2-26-06 1500	W	6	✓										
Angle Spring	2-26-06 1800	W	6	✓										

Please indicate tests needed below

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 18:00	PRINT NAME Katie Lindsay
Relinquished By: Signature Katie Lindsay	Date 2-27-06	Received By: Signature
PRINT NAME Katie Lindsay	Time 10:00	PRINT NAME Lynn Turner
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:
Please filter for dissolved metals
Please send PDF & .XLS

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature -1.0
4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

9
63
17 80

Preservation Check Sheet

Sample Set: 70355

Sample Set Extension and pH

Bottle Type	Preservative	All OK														
Ammonia[1]	pH <2 H_2SO_4	✓														
COD[1]	pH <2 H_2SO_4															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO_3	✓														
NO_2 & NO_3[1]	pH <2 H_2SO_4															
Nutrients[1]	pH <2 H_2SO_4															
O & G	pH <2 HCL	✓														
Phenols[2]	pH <2 H_2SO_4															
Sulfide	pH > 9 NaOH, ZnAC															
TKN[1]	pH <2 H_2SO_4															
TOC[1]	pH <2 H_2SO_4															
TOX[2]	pH <2 H_2SO_4															
T PO4[1]	pH <2 H_2SO_4															
Mixed Analysis[1]	pH <2 H_2SO_4															
Mixed Analysis[2]	pH <2 H_2SO_4															

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) Do Not dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 H_2SO_4 in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 H_2SO_4 in a B.R.

Frequency: All samples requiring preservation

March 15, 2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L70402

Dear Brad Lindsay:

American West Analytical Labs received 1 sample on 3/1/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70402-01D
Field Sample ID: **CR-06-03-ABV**
Collected: 2/28/2006 3:00:00 PM
Received: 3/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	3/2/2006 4:36:18 PM	6010B	0.050	**4.3**
Manganese	mg/L	3/2/2006 4:36:18 PM	6010B	0.0050	**0.15**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70402-01E
Field Sample ID: **CR-06-03-ABV**
Collected: 2/28/2006 3:00:00 PM
Received: 3/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	3/7/2006 12:34:49 PM	6010B	0.10	< 0.10
Arsenic	mg/L	3/13/2006 10:12:02 AM	6020	0.0050	**0.036**
Boron	mg/L	3/7/2006 12:34:49 PM	6010B	0.50	< 0.50
Cadmium	mg/L	3/13/2006 10:12:02 AM	6020	0.0040	< 0.0040
Calcium	mg/L	3/7/2006 12:34:49 PM	6010B	10	**130**
Copper	mg/L	3/13/2006 10:12:02 AM	6020	0.0040	**0.068**
Iron	mg/L	3/7/2006 12:34:49 PM	6010B	0.050	< 0.050
Lead	mg/L	3/13/2006 10:12:02 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	3/7/2006 12:34:49 PM	6010B	1.0	**30**
Manganese	mg/L	3/13/2006 10:12:02 AM	6020	0.0050	**0.095**
Molybdenum	mg/L	3/7/2006 12:34:49 PM	6010B	0.10	< 0.10
Potassium	mg/L	3/7/2006 12:34:49 PM	6010B	1.0	**2.4**
Selenium	mg/L	3/13/2006 10:12:02 AM	6020	0.0050	< 0.0050
Sodium	mg/L	3/7/2006 12:34:49 PM	6010B	10	**25**
Zinc	mg/L	3/13/2006 10:12:02 AM	6020	0.010	**2.8**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70402-01
Field Sample ID: **CR-06-03-ABV**
Collected: 2/28/2006 3:00:00 PM
Received: 3/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	3/2/2006 7:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	3/2/2006 6:00:00 AM	2320B	10	**400**
Ammonia (as N)	mg/L	3/2/2006 4:25:00 PM	350.1	0.10	< 0.10
Bicarbonate (As CaCO3)	mg/L	3/2/2006 6:00:00 AM	2320B	10	**400**
Carbonate (As CaCO3)	mg/L	3/2/2006 6:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/3/2006 6:37:42 AM	300.0	10	**36**
Hardness (as CaCO3)	mg/L	3/7/2006	2340B	10	**460**
Nitrate (as N)	mg/L	3/2/2006 10:50:00 AM	353.2	0.010	**0.086**
Nitrite (as N)	mg/L	3/2/2006 10:50:00 AM	353.2	0.010	**0.019**
Phosphate, ortho (as P)	mg/L	3/1/2006	365.1	0.050	**0.066**
Sulfate	mg/L	3/3/2006 6:37:42 AM	300.0	10	**50**
TDS	mg/L	3/3/2006 1:30:00 PM	160.1	10	**460**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-27397	Arsenic	mg/L	6020	0.2219	0.2	0	111	85-115				3/13/2006
LCS-27397	Cadmium	mg/L	6020	0.2126	0.2	0	106	85-115				3/13/2006
LCS-27397	Copper	mg/L	6020	0.2090	0.2	0	104	85-115				3/13/2006
LCS-27397	Lead	mg/L	6020	0.2133	0.2	0	107	85-115				3/13/2006
LCS-27397	Manganese	mg/L	6020	0.2055	0.2	0	103	85-115				3/13/2006
LCS-27397	Selenium	mg/L	6020	0.2140	0.2	0	107	85-115				3/13/2006
LCS-27397	Zinc	mg/L	6020	1.044	1	0	104	85-115				3/13/2006
LCS-27382	Iron	mg/L	6010B	1.021	1	0	102	75-125				3/2/2006
LCS-27382	Manganese	mg/L	6010B	0.2026	0.2	0	101	75-125				3/2/2006
LCS-27397	Aluminum	mg/L	6010B	1.062	1	0	106	75-125				3/7/2006
LCS-27397	Boron	mg/L	6010B	1.058	1	0	106	75-125				3/7/2006
LCS-27397	Calcium	mg/L	6010B	10.50	10	0	105	75-125				3/7/2006
LCS-27397	Iron	mg/L	6010B	1.074	1	0	107	75-125				3/7/2006
LCS-27397	Magnesium	mg/L	6010B	10.46	10	0	105	75-125				3/7/2006
LCS-27397	Molybdenum	mg/L	6010B	0.2166	0.2	0	108	75-125				3/7/2006
LCS-27397	Potassium	mg/L	6010B	10.29	10	0	103	75-125				3/7/2006
LCS-27397	Sodium	mg/L	6010B	10.27	10	0	103	75-125				3/7/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-27397	Arsenic	mg/L	6020	< 0.0050				-				3/13/2006
MB-27397	Cadmium	mg/L	6020	< 0.0040				-				3/13/2006
MB-27397	Copper	mg/L	6020	< 0.0040				-				3/13/2006
MB-27397	Lead	mg/L	6020	< 0.0050				-				3/13/2006
MB-27397	Manganese	mg/L	6020	< 0.0050				-				3/13/2006
MB-27397	Selenium	mg/L	6020	< 0.0050				-				3/13/2006
MB-27397	Zinc	mg/L	6020	< 0.010				-				3/13/2006
MB-27382	Iron	mg/L	6010B	< 0.050				-				3/2/2006
MB-27382	Manganese	mg/L	6010B	< 0.0050				-				3/2/2006
MB-27397	Aluminum	mg/L	6010B	< 0.10				-				3/7/2006
MB-27397	Boron	mg/L	6010B	< 0.50				-				3/7/2006
MB-27397	Calcium	mg/L	6010B	< 1.0				-				3/7/2006
MB-27397	Iron	mg/L	6010B	< 0.050				-				3/7/2006
MB-27397	Magnesium	mg/L	6010B	< 1.0				-				3/7/2006
MB-27397	Molybdenum	mg/L	6010B	< 0.10				-				3/7/2006
MB-27397	Potassium	mg/L	6010B	< 1.0				-				3/7/2006
MB-27397	Sodium	mg/L	6010B	< 1.0				-				3/7/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70402-01EMS	Arsenic	mg/L	6020	0.2599	0.2	0.03587	112	70-130				3/13/2006
L70402-01EMS	Cadmium	mg/L	6020	0.2168	0.2	0.002434	107	70-130				3/13/2006
L70402-01EMS	Copper	mg/L	6020	0.2794	0.2	0.06796	106	70-130				3/13/2006
L70402-01EMS	Lead	mg/L	6020	0.2095	0.2	0	105	70-130				3/13/2006
L70402-01EMS	Manganese	mg/L	6020	0.3109	0.2	0.09489	108	70-130				3/13/2006
L70402-01EMS	Selenium	mg/L	6020	0.2180	0.2	0.004896	107	70-130				3/13/2006
L70402-01EMS	Zinc	mg/L	6020	4.095	1	2.842	125	70-130				3/13/2006
L70402-01DMS	Iron	mg/L	6010B	5.025	1	4.267	75.7	75-125				3/2/2006
L70402-01DMS	Manganese	mg/L	6010B	0.3394	0.2	0.1546	92.4	75-125				3/2/2006
L70402-01EMS	Aluminum	mg/L	6010B	1.187	1	0.03555	115	75-125				3/7/2006
L70402-01EMS	Boron	mg/L	6010B	1.096	1	0.0339	106	75-125				3/7/2006
L70402-01EMS	Calcium	mg/L	6010B	144.9	10	133	119	75-125				3/7/2006
L70402-01EMS	Iron	mg/L	6010B	1.090	1	0.0317	106	75-125				3/7/2006
L70402-01EMS	Magnesium	mg/L	6010B	40.04	10	30.3	97.4	75-125				3/7/2006
L70402-01EMS	Molybdenum	mg/L	6010B	0.2053	0.2	0	103	75-125				3/7/2006
L70402-01EMS	Potassium	mg/L	6010B	13.12	10	2.447	107	75-125				3/7/2006
L70402-01EMS	Sodium	mg/L	6010B	35.95	10	25.44	105	75-125				3/7/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70402-01EMSD	Arsenic	mg/L	6020	0.2663	0.2	0.03587	115	70-130	2.43	20		3/13/2006
L70402-01EMSD	Cadmium	mg/L	6020	0.2196	0.2	0.002434	109	70-130	1.26	20		3/13/2006
L70402-01EMSD	Copper	mg/L	6020	0.2768	0.2	0.06796	104	70-130	0.901	20		3/13/2006
L70402-01EMSD	Lead	mg/L	6020	0.2123	0.2	0	106	70-130	1.33	20		3/13/2006
L70402-01EMSD	Manganese	mg/L	6020	0.3126	0.2	0.09489	109	70-130	0.534	20		3/13/2006
L70402-01EMSD	Selenium	mg/L	6020	0.2268	0.2	0.004896	111	70-130	3.95	20		3/13/2006
L70402-01EMSD	Zinc	mg/L	6020	4.123	1	2.842	128	70-130	0.679	20		3/13/2006
L70402-01DMSD	Iron	mg/L	6010B	5.299	1	4.267	103	75-125	5.32	20		3/2/2006
L70402-01DMSD	Manganese	mg/L	6010B	0.3521	0.2	0.1546	98.8	75-125	3.68	20		3/2/2006
L70402-01EMSD	Aluminum	mg/L	6010B	1.115	1	0.03555	108	75-125	6.25	20		3/7/2006
L70402-01EMSD	Boron	mg/L	6010B	1.082	1	0.0339	105	75-125	1.24	20		3/7/2006
L70402-01EMSD	Calcium	mg/L	6010B	140.8	10	133	78.0	75-125	2.87	20		3/7/2006
L70402-01EMSD	Iron	mg/L	6010B	1.070	1	0.0317	104	75-125	1.84	20		3/7/2006
L70402-01EMSD	Magnesium	mg/L	6010B	39.00	10	30.3	86.9	75-125	2.64	20		3/7/2006
L70402-01EMSD	Molybdenum	mg/L	6010B	0.2004	0.2	0	100	75-125	2.42	20		3/7/2006
L70402-01EMSD	Potassium	mg/L	6010B	13.00	10	2.447	106	75-125	0.924	20		3/7/2006
L70402-01EMSD	Sodium	mg/L	6010B	35.24	10	25.44	98.0	75-125	1.99	20		3/7/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70402-01BDUP	Chloride	mg/L	300.0	35.66	0	36.19		-	1.47	20		3/3/2006
L70402-01BDUP	Sulfate	mg/L	300.0	49.10	0	50.38		-	2.57	20		3/3/2006
L70355-04BDUP	TDS	mg/L	160.1	244.0	0	244		-	0	20		3/3/2006
L70436-06BDUP	TDS	mg/L	160.1	< 10	0	0		-	0	20		3/3/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R55203	Alkalinity,(As CaCO3)	mg/L	2320B	49880	50000	0	99.8	90-110				3/2/2006
LCS-R55285	Chloride	mg/L	300.0	4.971	5	0	99.4	90-110				3/3/2006
LCS-R55285	Sulfate	mg/L	300.0	4.969	5	0	99.4	90-110				3/3/2006
LCS-R55205	Acidity	mg/L	305.1	50.00	50	0	100	80-120				3/2/2006
LCS-27392	Ammonia (as N)	mg/L	350.1	0.9630	1	0	96.3	90-110				3/2/2006
LCS-R55226	Nitrite (as N)	mg/L	353.2	1.028	1	0	103	90-110				3/2/2006
LCS-R55227	Nitrate (as N)	mg/L	353.2	1.081	1	0	108	90-110				3/2/2006
LCS-R55196	Phosphate, ortho (as P)	mg/L	365.1	0.9980	1	0	99.8	90-110				3/1/2006
LCS-R55303	TDS	mg/L	160.1	202.0	205	0	98.5	80-120				3/3/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R55203	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				3/2/2006
MB-R55203	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				3/2/2006
MB-R55203	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				3/2/2006
MB-R55285	Chloride	mg/L	300.0	< 1.0				-				3/3/2006
MB-R55285	Sulfate	mg/L	300.0	< 1.0				-				3/3/2006
MB-R55205	Acidity	mg/L	305.1	< 15				-				3/2/2006
MB-27392	Ammonia (as N)	mg/L	350.1	< 0.050				-				3/2/2006
MB-R55226	Nitrite (as N)	mg/L	353.2	< 0.010				-				3/2/2006
MB-R55227	Nitrate (as N)	mg/L	353.2	< 0.010				-				3/2/2006
MB-R55196	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				3/1/2006
MB-R55303	TDS	mg/L	160.1	< 10				-				3/3/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70402-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	501.0	100	397	104	80-120				3/2/2006
L70402-01BMS	Chloride	mg/L	300.0	86.54	50	36.19	101	90-110				3/3/2006
L70402-01BMS	Sulfate	mg/L	300.0	104.9	50	50.38	109	90-110				3/3/2006
L70402-01BMS	Acidity	mg/L	305.1	50.00	50	0	100	80-120				3/2/2006
L70402-01CMS	Ammonia (as N)	mg/L	350.1	2.085	2	0.075	101	90-110				3/2/2006
L70402-01BMS	Nitrite (as N)	mg/L	353.2	0.9990	1	0.019	98.0	90-110				3/2/2006
L70402-01BMS	Nitrate (as N)	mg/L	353.2	1.116	1	0.086	103	90-110				3/2/2006
L70402-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.9800	1	0.066	91.4	90-110				3/1/2006

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

Dept: WC
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70402-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	499.0	100	397	102	80-120	0.400	10		3/2/2006
L70402-01BMSD	Chloride	mg/L	300.0	85.69	50	36.19	99.0	90-110	0.985	20		3/3/2006
L70402-01BMSD	Sulfate	mg/L	300.0	101.8	50	50.38	103	90-110	3.00	20		3/3/2006
L70402-01BMSD	Acidity	mg/L	305.1	56.00	50	0	112	80-120	11.3	20		3/2/2006
L70402-01CMSD	Ammonia (as N)	mg/L	350.1	2.077	2	0.075	100	90-110	0.384	10		3/2/2006
L70402-01BMSD	Nitrite (as N)	mg/L	353.2	1.063	1	0.019	104	90-110	6.21	10		3/2/2006
L70402-01BMSD	Nitrate (as N)	mg/L	353.2	1.117	1	0.086	103	90-110	0.0896	10		3/2/2006
L70402-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.9860	1	0.066	92.0	90-110	0.610	10		3/1/2006

American West Analytical Labs

WORK ORDER Summary

01-Mar-06

Work Order L70402

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:** HOK UT

Comments: QCLevel: QC 2+. Include EDD in Excel format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L70402-01A	CR-06-03-ABV	2/28/2006 3:00:00 PM	3/1/2006	3/15/2006	Aqueous	TDS-W	ww - tds	1
L70402-01B				3/15/2006		2320B-ALK-W	mar 1 - wc	1
				3/15/2006		300.0-W	mar 1 - wc	1
				3/15/2006		ACIDITY-W	mar 1 - wc	1
				3/15/2006		NO2-W	mar 1 - wc	1
				3/15/2006		NO3-W	mar 1 - wc	1
				3/15/2006		PO4-O	mar 1 - wc	1
L70402-01C				3/15/2006		NH3-W	mar 1 - nh3	1
				3/15/2006		NH3-W-PREP	mar 1 - nh3	1
L70402-01D				3/15/2006		3005A-ICPMS	mar 1 - met	1
				3/15/2006		ICP-W	mar 1 - met	1
L70402-01E				3/15/2006	Aqueous-Dissolved	3005A-Diss	mar 1 - dis met/hg	1
				3/15/2006		6020-W-DISS	mar 1 - dis met/hg	1
				3/15/2006		HARD	mar 1 - dis met/hg	1
				3/15/2006		ICP-W-DIS	mar 1 - dis met/hg	1

70462

Client Carbon Resources

Address c/o Rock Logic PO Box 544
Cedaredge CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Stofield baseline

Project Number/P.O.#

Sampler Name Edward Scartezina

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115

(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 70402 ~~70403~~ rev

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Table 4 / Ground Water	COMMENTS
CR-06-03-ABV	2/28/06 2:10 pm	W	5	✓	
CR-06-01-BLW		W	5	✓	NOT RECEIVED
CR-06-02 ~~PW~~		W	5	✓	

Please indicate tests needed below

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME Ed Scartezina	Time 4:12 PM	PRINT NAME
Relinquished By: Signature UPS	Date 3/1/06	Received By: Signature
PRINT NAME	Time 11:05	PRINT NAME Rebecca Winkler
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

please filter for dissolved metals

please send PDF & .XLS

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS
2 Ambient or Chilled
Notes:
3 Temperature 2°C
4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:
5 Properly Preserved
Y N
Notes:
6 Received Within Holding Times
Y N
Notes:

COC Tape Was:
1 Present on Outer Package
Y N NA
2 Unbroken on Outer Package
Y N NA
3 Present on Sample
Y N NA
4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Temperature	°C

		LABORATORY MEASUREMENTS		
*	-	Total Dissolved Solids		mg/l
*	-	Total Hardness ($CaCO_3$)		mg/l
*	-	Total Alkalinity		mg/l
	-	Acidity		mg/l
	-	Aluminum (Dissolved)		mg/l
	-	Arsenic (Dissolved)		mg/l
	-	Boron (Dissolved)[1]		mg/l
*	-	Carbonate		mg/l
*	-	Bicarbonate		mg/l
	-	Cadmium (Dissolved)		mg/l
*	-	Calcium (Dissolved)		mg/l
*	-	Chloride	mg/l	
	-	Copper (Dissolved)		mg/l
*	-	Iron (Dissolved)		mg/l
*	-	Iron (Total)		mg/l
	-	Lead (Dissolved)	mg/l	
*	-	Magnesium (Dissolved)		mg/l
*	-	Manganese (Dissolved)		mg/l
*	-	Manganese (Total)		mg/l
	-	Molybdenum (Dissolved)		mg/l
	-	Ammonia		mg/l
	-	Nitrates		mg/l
	-	Nitrites		mg/l
*	-	Potassium (Dissolved)		mg/l
	-	Phosphate (Ortho)		mg/l
	-	Selenium[1] (Dissolved)		mg/l
*	-	Sodium (Dissolved)		mg/l
*	-	Sulfate		mg/l
	-	Zinc (Dissolved)	mg/l	
*	-	Cations		meq/l
*	-	Anions		meq/l

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Preservation Check Sheet

Sample Set: 70402

Sample Set Extension and pH

Bottle Type	Preservative	All OK														
Ammonia[1]	pH <2 H_2SO_4	✓														
COD[1]	pH <2 H_2SO_4															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO_3	✓														
NO_2 & NO_3[1]	pH <2 H_2SO_4															
Nutrients[1]	pH <2 H_2SO_4															
O & G	pH <2 HCL															
Phenols[2]	pH <2 H_2SO_4															
Sulfide	pH > 9 NaOH, ZnAC															
TKN[1]	pH <2 H_2SO_4															
TOC[1]	pH <2 H_2SO_4															
TOX[2]	pH <2 H_2SO_4															
T PO4[1]	pH <2 H_2SO_4															
Mixed Analysis[1]	pH <2 H_2SO_4															
Mixed Analysis[2]	pH <2 H_2SO_4															

Procedure:
1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 H_2SO_4 in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 H_2SO_4 in a B.R.

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

April 11, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L70885

Dear Brad Lindsay:

American West Analytical Labs received 5 samples on 3/28/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L70885-01E
Field Sample ID: **Angle Spring**
Collected: 3/27/2006 12:00:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	4/9/2006 2:00:33 PM	6010B	0.10	< 0.10
Arsenic	mg/L	4/4/2006 5:38:56 PM	6020	0.0050	< 0.0050
Boron	mg/L	4/9/2006 2:00:33 PM	6010B	0.50	< 0.50
Cadmium	mg/L	4/4/2006 5:38:56 PM	6020	0.0040	< 0.0040
Calcium	mg/L	4/11/2006 3:02:22 PM	6010B	10	**97**
Copper	mg/L	4/4/2006 5:38:56 PM	6020	0.0040	< 0.0040
Iron	mg/L	4/9/2006 2:00:33 PM	6010B	0.050	< 0.050
Lead	mg/L	4/4/2006 5:38:56 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	4/9/2006 2:00:33 PM	6010B	1.0	**19**
Manganese	mg/L	4/4/2006 5:38:56 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	4/9/2006 2:00:33 PM	6010B	0.10	< 0.10
Potassium	mg/L	4/9/2006 2:00:33 PM	6010B	1.0	**1.9**
Selenium	mg/L	4/4/2006 5:38:56 PM	6020	0.0050	< 0.0050
Sodium	mg/L	4/11/2006 3:02:22 PM	6010B	1.0	**10**
Zinc	mg/L	4/4/2006 5:38:56 PM	6020	0.010	**0.052**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-02E
Field Sample ID: **Mud Creek**
Collected: 3/27/2006 1:00:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	4/9/2006 2:04:24 PM	6010B	0.10	< 0.10
Arsenic	mg/L	4/4/2006 5:44:22 PM	6020	0.0050	< 0.0050
Boron	mg/L	4/9/2006 2:04:24 PM	6010B	0.50	< 0.50
Cadmium	mg/L	4/4/2006 5:44:22 PM	6020	0.0040	< 0.0040
Calcium	mg/L	4/11/2006 2:14:07 PM	6010B	10	**88**
Copper	mg/L	4/4/2006 5:44:22 PM	6020	0.0040	< 0.0040
Iron	mg/L	4/9/2006 2:04:24 PM	6010B	0.050	< 0.050
Lead	mg/L	4/4/2006 5:44:22 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	4/9/2006 2:04:24 PM	6010B	1.0	**54**
Manganese	mg/L	4/4/2006 5:44:22 PM	6020	0.0050	**0.025**
Molybdenum	mg/L	4/9/2006 2:04:24 PM	6010B	0.10	< 0.10
Potassium	mg/L	4/9/2006 2:04:24 PM	6010B	1.0	**9.7**
Selenium	mg/L	4/4/2006 5:44:22 PM	6020	0.0050	< 0.0050
Sodium	mg/L	4/11/2006 2:14:07 PM	6010B	10	**57**
Zinc	mg/L	4/4/2006 5:44:22 PM	6020	0.010	**0.026**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-03E
Field Sample ID: **Sulfer Spring**
Collected: 3/27/2006 2:15:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	4/9/2006 2:12:12 PM	6010B	0.10	< 0.10
Arsenic	mg/L	4/4/2006 5:55:12 PM	6020	0.0050	< 0.0050
Boron	mg/L	4/9/2006 2:12:12 PM	6010B	0.50	< 0.50
Cadmium	mg/L	4/4/2006 5:55:12 PM	6020	0.0040	< 0.0040
Calcium	mg/L	4/11/2006 3:11:01 PM	6010B	10	**89** [2]
Copper	mg/L	4/4/2006 5:55:12 PM	6020	0.0040	< 0.0040
Iron	mg/L	4/9/2006 2:12:12 PM	6010B	0.050	< 0.050
Lead	mg/L	4/4/2006 5:55:12 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	4/9/2006 2:12:12 PM	6010B	1.0	**37**
Manganese	mg/L	4/4/2006 5:55:12 PM	6020	0.0050	**0.033**
Molybdenum	mg/L	4/9/2006 2:12:12 PM	6010B	0.10	< 0.10
Potassium	mg/L	4/9/2006 2:12:12 PM	6010B	1.0	**5.4**
Selenium	mg/L	4/4/2006 5:55:12 PM	6020	0.0050	< 0.0050
Sodium	mg/L	4/11/2006 3:11:01 PM	6010B	1.0	**9.4**
Zinc	mg/L	4/4/2006 5:55:12 PM	6020	0.010	**0.042**

[2] *Analyte concentration is too high for accurate spike recovery.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-04E
Field Sample ID: **Eagle Outlet**
Collected: 3/27/2006 3:00:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	4/9/2006 2:27:47 PM	6010B	0.10	< 0.10
Arsenic	mg/L	4/4/2006 6:16:49 PM	6020	0.0050	< 0.0050
Boron	mg/L	4/9/2006 2:27:47 PM	6010B	0.50	< 0.50
Cadmium	mg/L	4/4/2006 6:16:49 PM	6020	0.0040	< 0.0040
Calcium	mg/L	4/11/2006 3:27:25 PM	6010B	10	**86**
Copper	mg/L	4/4/2006 6:16:49 PM	6020	0.0040	< 0.0040
Iron	mg/L	4/9/2006 2:27:47 PM	6010B	0.050	**0.053**
Lead	mg/L	4/4/2006 6:16:49 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	4/9/2006 2:27:47 PM	6010B	1.0	**17**
Manganese	mg/L	4/4/2006 6:16:49 PM	6020	0.0050	**0.078**
Molybdenum	mg/L	4/9/2006 2:27:47 PM	6010B	0.10	< 0.10
Potassium	mg/L	4/9/2006 2:27:47 PM	6010B	1.0	**1.8**
Selenium	mg/L	4/4/2006 6:16:49 PM	6020	0.0050	< 0.0050
Sodium	mg/L	4/11/2006 3:27:25 PM	6010B	1.0	**11**
Zinc	mg/L	4/4/2006 6:16:49 PM	6020	0.010	**0.028**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L70885-05E
Field Sample ID: **CR-06-03-ABV**
Collected: 3/27/2006 11:00:00 AM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	4/9/2006 2:31:41 PM	6010B	0.10	< 0.10
Arsenic	mg/L	4/4/2006 6:33:01 PM	6020	0.0050	**0.013**
Boron	mg/L	4/9/2006 2:31:41 PM	6010B	0.50	< 0.50
Cadmium	mg/L	4/4/2006 6:33:01 PM	6020	0.0040	< 0.0040
Calcium	mg/L	4/11/2006 3:31:20 PM	6010B	10	**120**
Copper	mg/L	4/4/2006 6:33:01 PM	6020	0.0040	**0.0088**
Iron	mg/L	4/9/2006 2:31:41 PM	6010B	0.050	**0.052**
Lead	mg/L	4/4/2006 6:33:01 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	4/9/2006 2:31:41 PM	6010B	1.0	**31**
Manganese	mg/L	4/4/2006 6:33:01 PM	6020	0.0050	**0.075**
Molybdenum	mg/L	4/9/2006 2:31:41 PM	6010B	0.10	< 0.10
Potassium	mg/L	4/9/2006 2:31:41 PM	6010B	1.0	**2.5**
Selenium	mg/L	4/4/2006 6:33:01 PM	6020	0.0050	< 0.0050
Sodium	mg/L	4/11/2006 3:31:20 PM	6010B	1.0	**9.4**
Zinc	mg/L	4/4/2006 6:33:01 PM	6020	0.010	**0.43**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-01D
Field Sample ID: **Angle Spring**
Collected: 3/27/2006 12:00:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/9/2006 2:51:28 PM	6010B	0.050	< 0.050
Manganese	mg/L	4/4/2006 9:41:07 PM	6010B	0.0050	< 0.0050

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-02D
Field Sample ID: **Mud Creek**
Collected: 3/27/2006 1:00:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/9/2006 2:55:23 PM	6010B	0.050	**0.47**
Manganese	mg/L	4/4/2006 9:44:59 PM	6010B	0.0050	**0.042**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-03D
Field Sample ID: **Sulfer Spring**
Collected: 3/27/2006 2:15:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/9/2006 2:59:22 PM	6010B	0.050	< 0.050
Manganese	mg/L	4/4/2006 9:48:56 PM	6010B	0.0050	**0.032**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-04D
Field Sample ID: **Eagle Outlet**
Collected: 3/27/2006 3:00:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/9/2006 3:03:19 PM	6010B	0.050	**6.5**
Manganese	mg/L	4/4/2006 9:52:51 PM	6010B	0.0050	**0.32**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-05D
Field Sample ID: **CR-06-03-ABV**
Collected: 3/27/2006 11:00:00 AM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/9/2006 3:11:08 PM	6010B	0.050	**0.46**
Manganese	mg/L	4/4/2006 10:00:41 PM	6010B	0.0050	**0.11**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-01
Field Sample ID: **Angle Spring**
Collected: 3/27/2006 12:00:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	3/30/2006 7:35:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**300**
Ammonia (as N)	mg/L	3/29/2006 1:46:00 PM	350.1	0.050	< 0.050 [1]
Bicarbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**300**
Carbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/29/2006 4:04:31 AM	300.0	10	**24**
Conductivity	µmhos/cm	3/30/2006 8:00:00 AM	120.1	2.0	**670**
Hardness (as CaCO3)	mg/L	4/11/2006	2340B	10	**320**
Nitrate (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	**0.92** [1]
Nitrite (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	**0.099** [1@]
Oil & Grease	mg/L	3/28/2006	EPA 1664	3.0	**4.0**
pH @ 25° C	pH Units	3/28/2006 11:35:00 AM	150.1	0	**7.04**
Phosphate, ortho (as P)	mg/L	3/29/2006 7:27:00 AM	365.1	0.050	< 0.050 [1]
Settable Solids	ml/L	3/28/2006 11:30:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	3/29/2006 4:04:31 AM	300.0	10	**15**
TDS	mg/L	3/31/2006 1:30:00 PM	160.1	10	**190**
TSS	mg/L	3/28/2006 3:30:00 PM	160.2	3.0	< 3.0

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-02
Field Sample ID: **Mud Creek**
Collected: 3/27/2006 1:00:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	3/30/2006 7:35:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**260**
Ammonia (as N)	mg/L	3/29/2006 1:46:00 PM	350.1	0.050	**0.053**
Bicarbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**260**
Carbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/29/2006 6:17:29 AM	300.0	10	**34**
Conductivity	µmhos/cm	3/30/2006 8:00:00 AM	120.1	2.0	**1000**
Hardness (as CaCO3)	mg/L	4/11/2006	2340B	10	**440**
Nitrate (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	**0.44**
Nitrite (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	3/28/2006	EPA 1664	3.0	**4.1**
pH @ 25° C	pH Units	3/28/2006 11:35:00 AM	150.1	0	**8.18**
Phosphate, ortho (as P)	mg/L	3/29/2006 7:27:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	3/28/2006 11:30:00 AM	160.5	0.10	**0.10**
Sulfate	mg/L	3/29/2006 6:50:43 AM	300.0	100	**250**
TDS	mg/L	3/31/2006 1:30:00 PM	160.1	10	**510**
TSS	mg/L	3/28/2006 3:30:00 PM	160.2	3.0	**28**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-03
Field Sample ID: **Sulfer Spring**
Collected: 3/27/2006 2:15:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	3/30/2006 7:35:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**350**
Ammonia (as N)	mg/L	3/29/2006 1:46:00 PM	350.1	0.050	**0.057**
Bicarbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**350**
Carbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/29/2006	300.0	1.0	**7.2**
Conductivity	µmhos/cm	3/30/2006 8:00:00 AM	120.1	2.0	**710**
Hardness (as CaCO3)	mg/L	4/11/2006	2340B	10	**380**
Nitrate (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	**0.10**
Oil & Grease	mg/L	3/28/2006	EPA 1664	3.0	**4.6**
pH @ 25° C	pH Units	3/28/2006 11:35:00 AM	150.1	0	**7.38**
Phosphate, ortho (as P)	mg/L	3/29/2006 7:27:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	3/28/2006 11:30:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	3/29/2006 9:36:56 AM	300.0	10	**44**
TDS	mg/L	3/31/2006 1:30:00 PM	160.1	10	**230**
TSS	mg/L	3/28/2006 3:30:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-04
Field Sample ID: **Eagle Outlet**
Collected: 3/27/2006 3:00:00 PM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	3/30/2006 7:35:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**280**
Ammonia (as N)	mg/L	3/29/2006 1:46:00 PM	350.1	0.050	**0.11**
Bicarbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**280**
Carbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/29/2006 10:10:10 AM	300.0	10	**11**
Conductivity	µmhos/cm	3/30/2006 8:00:00 AM	120.1	2.0	**550**
Hardness (as CaCO3)	mg/L	4/11/2006	2340B	10	**280**
Nitrate (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	**0.58**
Nitrite (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	**0.019**
Oil & Grease	mg/L	3/28/2006	EPA 1664	3.0	**3.9**
pH @ 25° C	pH Units	3/28/2006 11:35:00 AM	150.1	0	**8.10**
Phosphate, ortho (as P)	mg/L	3/29/2006 7:27:00 AM	365.1	0.050	**0.087**
Settable Solids	ml/L	3/28/2006 11:30:00 AM	160.5	0.10	**0.20**
Sulfate	mg/L	3/29/2006 10:10:10 AM	300.0	10	**26**
TDS	mg/L	3/31/2006 1:30:00 PM	160.1	10	**270**
TSS	mg/L	3/28/2006 3:30:00 PM	160.2	3.0	**260**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-05
Field Sample ID: **CR-06-03-ABV**
Collected: 3/27/2006 11:00:00 AM
Received: 3/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	3/30/2006 7:35:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**400**
Ammonia (as N)	mg/L	3/29/2006 1:46:00 PM	350.1	0.050	**0.10**
Bicarbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	**400**
Carbonate (As CaCO3)	mg/L	3/30/2006 7:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/29/2006 10:43:24 AM	300.0	10	**17**
Conductivity	µmhos/cm	3/30/2006 8:00:00 AM	120.1	2.0	**800**
Hardness (as CaCO3)	mg/L	4/11/2006	2340B	10	**420**
Nitrate (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	**0.076**
Nitrite (as N)	mg/L	3/29/2006 8:48:00 AM	353.2	0.010	**0.025**
pH @ 25° C	pH Units	3/28/2006 11:35:00 AM	150.1	0	**7.14**
Phosphate, ortho (as P)	mg/L	3/29/2006 7:27:00 AM	365.1	0.050	< 0.050
Sulfate	mg/L	3/29/2006 10:43:24 AM	300.0	10	**34**
TDS	mg/L	3/31/2006 1:30:00 PM	160.1	10	**350**

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-27885	Arsenic	mg/L	6020	0.2043	0.2	0	102	85-115				4/4/2006
LCS-27885	Cadmium	mg/L	6020	0.2002	0.2	0	100	85-115				4/4/2006
LCS-27885	Copper	mg/L	6020	0.2023	0.2	0	101	85-115				4/4/2006
LCS-27885	Lead	mg/L	6020	0.2050	0.2	0	102	85-115				4/4/2006
LCS-27885	Manganese	mg/L	6020	0.2030	0.2	0	101	85-115				4/4/2006
LCS-27885	Selenium	mg/L	6020	0.2105	0.2	0	105	85-115				4/4/2006
LCS-27885	Zinc	mg/L	6020	1.021	1	0.00916	101	85-115				4/4/2006
LCS-27896	Manganese	mg/L	6010B	0.2021	0.2	0	101	75-125				4/4/2006
LCS-27949	Iron	mg/L	6010B	1.070	1	0	107	75-125				4/9/2006
LCS-27885	Aluminum	mg/L	6010B	0.9927	1	0	99.3	75-125				4/9/2006
LCS-27885	Boron	mg/L	6010B	0.9971	1	0	99.7	75-125				4/9/2006
LCS-27885	Calcium	mg/L	6010B	10.54	10	0	105	75-125				4/9/2006
LCS-27885	Iron	mg/L	6010B	1.073	1	0	107	75-125				4/9/2006
LCS-27885	Magnesium	mg/L	6010B	10.38	10	0	104	75-125				4/9/2006
LCS-27885	Molybdenum	mg/L	6010B	0.2162	0.2	0	108	75-125				4/9/2006
LCS-27885	Potassium	mg/L	6010B	10.68	10	0	107	75-125				4/9/2006
LCS-27885	Sodium	mg/L	6010B	10.24	10	0	102	75-125				4/11/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-27885	Arsenic	mg/L	6020	< 0.0050				-				4/4/2006
MB-27885	Cadmium	mg/L	6020	< 0.0040				-				4/4/2006
MB-27885	Copper	mg/L	6020	< 0.0040				-				4/4/2006
MB-27885	Lead	mg/L	6020	< 0.0050				-				4/4/2006
MB-27885	Manganese	mg/L	6020	< 0.0050				-				4/4/2006
MB-27885	Selenium	mg/L	6020	< 0.0050				-				4/4/2006
MB-27885	Zinc	mg/L	6020	< 0.010				-				4/4/2006
MB-27896	Manganese	mg/L	6010B	< 0.0050				-				4/4/2006
MB-27949	Iron	mg/L	6010B	< 0.050				-				4/9/2006
MB-27885	Aluminum	mg/L	6010B	< 0.10				-				4/9/2006
MB-27885	Boron	mg/L	6010B	< 0.50				-				4/9/2006
MB-27885	Calcium	mg/L	6010B	< 1.0				-				4/9/2006
MB-27885	Iron	mg/L	6010B	< 0.050				-				4/9/2006
MB-27885	Magnesium	mg/L	6010B	< 1.0				-				4/9/2006
MB-27885	Molybdenum	mg/L	6010B	< 0.10				-				4/9/2006
MB-27885	Potassium	mg/L	6010B	< 1.0				-				4/9/2006
MB-27885	Sodium	mg/L	6010B	< 1.0				-				4/11/2006

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70885-03EMS	Arsenic	mg/L	6020	0.1976	0.2	0	98.8	70-130				4/4/2006
L70885-03EMS	Cadmium	mg/L	6020	0.1957	0.2	0	97.9	70-130				4/4/2006
L70885-03EMS	Copper	mg/L	6020	0.1917	0.2	0.001473	95.1	70-130				4/4/2006
L70885-03EMS	Lead	mg/L	6020	0.1993	0.2	0	99.6	70-130				4/4/2006
L70885-03EMS	Manganese	mg/L	6020	0.2261	0.2	0.03313	96.5	70-130				4/4/2006
L70885-03EMS	Selenium	mg/L	6020	0.2030	0.2	0	102	70-130				4/4/2006
L70885-03EMS	Zinc	mg/L	6020	0.9971	1	0.04192	95.5	70-130				4/4/2006
L70885-05DMS	Manganese	mg/L	6010B	0.3010	0.2	0.1053	97.9	75-125				4/4/2006
L70885-05DMS	Iron	mg/L	6010B	1.610	1	0.4593	115	75-125				4/9/2006
L70885-03EMS	Aluminum	mg/L	6010B	1.049	1	0.04387	101	75-125				4/9/2006
L70885-03EMS	Boron	mg/L	6010B	1.030	1	0	103	75-125				4/9/2006
L70885-03EMS	Iron	mg/L	6010B	1.098	1	0.0386	106	75-125				4/9/2006
L70885-03EMS	Magnesium	mg/L	6010B	46.85	10	36.97	98.7	75-125				4/9/2006
L70885-03EMS	Molybdenum	mg/L	6010B	0.1990	0.2	0	99.5	75-125				4/9/2006
L70885-03EMS	Potassium	mg/L	6010B	16.32	10	5.424	109	75-125				4/9/2006
L70885-03EMS	Calcium	mg/L	6010B	97.95	10	89.3	86.5	75-125				4/11/2006
L70885-03EMS	Sodium	mg/L	6010B	19.52	10	9.442	101	75-125				4/11/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70885-03EMSD	Arsenic	mg/L	6020	0.2113	0.2	0	106	70-130	6.68	20		4/4/2006
L70885-03EMSD	Cadmium	mg/L	6020	0.2010	0.2	0	101	70-130	2.69	20		4/4/2006
L70885-03EMSD	Copper	mg/L	6020	0.1970	0.2	0.001473	97.8	70-130	2.73	20		4/4/2006
L70885-03EMSD	Lead	mg/L	6020	0.2086	0.2	0	104	70-130	4.56	20		4/4/2006
L70885-03EMSD	Manganese	mg/L	6020	0.2291	0.2	0.03313	98.0	70-130	1.33	20		4/4/2006
L70885-03EMSD	Selenium	mg/L	6020	0.2115	0.2	0	106	70-130	4.10	20		4/4/2006
L70885-03EMSD	Zinc	mg/L	6020	1.038	1	0.04192	99.7	70-130	4.06	20		4/4/2006
L70885-05DMSD	Manganese	mg/L	6010B	0.3045	0.2	0.1053	99.6	75-125	1.17	20		4/4/2006
L70885-05DMSD	Iron	mg/L	6010B	1.562	1	0.4593	110	75-125	3.03	20		4/9/2006
L70885-03EMSD	Aluminum	mg/L	6010B	1.038	1	0.04387	99.5	75-125	1.02	20		4/9/2006
L70885-03EMSD	Boron	mg/L	6010B	1.030	1	0	103	75-125	0.00710	20		4/9/2006
L70885-03EMSD	Iron	mg/L	6010B	1.112	1	0.0386	107	75-125	1.32	20		4/9/2006
L70885-03EMSD	Magnesium	mg/L	6010B	46.29	10	36.97	93.2	75-125	1.20	20		4/9/2006
L70885-03EMSD	Molybdenum	mg/L	6010B	0.1970	0.2	0	98.5	75-125	1.03	20		4/9/2006
L70885-03EMSD	Potassium	mg/L	6010B	16.09	10	5.424	107	75-125	1.39	20		4/9/2006
L70885-03EMSD	Calcium	mg/L	6010B	96.61	10	89.3	73.1	75-125	1.38	20	2	4/11/2006
L70885-03EMSD	Sodium	mg/L	6010B	19.66	10	9.442	102	75-125	0.715	20		4/11/2006

[2] Analyte concentration is too high for accurate spike recovery.

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Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70885-01BDUP	Chloride	mg/L	300.0	22.18	0	24		-	7.88	20		3/29/2006
L70885-01BDUP	Sulfate	mg/L	300.0	15.20	0	15.48		-	1.85	20		3/29/2006
L70885-01BDUP	Conductivity	µmhos/cm	120.1	666.0	0	670		-	0.599	5		3/30/2006
L70920-01BDUP	Conductivity	µmhos/cm	120.1	61700	0	61600		-	0.162	5		3/30/2006
L70959-01BDUP	Conductivity	µmhos/cm	120.1	43700	0	43600		-	0.229	5		3/30/2006
L70882-01ADUP	pH @ 25° C	pH Units	150.1	6.860	0	6.88		-	0.291	5		3/28/2006
L70885-04BDUP	pH @ 25° C	pH Units	150.1	8.120	0	8.1		-	0.247	5		3/28/2006
L70920-02BDUP	pH @ 25° C	pH Units	150.1	7.650	0	7.65		-	0	5		3/28/2006
L70564-01ADUP	TDS	mg/L	160.1	282.0	0	280		-	0.712	20		3/31/2006
L70568-01ADUP	TDS	mg/L	160.1	236.0	0	236		-	0	20		3/31/2006
L70885-05ADUP	TDS	mg/L	160.1	330.0	0	350		-	5.88	20		3/31/2006
L70987-02DDUP	TDS	mg/L	160.1	650.0	0	620		-	4.72	20		3/31/2006
L70996-04DDUP	TDS	mg/L	160.1	3240	0	3176		-	2.00	20		3/31/2006
L70876-04BDUP	TSS	mg/L	160.2	38.00	0	40		-	5.13	20		3/28/2006
L70885-01ADUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		3/28/2006
L70892-03ADUP	TSS	mg/L	160.2	7.000	0	7		-	0	20		3/28/2006
L70897-02ADUP	TSS	mg/L	160.2	485.0	0	495		-	2.04	20		3/28/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R56091	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				3/30/2006
LCS-R56105	Chloride	mg/L	300.0	4.988	5	0	99.8	90-110				3/29/2006
LCS-R56105	Sulfate	mg/L	300.0	4.986	5	0	99.7	90-110				3/29/2006
LCS-R56093	Acidity	mg/L	305.1	50.00	50	0	100	80-120				3/30/2006
LCS-R56094	Conductivity	µmhos/cm	120.1	1004	1000	0	100	98-102				3/30/2006
LCS-27808	Ammonia (as N)	mg/L	350.1	0.9520	1	0	95.2	90-110				3/29/2006
LCS-56049	Nitrite (as N)	mg/L	353.2	0.9630	1	0	96.3	90-110				3/29/2006
LCS-56047	Nitrate (as N)	mg/L	353.2	0.9640	1	0	96.4	90-110				3/29/2006
LCS-R56018	Oil & Grease	mg/L	EPA 1664	39.30	40	0	98.2	79-114				3/28/2006
LCS-R56025	pH @ 25° C	pH Units	150.1	8.990	9	0	99.9	98-102				3/28/2006
LCS-56036	Phosphate, ortho (as P)	mg/L	365.1	1.087	1	0	109	90-110				3/29/2006
LCS-R56264	TDS	mg/L	160.1	210.0	205	0	102	80-120				3/31/2006
LCS-R56044	TSS	mg/L	160.2	103.0	100	0	103	80-120				3/28/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R56091	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				3/30/2006
MB-R56091	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				3/30/2006
MB-R56091	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				3/30/2006
MB-R56105	Chloride	mg/L	300.0	< 1.0				-				3/29/2006
MB-R56105	Sulfate	mg/L	300.0	< 1.0				-				3/29/2006
MB-R56093	Acidity	mg/L	305.1	< 15				-				3/30/2006
MB-R56094	Conductivity	µmhos/cm	120.1	< 2.0				-				3/30/2006
MB-27808	Ammonia (as N)	mg/L	350.1	< 0.050				-				3/29/2006
MB-56049	Nitrite (as N)	mg/L	353.2	< 0.010				-				3/29/2006
MB-56047	Nitrate (as N)	mg/L	353.2	< 0.010				-				3/29/2006
MB-R56018	Oil & Grease	mg/L	EPA 1664	< 3.0				-				3/28/2006
MB-56036	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				3/29/2006
MB-R56264	TDS	mg/L	160.1	< 10				-				3/31/2006
MB-R56044	TSS	mg/L	160.2	< 3.0				-				3/28/2006

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L70885-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	402.0	100	303	99.0	80-120				3/30/2006
L70959-02BMS	Alkalinity,(As CaCO3)	mg/L	2320B	372.0	100	272	100	80-120				3/30/2006
L70885-01BMS	Chloride	mg/L	300.0	74.72	50	24	101	90-110				3/29/2006
L70885-01BMS	Sulfate	mg/L	300.0	67.34	50	15.48	104	90-110				3/29/2006
L70885-01BMS	Acidity	mg/L	305.1	42.00	50	0	84.0	80-120				3/30/2006
L70913-03AMS	Ammonia (as N)	mg/L	350.1	4.579	2	2.879	85.0	90-110			[1]	3/29/2006
L70885-01CMS	Ammonia (as N)	mg/L	350.1	0.8930	1	0.039	85.4	90-110			[1]	3/29/2006
L70885-01BMS	Nitrite (as N)	mg/L	353.2	0.9020	1	0.099	80.3	90-110			[1]	3/29/2006
L70885-01BMS	Nitrate (as N)	mg/L	353.2	2.008	1	0.923	108	90-110				3/29/2006
L70885-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.8680	1	0.047	82.1	90-110			[1]	3/29/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Oualifiers	Analysis Date
L70885-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	406.0	100	303	103	80-120	0.990	10		3/30/2006
L70959-02BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	373.0	100	272	101	80-120	0.268	10		3/30/2006
L70885-01BMSD	Chloride	mg/L	300.0	74.17	50	24	100	90-110	0.731	20		3/29/2006
L70885-01BMSD	Sulfate	mg/L	300.0	66.58	50	15.48	102	90-110	1.15	20		3/29/2006
L70885-01BMSD	Acidity	mg/L	305.1	40.00	50	0	80.0	80-120	4.88	20		3/30/2006
L70913-03AMSD	Ammonia (as N)	mg/L	350.1	4.474	2	2.879	79.8	90-110	2.32	10	[1]	3/29/2006
L70885-01CMSD	Ammonia (as N)	mg/L	350.1	0.8520	1	0.039	81.3	90-110	4.70	10	[1]	3/29/2006
L70885-01BMSD	Nitrite (as N)	mg/L	353.2	0.9970	1	0.099	89.8	90-110	10.0	10	[1]@	3/29/2006
L70885-01BMSD	Nitrate (as N)	mg/L	353.2	2.057	1	0.923	113	90-110	2.41	10	[1]	3/29/2006
L70885-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.9020	1	0.047	85.5	90-110	3.84	10	[1]	3/29/2006

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R56018	Oil & Grease	mg/L	EPA 1664	39.30	40	0	98.2	79-114				3/28/2006

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R56018	Oil & Grease	mg/L	EPA 1664	40.50	40	0	101	79-114	3.01	18		3/28/2006

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American West Analytical Labs

WORK ORDER Summary

29-Mar-06

Work Order L70885

Client ID: WHI100 **QC Level:** 2+ HOLD ET

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+. Include EDD in Excel format. Footnote report, pH received outside of hold.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L70885-01A	Angle Spring	3/27/2006 12:00:00 PM	3/28/2006	4/11/2006	Aqueous	SS	ww - tss/tds/ss	1
				4/11/2006		TDS-W	ww - tss/tds/ss	1
				4/11/2006		TSS-W	ww - tss/tds/ss	1
L70885-01B				4/11/2006		2320B-ALK-W	mar 28 - wc	1
				4/11/2006		300.0-W	mar 28 - wc	1
				4/11/2006		ACIDITY-W	mar 28 - wc	1
				4/11/2006		COND-W	mar 28 - wc	1
				4/11/2006		NO2-W	mar 28 - wc	1
				4/11/2006		NO3-W	mar 28 - wc	1
				4/11/2006		PH-W	mar 28 - wc	1
				4/11/2006		PO4-O	mar 28 - wc	1
L70885-01C				4/11/2006		NH3-W	mar 28 - nh3	1
				4/11/2006		NH3-W-PREP	mar 28 - nh3	1
L70885-01D				4/11/2006		3005A-ICPMS	mar 28 - met	1
				4/11/2006		ICP-W	mar 28 - met	1
L70885-01E				4/11/2006	Aqueous-Dissolved	3005A-Diss	mar 28 - dis met/hg	1
				4/11/2006		6020-W-DISS	mar 28 - dis met/hg	1
				4/11/2006		HARD	mar 28 - dis met/hg	1
				4/11/2006		ICP-W-DIS	mar 28 - dis met/hg	1
L70885-01F				4/11/2006	Aqueous	OGB-W	ogb	1
L70885-02A	Mud Creek	3/27/2006 1:00:00 PM		4/11/2006		SS	ww - tss/tds/ss	1
				4/11/2006		TDS-W	ww - tss/tds/ss	1
				4/11/2006		TSS-W	ww - tss/tds/ss	1
L70885-02B				4/11/2006		2320B-ALK-W	mar 28 - wc	1
				4/11/2006		300.0-W	mar 28 - wc	1
				4/11/2006		ACIDITY-W	mar 28 - wc	1
				4/11/2006		COND-W	mar 28 - wc	1

70885

WORK ORDER Summary

29-Mar-06

Work Order L70885

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+. Include EDD in Excel format. Footnote report, pH received outside of hold.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L70885-02B	Mud Creek	3/27/2006 1:00:00 PM	3/28/2006	4/11/2006	Aqueous	NO2-W	mar 28 - wc	1
				4/11/2006		NO3-W	mar 28 - wc	1
				4/11/2006		PH-W	mar 28 - wc	1
				4/11/2006		PO4-O	mar 28 - wc	1
L70885-02C				4/11/2006		NH3-W	mar 28 - nh3	1
				4/11/2006		NH3-W-PREP	mar 28 - nh3	1
L70885-02D				4/11/2006		3005A-ICPMS	mar 28 - met	1
				4/11/2006		ICP-W	mar 28 - met	1
L70885-02E				4/11/2006	Aqueous-Dissolved	3005A-Diss	mar 28 - dis met/hg	1
				4/11/2006		6020-W-DISS	mar 28 - dis met/hg	1
				4/11/2006		HARD	mar 28 - dis met/hg	1
				4/11/2006		ICP-W-DIS	mar 28 - dis met/hg	1
L70885-02F				4/11/2006	Aqueous	OGB-W	ogb	1
L70885-03A	Sulfer Spring	3/27/2006 2:15:00 PM		4/11/2006		SS	ww - tss/tds/ss	1
				4/11/2006		TDS-W	ww - tss/tds/ss	1
				4/11/2006		TSS-W	ww - tss/tds/ss	1
L70885-03B				4/11/2006		2320B-ALK-W	mar 28 - wc	1
				4/11/2006		300.0-W	mar 28 - wc	1
				4/11/2006		ACIDITY-W	mar 28 - wc	1
				4/11/2006		COND-W	mar 28 - wc	1
				4/11/2006		NO2-W	mar 28 - wc	1
				4/11/2006		NO3-W	mar 28 - wc	1
				4/11/2006		PH-W	mar 28 - wc	1
				4/11/2006		PO4-O	mar 28 - wc	1
L70885-03C				4/11/2006		NH3-W	mar 28 - nh3	1
				4/11/2006		NH3-W-PREP	mar 28 - nh3	1
L70885-03D				4/11/2006		3005A-ICPMS	mar 28 - met	1
				4/11/2006		ICP-W	mar 28 - met	1

WORK ORDER Summary

29-Mar-06

Work Order L70885

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+. Include EDD in Excel format. Footnote report, pH received outside of hold.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L70885-03E	Sulfer Spring	3/27/2006 2:15:00 PM	3/28/2006	4/11/2006	Aqueous-Dissolved	3005A-Diss	mar 28 - dis met/hg	1
				4/11/2006		6020-W-DISS	mar 28 - dis met/hg	1
				4/11/2006		HARD	mar 28 - dis met/hg	1
				4/11/2006		ICP-W-DIS	mar 28 - dis met/hg	1
L70885-03F				4/11/2006	Aqueous	OGB-W	ogb	1
L70885-04A	Eagle Outlet	3/27/2006 3:00:00 PM		4/11/2006		SS	ww - tss/tds/ss	1
				4/11/2006		TDS-W	ww - tss/tds/ss	1
				4/11/2006		TSS-W	ww - tss/tds/ss	1
L70885-04B				4/11/2006		2320B-ALK-W	mar 28 - wc	1
				4/11/2006		300.0-W	mar 28 - wc	1
				4/11/2006		ACIDITY-W	mar 28 - wc	1
				4/11/2006		COND-W	mar 28 - wc	1
				4/11/2006		NO2-W	mar 28 - wc	1
				4/11/2006		NO3-W	mar 28 - wc	1
				4/11/2006		PH-W	mar 28 - wc	1
				4/11/2006		PO4-O	mar 28 - wc	1
L70885-04C				4/11/2006		NH3-W	mar 28 - nh3	1
				4/11/2006		NH3-W-PREP	mar 28 - nh3	1
L70885-04D				4/11/2006		3005A-ICPMS	mar 28 - met	1
				4/11/2006		ICP-W	mar 28 - met	1
L70885-04E				4/11/2006	Aqueous-Dissolved	3005A-Diss	mar 28 - dis met/hg	1
				4/11/2006		6020-W-DISS	mar 28 - dis met/hg	1
				4/11/2006		HARD	mar 28 - dis met/hg	1
				4/11/2006		ICP-W-DIS	mar 28 - dis met/hg	1
L70885-04F				4/11/2006	Aqueous	OGB-W	ogb	1
L70885-05A	CR-06-03-ABV	3/27/2006 11:00:00 AM		4/11/2006		TDS-W	ww - tds	1
L70885-05B				4/11/2006		2320B-ALK-W	mar 28 - wc	1
				4/11/2006		300.0-W	mar 28 - wc	1

WORK ORDER Summary

29-Mar-06

Work Order L70885

Client ID: WHI100 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+. Include EDD in Excel format. Footnote report, pH received outside of hold.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L70885-05B	CR-06-03-ABV	3/27/2006 11:00:00 AM	3/28/2006	4/11/2006	Aqueous	ACIDITY-W	mar 28 - wc	1
				4/11/2006		COND-W	mar 28 - wc	1
				4/11/2006		NO2-W	mar 28 - wc	1
				4/11/2006		NO3-W	mar 28 - wc	1
				4/11/2006		PH-W	mar 28 - wc	1
				4/11/2006		PO4-O	mar 28 - wc	1
L70885-05C				4/11/2006		NH3-W	mar 28 - nh3	1
				4/11/2006		NH3-W-PREP	mar 28 - nh3	1
L70885-05D				4/11/2006		3005A-ICPMS	mar 28 - met	1
				4/11/2006		ICP-W	mar 28 - met	1
L70885-05E				4/11/2006	Aqueous-Dissolved	3005A-Diss	mar 28 - dis met/hg	1
				4/11/2006		6020-W-DISS	mar 28 - dis met/hg	1
				4/11/2006		HARD	mar 28 - dis met/hg	1
				4/11/2006		ICP-W-DIS	mar 28 - dis met/hg	1

Client Carbon Resources
Address c/o Rock Logic PO Box 544
Cedaredge CO 81413
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name Scofield baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 26885
Page of

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	See table 3	See table 4	pH	Specific Conductivity							COMMENTS
Angle Spring	3-27-06 / 1200	W	6	✓		✓	✓							
Mud Creek	3-27-06 / 1300	W	6	✓		✓	✓							
Culter Spring	3-27-06 / 1415	W	6	✓		✓	✓							
Eagle Outlet	3-27-06 / 1500	W	6	✓		✓	✓							
CR-06-03-ABV	3-27-06 / 1100	W	5		✓	✓	✓							

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered Notes: UPS
2 Ambient or Chilled Notes:
3 Temperature 1.5°C
4 Received Broken/Leaking (Improperly Sealed) Y N Notes:
5 Properly Preserved Y N Notes:
6 Received Within Holding Times Y N Notes: pH

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA Notes:

Discrepancies Between Sample Labels and COC Record? Y N Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 17:00	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date 3/28/06	Received By: Signature
PRINT NAME	Time 1050	PRINT NAME Elena Hayward

Special Instructions:
please filter for dissolved metals

2006 MAR 28 (TU) 15:24 AWAL FAX #: 801 263 8687 P. 001/001

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphate (Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Preservation Check Sheet

Sample Set: 70885

Sample Set Extension and pH

Bottle Type	Preservative	All OK														
Ammonia[1]	pH <2 H_2SO_4	✓														
COD[1]	pH <2 H_2SO_4															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO_3	✓														
NO_2 & NO_3[1]	pH <2 H_2SO_4															
Nutrients[1]	pH <2 H_2SO_4															
O & G	pH <2 HCL	✓														
Phenols[2]	pH <2 H_2SO_4															
Sulfide	pH > 9 NaOH, ZnAC															
TKN[1]	pH <2 H_2SO_4															
TOC[1]	pH <2 H_2SO_4															
TOX[2]	pH <2 H_2SO_4															
T PO4[1]	pH <2 H_2SO_4															
Mixed Analysis[1]	pH <2 H_2SO_4															
Mixed Analysis[2]	pH <2 H_2SO_4															

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 H_2SO_4 in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 H_2SO_4 in a B.R.

Frequency: All samples requiring preservation

May 15, 2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L71507

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 4/28/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-01D
Field Sample ID: **Eagle Outlet**
Collected: 4/26/2006 11:00:00 AM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/11/2006 9:43:09 PM	6010B	0.050	**5.7**
Manganese	mg/L	5/11/2006 9:43:09 PM	6010B	0.0050	**0.34**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-02D
Field Sample ID: **Sulfer Spring**
Collected: 4/26/2006 11:50:00 AM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/11/2006 9:47:03 PM	6010B	0.050	< 0.050
Manganese	mg/L	5/11/2006 9:47:03 PM	6010B	0.0050	**0.030**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-03D
Field Sample ID: **Angle Spring**
Collected: 4/26/2006 2:45:00 PM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/11/2006 9:50:56 PM	6010B	0.050	< 0.050
Manganese	mg/L	5/11/2006 9:50:56 PM	6010B	0.0050	< 0.0050

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-04D
Field Sample ID: **Mud Creek**
Collected: 4/26/2006 6:50:00 PM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/11/2006 10:02:44 PM	6010B	0.050	**2.7**
Manganese	mg/L	5/11/2006 10:02:44 PM	6010B	0.0050	**0.15**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-05D
Field Sample ID: **CR-06-03-ABV**
Collected: 4/26/2006 1:15:00 PM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/11/2006 10:06:39 PM	6010B	0.050	**0.99**
Manganese	mg/L	5/11/2006 10:06:39 PM	6010B	0.0050	**0.063**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-06D
Field Sample ID: **Eagle Spring**
Collected: 4/26/2006 11:30:00 AM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/11/2006 10:14:29 PM	6010B	0.050	**2.7** [1]
Manganese	mg/L	5/11/2006 10:14:29 PM	6010B	0.0050	**0.016**

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-01E
Field Sample ID: **Eagle Outlet**
Collected: 4/26/2006 11:00:00 AM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/15/2006 4:05:20 PM	6010B	0.10	< 0.10
Arsenic	mg/L	5/13/2006 5:34:10 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/15/2006 8:01:31 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/13/2006 5:34:10 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/15/2006 6:54:15 AM	6010B	10	**100**
Copper	mg/L	5/13/2006 5:34:10 PM	6020	0.0040	< 0.0040
Iron	mg/L	5/15/2006 8:01:31 AM	6010B	0.050	< 0.050
Lead	mg/L	5/13/2006 5:34:10 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/15/2006 6:54:15 AM	6010B	10	**18**
Manganese	mg/L	5/13/2006 5:34:10 PM	6020	0.0050	**0.074**
Molybdenum	mg/L	5/15/2006 8:01:31 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/15/2006 8:01:31 AM	6010B	1.0	**1.5**
Selenium	mg/L	5/13/2006 5:34:10 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/15/2006 6:54:15 AM	6010B	10	**19**
Zinc	mg/L	5/13/2006 5:34:10 PM	6020	0.010	**0.023**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-02E
Field Sample ID: **Sulfer Spring**
Collected: 4/26/2006 11:50:00 AM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Fax (801) 263-8687
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Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/15/2006 4:09:22 PM	6010B	0.10	< 0.10
Arsenic	mg/L	5/13/2006 5:44:57 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/15/2006 8:05:23 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/13/2006 5:44:57 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/15/2006 6:58:08 AM	6010B	10	**95**
Copper	mg/L	5/13/2006 5:44:57 PM	6020	0.0040	< 0.0040
Iron	mg/L	5/15/2006 8:05:23 AM	6010B	0.050	< 0.050
Lead	mg/L	5/13/2006 5:44:57 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/15/2006 6:58:08 AM	6010B	10	**38**
Manganese	mg/L	5/13/2006 5:44:57 PM	6020	0.0050	**0.027**
Molybdenum	mg/L	5/15/2006 8:05:23 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/15/2006 8:05:23 AM	6010B	1.0	**4.3**
Selenium	mg/L	5/13/2006 5:44:57 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/15/2006 6:58:08 AM	6010B	10	**19**
Zinc	mg/L	5/13/2006 5:44:57 PM	6020	0.010	**0.034**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-03E
Field Sample ID: **Angle Spring**
Collected: 4/26/2006 2:45:00 PM
Received: 4/28/2006

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463 West 3600 South
Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/15/2006 4:13:16 PM	6010B	0.10	< 0.10
Arsenic	mg/L	5/13/2006 5:50:19 PM	6020	0.0050	**0.0086**
Boron	mg/L	5/15/2006 8:09:17 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/13/2006 5:50:19 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/15/2006 7:02:02 AM	6010B	10	**100**
Copper	mg/L	5/13/2006 5:50:19 PM	6020	0.0040	**0.0046**
Iron	mg/L	5/15/2006 8:09:17 AM	6010B	0.050	< 0.050
Lead	mg/L	5/13/2006 5:50:19 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/15/2006 7:02:02 AM	6010B	10	**20**
Manganese	mg/L	5/13/2006 5:50:19 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	5/15/2006 8:09:17 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/15/2006 8:09:17 AM	6010B	1.0	< 1.0
Selenium	mg/L	5/13/2006 5:50:19 PM	6020	0.0050	**0.013**
Sodium	mg/L	5/15/2006 7:02:02 AM	6010B	10	**21**
Zinc	mg/L	5/13/2006 5:50:19 PM	6020	0.010	**0.11**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-04E
Field Sample ID: **Mud Creek**
Collected: 4/26/2006 6:50:00 PM
Received: 4/28/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/15/2006 4:17:09 PM	6010B	0.10	< 0.10
Arsenic	mg/L	5/13/2006 5:55:42 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/15/2006 8:13:12 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/13/2006 5:55:42 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/15/2006 7:05:56 AM	6010B	10	**76**
Copper	mg/L	5/13/2006 5:55:42 PM	6020	0.0040	< 0.0040
Iron	mg/L	5/15/2006 8:13:12 AM	6010B	0.050	< 0.050
Lead	mg/L	5/13/2006 5:55:42 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/15/2006 7:05:56 AM	6010B	10	**30**
Manganese	mg/L	5/13/2006 5:55:42 PM	6020	0.0050	**0.022**
Molybdenum	mg/L	5/15/2006 8:13:12 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/15/2006 8:13:12 AM	6010B	1.0	**3.8**
Selenium	mg/L	5/13/2006 5:55:42 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/15/2006 7:05:56 AM	6010B	10	**48**
Zinc	mg/L	5/13/2006 5:55:42 PM	6020	0.010	**0.023**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-05E
Field Sample ID: **CR-06-03-ABV**
Collected: 4/26/2006 1:15:00 PM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/15/2006 4:24:58 PM	6010B	0.10	< 0.10
Arsenic	mg/L	5/13/2006 6:01:06 PM	6020	0.0050	**0.026**
Boron	mg/L	5/15/2006 8:21:03 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/13/2006 6:01:06 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/15/2006 7:13:44 AM	6010B	10	**130**
Copper	mg/L	5/13/2006 6:01:06 PM	6020	0.0040	**0.011**
Iron	mg/L	5/15/2006 8:21:03 AM	6010B	0.050	< 0.050
Lead	mg/L	5/13/2006 6:01:06 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/15/2006 7:13:44 AM	6010B	10	**31**
Manganese	mg/L	5/13/2006 6:01:06 PM	6020	0.0050	**0.058**
Molybdenum	mg/L	5/15/2006 8:21:03 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/15/2006 8:21:03 AM	6010B	1.0	**1.4**
Selenium	mg/L	5/13/2006 6:01:06 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/15/2006 7:13:44 AM	6010B	10	**21**
Zinc	mg/L	5/13/2006 6:01:06 PM	6020	0.010	**0.40**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-06E
Field Sample ID: **Eagle Spring**
Collected: 4/26/2006 11:30:00 AM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/15/2006 4:48:41 PM	6010B	0.10	**1.5**
Arsenic	mg/L	5/13/2006 6:17:20 PM	6020	0.0050	**0.0056**
Boron	mg/L	5/15/2006 8:36:50 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/13/2006 6:17:20 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/15/2006 8:36:50 AM	6010B	1.0	**15**
Copper	mg/L	5/13/2006 6:17:20 PM	6020	0.0040	**0.0058**
Iron	mg/L	5/15/2006 8:36:50 AM	6010B	0.050	**1.1**
Lead	mg/L	5/13/2006 6:17:20 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/15/2006 8:36:50 AM	6010B	1.0	**3.3**
Manganese	mg/L	5/13/2006 6:17:20 PM	6020	0.0050	**0.0060**
Molybdenum	mg/L	5/15/2006 8:36:50 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/15/2006 8:36:50 AM	6010B	1.0	**1.3**
Selenium	mg/L	5/13/2006 6:17:20 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/15/2006 8:36:50 AM	6010B	1.0	**25**
Zinc	mg/L	5/13/2006 6:17:20 PM	6020	0.010	**0.026**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-01
Field Sample ID: **Eagle Outlet**
Collected: 4/26/2006 11:00:00 AM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	5/2/2006 7:00:00 PM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**300**	
Ammonia (as N)	mg/L	5/3/2006 3:13:00 PM	350.1	0.050	**0.16**	
Bicarbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**280**	
Carbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**21**	
Chloride	mg/L	5/12/2006 5:52:06 AM	300.0	5.0	**39**	
Hardness (as CaCO3)	mg/L	5/15/2006	2340B	10	**330**	
Nitrate/Nitrite (as N)	mg/L	5/4/2006 10:02:00 AM	353.2	0.010	**0.33**	
Oil & Grease	mg/L	5/5/2006	EPA 1664	3.0	**3.9**	
Phosphate, ortho (as P)	mg/L	4/28/2006 11:34:00 AM	365.1	0.050	**0.069**	H
Settable Solids	ml/L	4/28/2006	160.5	0.10	**0.30**	
Sulfate	mg/L	5/12/2006 5:52:06 AM	300.0	5.0	**48**	
TDS	mg/L	4/28/2006 3:00:00 PM	160.1	10	**360**	
TSS	mg/L	4/28/2006 6:30:00 PM	160.2	3.0	**270**	

H - Insufficient time was given for sample to be run within the hold time.

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-02
Field Sample ID: **Sulfer Spring**
Collected: 4/26/2006 11:50:00 AM
Received: 4/28/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	5/2/2006 7:00:00 PM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**380**
Ammonia (as N)	mg/L	5/3/2006 3:13:00 PM	350.1	0.050	**0.15**
Bicarbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**380**
Carbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	< 10
Chloride	mg/L	5/12/2006 8:38:31 AM	300.0	1.0	**6.1**
Hardness (as CaCO3)	mg/L	5/15/2006	2340B	10	**390**
Nitrate/Nitrite (as N)	mg/L	5/4/2006 10:02:00 AM	353.2	0.010	**0.022**
Oil & Grease	mg/L	5/5/2006	EPA 1664	3.0	**3.9**
Phosphate, ortho (as P)	mg/L	4/28/2006 11:34:00 AM	365.1	0.050	**< 0.050**
Settable Solids	ml/L	4/28/2006	160.5	0.10	< 0.10
Sulfate	mg/L	5/12/2006 8:38:31 AM	300.0	10	**29**
TDS	mg/L	4/28/2006 3:00:00 PM	160.1	10	**360**
TSS	mg/L	4/28/2006 6:30:00 PM	160.2	3.0	**17**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-03
Field Sample ID: **Angle Spring**
Collected: 4/26/2006 2:45:00 PM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	5/2/2006 7:00:00 PM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**300**
Ammonia (as N)	mg/L	5/3/2006 3:13:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**300**
Carbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	< 10
Chloride	mg/L	5/12/2006 9:45:05 AM	300.0	10	**22**
Hardness (as CaCO3)	mg/L	5/15/2006	2340B	10	**340**
Nitrate/Nitrite (as N)	mg/L	5/4/2006 10:02:00 AM	353.2	0.010	**1.4**
Oil & Grease	mg/L	5/5/2006	EPA 1664	3.0	**3.8**
Phosphate, ortho (as P)	mg/L	4/28/2006 11:34:00 AM	365.1	0.050	**< 0.050**
Settable Solids	ml/L	4/28/2006	160.5	0.10	< 0.10
Sulfate	mg/L	5/12/2006 9:45:05 AM	300.0	10	**19**
TDS	mg/L	4/28/2006 3:00:00 PM	160.1	10	**310**
TSS	mg/L	4/28/2006 6:30:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-04
Field Sample ID: **Mud Creek**
Collected: 4/26/2006 6:50:00 PM
Received: 4/28/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	5/2/2006 7:00:00 PM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**280**
Ammonia (as N)	mg/L	5/3/2006 3:13:00 PM	350.1	0.050	**0.11**
Bicarbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**280**
Carbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**< 10**
Chloride	mg/L	5/12/2006 11:24:55 AM	300.0	10	**30**
Hardness (as CaCO3)	mg/L	5/15/2006	2340B	10	**310**
Nitrate/Nitrite (as N)	mg/L	5/4/2006 10:02:00 AM	353.2	0.010	**0.36**
Oil & Grease	mg/L	5/5/2006	EPA 1664	3.0	**3.8**
Phosphate, ortho (as P)	mg/L	4/28/2006 11:34:00 AM	365.1	0.050	**< 0.050**
Settable Solids	ml/L	4/28/2006	160.5	0.10	**0.60**
Sulfate	mg/L	5/12/2006 11:24:55 AM	300.0	10	**88**
TDS	mg/L	4/28/2006 3:00:00 PM	160.1	10	**410**
TSS	mg/L	4/28/2006 6:30:00 PM	160.2	3.0	**270**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-05
Field Sample ID: **CR-06-03-ABV**
Collected: 4/26/2006 1:15:00 PM
Received: 4/28/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	5/2/2006 7:00:00 PM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**410**
Ammonia (as N)	mg/L	5/3/2006 3:13:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**410**
Carbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	< 10
Chloride	mg/L	5/13/2006 12:31:30 PM	300.0	10	**17**
Hardness (as CaCO3)	mg/L	5/15/2006	2340B	10	**450**
Nitrate/Nitrite (as N)	mg/L	5/4/2006 10:02:00 AM	353.2	0.010	**0.024**
Phosphate, ortho (as P)	mg/L	4/28/2006 11:34:00 AM	365.1	0.050	**< 0.050**
Sulfate	mg/L	5/13/2006 12:31:30 PM	300.0	10	**31**
TDS	mg/L	4/28/2006 3:00:00 PM	160.1	10	**410**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-06
Field Sample ID: **Eagle Spring**
Collected: 4/26/2006 11:30:00 AM
Received: 4/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	5/2/2006 7:00:00 PM	305.1	15	**24**	
Alkalinity,(As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**64**	
Ammonia (as N)	mg/L	5/3/2006 3:13:00 PM	350.1	0.050	**0.081**	
Bicarbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	**64**	
Carbonate (As CaCO3)	mg/L	5/2/2006 5:20:00 PM	2320B	10	< 10	
Chloride	mg/L	5/13/2006 1:04:46 AM	300.0	1.0	**3.8**	
Hardness (as CaCO3)	mg/L	5/15/2006	2340B	10	**51**	
Nitrate/Nitrite (as N)	mg/L	5/4/2006 10:02:00 AM	353.2	0.010	**0.31**	
Oil & Grease	mg/L	5/5/2006	EPA 1664	3.0	**3.3**	
Phosphate, ortho (as P)	mg/L	4/28/2006 11:34:00 AM	365.1	0.050	**0.11**	H
Settable Solids	ml/L	4/28/2006	160.5	0.10	< 0.10	
Sulfate	mg/L	5/13/2006 1:04:46 AM	300.0	1.0	**4.8**	
TDS	mg/L	4/28/2006 3:00:00 PM	160.1	10	**150**	
TSS	mg/L	4/28/2006 6:30:00 PM	160.2	3.0	**36**	~

H - Insufficient time was given for sample to be run within the hold time.
~ High RPD due to suspected sample non-homogeneity.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-28373	Manganese	mg/L	6020	0.1830	0.2	0	91.5	85-115				5/11/2006
LCS-28373	Arsenic	mg/L	6020	0.1780	0.2	0	89.0	85-115				5/13/2006
LCS-28373	Cadmium	mg/L	6020	0.1737	0.2	0	86.9	85-115				5/13/2006
LCS-28373	Copper	mg/L	6020	0.1735	0.2	0.00107	86.2	85-115				5/13/2006
LCS-28373	Lead	mg/L	6020	0.1706	0.2	0	85.3	85-115				5/13/2006
LCS-28373	Selenium	mg/L	6020	0.1832	0.2	0	91.6	85-115				5/13/2006
LCS-28373	Zinc	mg/L	6020	0.9097	1	0.009547	90.0	85-115				5/13/2006
LCS-28398	Iron	mg/L	6010B	1.045	1	0	105	75-125				5/11/2006
LCS-28398	Manganese	mg/L	6010B	0.2076	0.2	0	104	75-125				5/11/2006
LCS-28373	Boron	mg/L	6010B	1.096	1	0	110	75-125				5/15/2006
LCS-28373	Calcium	mg/L	6010B	11.10	10	0	111	75-125				5/15/2006
LCS-28373	Iron	mg/L	6010B	1.121	1	0	112	75-125				5/15/2006
LCS-28373	Magnesium	mg/L	6010B	10.99	10	0	110	75-125				5/15/2006
LCS-28373	Molybdenum	mg/L	6010B	0.2151	0.2	0	108	75-125				5/15/2006
LCS-28373	Potassium	mg/L	6010B	9.686	10	0	96.9	75-125				5/15/2006
LCS-28373	Sodium	mg/L	6010B	10.96	10	0	110	75-125				5/15/2006
LCS-28373	Aluminum	mg/L	6010B	0.8928	1	0	89.3	75-125				5/15/2006

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-28373	Manganese	mg/L	6020	< 0.0050				-				5/11/2006
MB-28373	Arsenic	mg/L	6020	< 0.0050				-				5/13/2006
MB-28373	Cadmium	mg/L	6020	< 0.0040				-				5/13/2006
MB-28373	Copper	mg/L	6020	< 0.0040				-				5/13/2006
MB-28373	Lead	mg/L	6020	< 0.0050				-				5/13/2006
MB-28373	Selenium	mg/L	6020	< 0.0050				-				5/13/2006
MB-28373	Zinc	mg/L	6020	< 0.010				-				5/13/2006
MB-28398	Iron	mg/L	6010B	< 0.050				-				5/11/2006
MB-28398	Manganese	mg/L	6010B	< 0.0050				-				5/11/2006
MB-28373	Boron	mg/L	6010B	< 0.50				-				5/15/2006
MB-28373	Calcium	mg/L	6010B	< 1.0				-				5/15/2006
MB-28373	Iron	mg/L	6010B	< 0.050				-				5/15/2006
MB-28373	Magnesium	mg/L	6010B	< 1.0				-				5/15/2006
MB-28373	Molybdenum	mg/L	6010B	< 0.10				-				5/15/2006
MB-28373	Potassium	mg/L	6010B	< 1.0				-				5/15/2006
MB-28373	Sodium	mg/L	6010B	< 1.0				-				5/15/2006
MB-28373	Aluminum	mg/L	6010B	< 0.10				-				5/15/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L71515-01IMS	Manganese	mg/L	6020	0.2419	0.2	0.05501	93.4	70-130				5/12/2006
L71507-05EMS	Arsenic	mg/L	6020	0.2505	0.2	0.026	112	70-130				5/13/2006
L71507-05EMS	Cadmium	mg/L	6020	0.2041	0.2	0	102	70-130				5/13/2006
L71507-05EMS	Copper	mg/L	6020	0.2038	0.2	0.01117	96.3	70-130				5/13/2006
L71507-05EMS	Lead	mg/L	6020	0.1988	0.2	0	99.4	70-130				5/13/2006
L71507-05EMS	Manganese	mg/L	6020	0.2630	0.2	0.05754	103	70-130				5/13/2006
L71507-05EMS	Selenium	mg/L	6020	0.2131	0.2	0	107	70-130				5/13/2006
L71507-05EMS	Zinc	mg/L	6020	1.464	1	0.3983	107	70-130				5/13/2006
L71507-06DMS	Iron	mg/L	6010B	4.063	1	2.737	133	75-125			[1]	5/11/2006
L71507-06DMS	Manganese	mg/L	6010B	0.2261	0.2	0.01567	105	75-125				5/11/2006
L71515-01HMS	Iron	mg/L	6010B	3.513	1	2.519	99.4	75-125				5/11/2006
L71507-05EMS	Calcium	mg/L	6010B	137.2	10	127.6	96.2	75-125				5/15/2006
L71507-05EMS	Magnesium	mg/L	6010B	41.60	10	30.83	108	75-125				5/15/2006
L71507-05EMS	Sodium	mg/L	6010B	31.64	10	20.88	108	75-125				5/15/2006
L71507-05EMS	Boron	mg/L	6010B	1.160	1	0.0484	111	75-125				5/15/2006
L71507-05EMS	Iron	mg/L	6010B	1.127	1	0	113	75-125				5/15/2006
L71507-05EMS	Molybdenum	mg/L	6010B	0.2089	0.2	0	104	75-125				5/15/2006
L71507-05EMS	Potassium	mg/L	6010B	13.05	10	1.431	116	75-125				5/15/2006
L71507-05EMS	Aluminum	mg/L	6010B	0.9504	1	0	95.0	75-125				5/15/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L71515-01IMSD	Manganese	mg/L	6020	0.2504	0.2	0.05501	97.7	70-130	3.47	20		5/12/2006
L71507-05EMSD	Arsenic	mg/L	6020	0.2466	0.2	0.026	110	70-130	1.59	20		5/13/2006
L71507-05EMSD	Cadmium	mg/L	6020	0.2016	0.2	0	101	70-130	1.23	20		5/13/2006
L71507-05EMSD	Copper	mg/L	6020	0.2009	0.2	0.01117	94.9	70-130	1.43	20		5/13/2006
L71507-05EMSD	Lead	mg/L	6020	0.1996	0.2	0	99.8	70-130	0.365	20		5/13/2006
L71507-05EMSD	Manganese	mg/L	6020	0.2622	0.2	0.05754	102	70-130	0.325	20		5/13/2006
L71507-05EMSD	Selenium	mg/L	6020	0.2216	0.2	0	111	70-130	3.92	20		5/13/2006
L71507-05EMSD	Zinc	mg/L	6020	1.454	1	0.3983	106	70-130	0.696	20		5/13/2006
L71507-06DMSD	Iron	mg/L	6010B	4.290	1	2.737	155	75-125	5.44	20	1	5/11/2006
L71507-06DMSD	Manganese	mg/L	6010B	0.2298	0.2	0.01567	107	75-125	1.64	20		5/11/2006
L71515-01HMSD	Iron	mg/L	6010B	3.560	1	2.519	104	75-125	1.33	20		5/11/2006
L71507-05EMSD	Calcium	mg/L	6010B	138.3	10	127.6	107	75-125	0.760	20		5/15/2006
L71507-05EMSD	Magnesium	mg/L	6010B	41.54	10	30.83	107	75-125	0.147	20		5/15/2006
L71507-05EMSD	Sodium	mg/L	6010B	31.66	10	20.88	108	75-125	0.0848	20		5/15/2006
L71507-05EMSD	Boron	mg/L	6010B	1.172	1	0.0484	112	75-125	1.01	20		5/15/2006
L71507-05EMSD	Iron	mg/L	6010B	1.129	1	0	113	75-125	0.186	20		5/15/2006
L71507-05EMSD	Molybdenum	mg/L	6010B	0.2124	0.2	0	106	75-125	1.66	20		5/15/2006
L71507-05EMSD	Potassium	mg/L	6010B	13.58	10	1.431	122	75-125	4.02	20		5/15/2006
L71507-05EMSD	Aluminum	mg/L	6010B	0.8587	1	0	85.9	75-125	10.1	20		5/15/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

[2] Analyte concentration is too high for accurate spike recovery.

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L71465-04CDUP	TDS	mg/L	160.1	620.0	0	620		-	0	20		4/28/2006
L71467-01CDUP	TDS	mg/L	160.1	10380	0	10360		-	0.193	20		4/28/2006
L71309-02CDUP	TDS	mg/L	160.1	860.0	0	804		-	6.73	20	H	4/28/2006
L71500-04BDUP	TDS	mg/L	160.1	34300	0	33100		-	3.56	20		4/28/2006
L71507-06ADUP	TDS	mg/L	160.1	156.0	0	148		-	5.26	20		4/28/2006
L71493-02ADUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		4/28/2006
L71507-06ADUP	TSS	mg/L	160.2	12.00	0	36		-	100	20	~	4/28/2006

~ High RPD due to suspected sample non-homogeneity.
H - Sample was received outside of holding time.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R57203	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				5/2/2006
LCS	Chloride	mg/L	300.0	4.730	5	0	94.6	90-110				5/12/2006
LCS	Sulfate	mg/L	300.0	4.814	5	0	96.3	90-110				5/12/2006
LCS-R57200	Acidity	mg/L	305.1	55.00	50	0	110	80-120				5/2/2006
LCS-28383	Ammonia (as N)	mg/L	350.1	1.015	1	0.036	97.9	90-110				5/3/2006
LCS-57267	Nitrate/Nitrite (as N)	mg/L	353.2	1.010	1	0	101	90-110				5/4/2006
LCS-R57344	Oil & Grease	mg/L	EPA 1664	42.80	40	0	107	79-114				5/5/2006
LCS-57077	Phosphate, ortho (as P)	mg/L	365.1	0.9840	1	0	98.4	90-110				4/28/2006
LCS-R57152	TDS	mg/L	160.1	200.0	205	0	97.6	80-120				4/28/2006
LCS-R57153	TDS	mg/L	160.1	188.0	205	0	91.7	80-120				4/28/2006
LCS-R57114	TSS	mg/L	160.2	98.00	100	0	98.0	80-120				4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R57203	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				5/2/2006
MB-R57203	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				5/2/2006
MB-R57203	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				5/2/2006
MB	Chloride	mg/L	300.0	< 1.0				-				5/12/2006
MB	Sulfate	mg/L	300.0	< 1.0				-				5/12/2006
MB-R57200	Acidity	mg/L	305.1	< 15				-				5/2/2006
MB-28383	Ammonia (as N)	mg/L	350.1	< 0.050				-				5/3/2006
MB-57267	Nitrate/Nitrite (as N)	mg/L	353.2	< 0.010				-				5/4/2006
MB-R57344	Oil & Grease	mg/L	EPA 1664	< 3.0				-				5/5/2006
MB-57077	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				4/28/2006
MB-R57152	TDS	mg/L	160.1	< 10				-				4/28/2006
MB-R57153	TDS	mg/L	160.1	< 10				-				4/28/2006
MB-R57114	TSS	mg/L	160.2	< 3.0				-				4/28/2006

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L71507-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	495.0	200	296	99.5	80-120				5/2/2006
L71507-03BMS	Chloride	mg/L	300.0	68.50	50	22.13	92.7	90-110				5/12/2006
L71507-03BMS	Sulfate	mg/L	300.0	67.28	50	19.42	95.7	90-110				5/12/2006
L71515-01BMS	Chloride	mg/L	300.0	7536	5000	2533	100	90-110				5/13/2006
L71507-05BMS	Acidity	mg/L	305.1	44.00	50	0	88.0	80-120				5/2/2006
L71507-01CMS	Ammonia (as N)	mg/L	350.1	1.181	1	0.156	102	90-110				5/3/2006
L71507-02CMS	Nitrate/Nitrite (as N)	mg/L	353.2	0.9500	1	0.022	92.8	90-110				5/4/2006
L71507-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.067	1	0.069	99.8	90-110			H	4/28/2006

H - Insufficient time was given for sample to be run within the hold time.

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Kyle F. Gross
Laboratory Director

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L71507-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	506.0	200	296	105	80-120	2.20	10		5/2/2006
L71507-03BMSD	Chloride	mg/L	300.0	69.56	50	22.13	94.9	90-110	1.53	20		5/12/2006
L71507-03BMSD	Sulfate	mg/L	300.0	64.80	50	19.42	90.8	90-110	3.75	20		5/12/2006
L71515-01BMSD	Chloride	mg/L	300.0	7504	5000	2533	99.4	90-110	0.425	20		5/13/2006
L71507-05BMSD	Acidity	mg/L	305.1	48.00	50	0	96.0	80-120	8.70	20		5/2/2006
L71507-01CMSD	Ammonia (as N)	mg/L	350.1	1.092	1	0.156	93.6	90-110	7.83	10		5/3/2006
L71507-02CMSD	Nitrate/Nitrite (as N)	mg/L	353.2	0.9930	1	0.022	97.1	90-110	4.43	10		5/4/2006
L71507-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.064	1	0.069	99.5	90-110	0.282	10	H	4/28/2006

H - Insufficient time was given for sample to be run within the hold time.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R57344	Oil & Grease	mg/L	EPA 1664	40.50	40	0	101	79-114				5/5/2006

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Kyle F. Gross
Laboratory Director

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QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R57344	Oil & Grease	mg/L	EPA 1664	40.00	40	0	100	79-114	1.24	18		5/5/2006

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American West Analytical Labs

WORK ORDER Summary

28-Apr-06

Work Order L71507

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format. Samples received too close to expiration to run within hold for some Ortho-Phosphates.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L71507-01A	Eagle Outlet	4/26/2006 11:00:00 AM	4/28/2006	5/12/2006	Aqueous	SS	ww tss/tds/ss	1
				5/12/2006		TDS-W	ww tss/tds/ss	1
				5/12/2006		TSS-W	ww tss/tds/ss	1
L71507-01B				5/12/2006		2320B-ALK-W	apr 28 wc	1
				5/12/2006		300.0-W	apr 28 wc	1
				5/12/2006		ACIDITY-W	apr 28 wc	1
				5/12/2006		PO4-O	apr 28 wc	1
L71507-01C				5/12/2006		NH3-W	apr 28 nh3	1
				5/12/2006		NH3-W-PREP	apr 28 nh3	1
				5/12/2006		NO2/NO3-W	apr 28 nh3	1
L71507-01D				5/12/2006		3005A-ICPMS	apr 28 met/total	1
				5/12/2006		ICP-W	apr 28 met/total	1
L71507-01E				5/12/2006	Aqueous-Dissolved	3005A-Diss	apr 28 met/dis	1
				5/12/2006		6020-W-DISS	apr 28 met/dis	1
				5/12/2006		HARD	apr 28 met/dis	1
				5/12/2006		ICP-W-DIS	apr 28 met/dis	1
L71507-01F				5/12/2006	Aqueous	OGB-W	OGBFridge	1
L71507-02A	Sulfer Spring	4/26/2006 11:50:00 AM		5/12/2006		SS	ww tss/tds/ss	1
				5/12/2006		TDS-W	ww tss/tds/ss	1
				5/12/2006		TSS-W	ww tss/tds/ss	1
L71507-02B				5/12/2006		2320B-ALK-W	apr 28 wc	1
				5/12/2006		300.0-W	apr 28 wc	1
				5/12/2006		ACIDITY-W	apr 28 wc	1
				5/12/2006		PO4-O	apr 28 wc	1
L71507-02C				5/12/2006		NH3-W	apr 28 nh3	1
				5/12/2006		NH3-W-PREP	apr 28 nh3	1
				5/12/2006		NO2/NO3-W	apr 28 nh3	1

WORK ORDER Summary

28-Apr-06

Work Order L71507

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format. Samples received too close to expiration to run within hold for some Ortho-Phosphates.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L71507-02D	Sulfer Spring	4/26/2006 11:50:00 AM	4/28/2006	5/12/2006	Aqueous	3005A-ICPMS	apr 28 met/total	1
				5/12/2006		ICP-W	apr 28 met/total	1
L71507-02E				5/12/2006	Aqueous-Dissolved	3005A-Diss	apr 28 met/dis	1
				5/12/2006		6020-W-DISS	apr 28 met/dis	1
				5/12/2006		HARD	apr 28 met/dis	1
				5/12/2006		ICP-W-DIS	apr 28 met/dis	1
L71507-02F				5/12/2006	Aqueous	OGB-W	OGBFridge	1
L71507-03A	Angle Spring	4/26/2006 2:45:00 PM		5/12/2006		SS	ww tss/tds/ss	1
				5/12/2006		TDS-W	ww tss/tds/ss	1
				5/12/2006		TSS-W	ww tss/tds/ss	1
L71507-03B				5/12/2006		2320B-ALK-W	apr 28 wc	1
				5/12/2006		300.0-W	apr 28 wc	1
				5/12/2006		ACIDITY-W	apr 28 wc	1
				5/12/2006		PO4-O	apr 28 wc	1
L71507-03C				5/12/2006		NH3-W	apr 28 nh3	1
				5/12/2006		NH3-W-PREP	apr 28 nh3	1
				5/12/2006		NO2/NO3-W	apr 28 nh3	1
L71507-03D				5/12/2006		3005A-ICPMS	apr 28 met/total	1
				5/12/2006		ICP-W	apr 28 met/total	1
L71507-03E				5/12/2006	Aqueous-Dissolved	3005A-Diss	apr 28 met/dis	1
				5/12/2006		6020-W-DISS	apr 28 met/dis	1
				5/12/2006		HARD	apr 28 met/dis	1
				5/12/2006		ICP-W-DIS	apr 28 met/dis	1
L71507-03F				5/12/2006	Aqueous	OGB-W	OGBFridge	1
L71507-04A	Mud Creek	4/26/2006 6:50:00 PM		5/12/2006		SS	ww tss/tds/ss	1
				5/12/2006		TDS-W	ww tss/tds/ss	1
				5/12/2006		TSS-W	ww tss/tds/ss	1
L71507-04B				5/12/2006		2320B-ALK-W	apr 28 wc	1

WORK ORDER Summary

28-Apr-06

Work Order L71507

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format. Samples received too close to expiration to run within hold for some Ortho-Phosphates.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L71507-04B	Mud Creek	4/26/2006 6:50:00 PM	4/28/2006	5/12/2006	Aqueous	300.0-W	apr 28 wc	1
				5/12/2006		ACIDITY-W	apr 28 wc	1
				5/12/2006		PO4-O	apr 28 wc	1
L71507-04C				5/12/2006		NH3-W	apr 28 nh3	1
				5/12/2006		NH3-W-PREP	apr 28 nh3	1
				5/12/2006		NO2/NO3-W	apr 28 nh3	1
L71507-04D				5/12/2006		3005A-ICPMS	apr 28 met/total	1
				5/12/2006		ICP-W	apr 28 met/total	1
L71507-04E				5/12/2006	Aqueous-Dissolved	3005A-Diss	apr 28 met/dis	1
				5/12/2006		6020-W-DISS	apr 28 met/dis	1
				5/12/2006		HARD	apr 28 met/dis	1
				5/12/2006		ICP-W-DIS	apr 28 met/dis	1
L71507-04F				5/12/2006	Aqueous	OGB-W	OGBFridge	1
L71507-05A	CR-06-03-ABV	4/26/2006 1:15:00 PM		5/12/2006		TDS-W	ww - tds	1
L71507-05B				5/12/2006		2320B-ALK-W	apr 28 wc	1
				5/12/2006		300.0-W	apr 28 wc	1
				5/12/2006		ACIDITY-W	apr 28 wc	1
				5/12/2006		PO4-O	apr 28 wc	1
L71507-05C				5/12/2006		NH3-W	apr 28 nh3	1
				5/12/2006		NH3-W-PREP	apr 28 nh3	1
				5/12/2006		NO2/NO3-W	apr 28 nh3	1
L71507-05D				5/12/2006		3005A-ICPMS	apr 28 met/total	1
				5/12/2006		ICP-W	apr 28 met/total	1
L71507-05E				5/12/2006	Aqueous-Dissolved	3005A-Diss	apr 28 met/dis	1
				5/12/2006		6020-W-DISS	apr 28 met/dis	1
				5/12/2006		HARD	apr 28 met/dis	1
				5/12/2006		ICP-W-DIS	apr 28 met/dis	1
L71507-06A	Eagle Spring	4/26/2006 11:30:00 AM		5/12/2006	Aqueous	SS	ww tss/tds/ss	1

WORK ORDER Summary

28-Apr-06

Work Order L71507

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format. Samples received too close to expiration to run within hold for some Ortho-Phosphates.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L71507-06A	Eagle Spring	4/26/2006 11:30:00 AM	4/28/2006	5/12/2006	Aqueous	TDS-W	ww tss/tds/ss	1
				5/12/2006		TSS-W	ww tss/tds/ss	1
L71507-06B				5/12/2006		2320B-ALK-W	apr 28 wc	1
				5/12/2006		300.0-W	apr 28 wc	1
				5/12/2006		ACIDITY-W	apr 28 wc	1
				5/12/2006		PO4-O	apr 28 wc	1
L71507-06C				5/12/2006		NH3-W	apr 28 nh3	1
				5/12/2006		NH3-W-PREP	apr 28 nh3	1
				5/12/2006		NO2/NO3-W	apr 28 nh3	1
L71507-06D				5/12/2006		3005A-ICPMS	apr 28 met/total	1
				5/12/2006		ICP-W	apr 28 met/total	1
L71507-06E				5/12/2006	Aqueous-Dissolved	3005A-Diss	apr 28 met/dis	1
				5/12/2006		6020-W-DISS	apr 28 met/dis	1
				5/12/2006		HARD	apr 28 met/dis	1
				5/12/2006		ICP-W-DIS	apr 28 met/dis	1
L71507-06F				5/12/2006	Aqueous	OGB-W	OGBFridge	1

Client Carbon Resources

Address Attn: Brad Lindsay PO Box 544
Cedaredge CO 81413
City State Zip

Phone 970-856-6788 CELL ~~Fax~~ (435) 851-9044

Contact Brad Lindsay

E-mail rocklogicconsulting@gmail.com

Project Name Scofield Baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 71507

Page _____ of _____

Turn Around Time (Circle One)

1 day	2 day	3 day	4 day	5 day	(Standard)
QC 1	2	2+	3	3+	4

	Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	table 3	table 4									COMMENTS
					Please indicate tests needed below										
1	Eagle Outlet	4-26-06/11:00	W	6	✓										
2	Culfer Spring	4-26-06/11:50	W	6	✓										
3	Angie Spring	4-26-06/14:45	W	6	✓										
4	Mud Creek	4-26-06/18:50	W	6	✓										
5	CR-06-03-ABV	4-26-06/13:15	W	5		✓									
6	EAGLE SPRING	4-26-06/11:30	W	6	✓										

ON FILE

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 11:00	PRINT NAME
~~Relinquished By: Signature~~	Date	Received By: Signature
PRINT NAME	~~Time~~	PRINT NAME
~~Relinquished By: Signature~~	Date	~~Received By: Signature~~
PRINT NAME	~~Time~~	PRINT NAME
Relinquished By: Signature UPS	Date 4/28/06	Received By: Signature
PRINT NAME	Time 1020	PRINT NAME

Special Instructions:

Please filter for dissolved metals

4/28/06 Per Brad ok to run NO_2/NO_3 so that hold times can be met.

LABORATORY USE ONLY

SAMPLES WERE:

1 (Shipped) or hand delivered Notes: UPS

2 Ambient or (Chilled) Notes:

3 Temperature 4.5

4 Received Broken/Leaking (Improperly Sealed) Y (N) Notes:

5 Properly Preserved (Y) N Notes:

6 Received Within Holding Times (Y) N Notes: pH 4/28/06 Yes

COC Tape Was:

1 Present on Outer Package (Y) N NA

2 Unbroken on Outer Package (Y) N NA

3 Present on Sample Y N (NA)

4 Unbroken on Sample Y N (NA) Notes:

Discrepancies Between Sample Labels and COC Record? Y (N) Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS		REPORTED AS
*	-	Water level or Flow		Depth, Flow
*	-	pH		Standard units
*	-	Specific Conductivity		umhos/cm @ 25° C
*	-	Temperature		°C
		LABORATORY MEASUREMENTS		
*	-	Total Dissolved Solids		mg/l
*	-	Total Hardness ($CaCO_3$)		mg/l
*	-	Total Alkalinity		mg/l
	-	Acidity		mg/l
	-	Aluminum (Dissolved)		mg/l
	-	Arsenic (Dissolved)		mg/l
	-	Boron (Dissolved)[1]		mg/l
*	-	Carbonate		mg/l
*	-	Bicarbonate		mg/l
	-	Cadmium (Dissolved)		mg/l
*	-	Calcium (Dissolved)		mg/l
*	-	Chloride	mg/l	
	-	Copper (Dissolved)		mg/l
*	-	Iron (Dissolved)		mg/l
*	-	Iron (Total)		mg/l
	-	Lead (Dissolved)	mg/l	
*	-	Magnesium (Dissolved)		mg/l
*	-	Manganese (Dissolved)		mg/l
*	-	Manganese (Total)		mg/l
	-	Molybdenum (Dissolved)		mg/l
	-	Ammonia		mg/l
	-	Nitrates		mg/l
	-	Nitrites		mg/l
*	-	Potassium (Dissolved)		mg/l
	-	Phosphate (Ortho)		mg/l
	-	Selenium[1] (Dissolved)		mg/l
*	-	Sodium (Dissolved)		mg/l
*	-	Sulfate		mg/l
	-	Zinc (Dissolved)	mg/l	
*	-	Cations		meq/l
*	-	Anions		meq/l

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 71507

Preservation Check Sheet

			Sample Set Extension and pH															
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓																
COD[1]	pH <2 H_2SO_4																	
Cyanide	PH >12 NaOH																	
Metals	pH <2 HNO_3	✓																
NO_2 & NO_3[1]	pH <2 H_2SO_4	✓																
Nutrients[1]	pH <2 H_2SO_4																	
O & G	pH <2 HCL	✓																
Phenols[2]	pH <2 H_2SO_4																	
Sulfide	pH > 9NaOH, Zn Acetate																	
TKN[1]	pH <2 H_2SO_4																	
TOC	pH <2 H_3PO_4																	
TOX[2]	pH <2 H_2SO_4																	
T PO_4[1]	pH <2 H_2SO_4																	

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

June 09, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L72071

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 5/26/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-01D
Field Sample ID: **Eagle Outlet**
Collected: 5/25/2006 2:30:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/8/2006 5:41:56 PM	6010B	0.050	**2.6**
Manganese	mg/L	6/8/2006 5:41:56 PM	6010B	0.0050	**0.16**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-02D
Field Sample ID: **Sulfur Spring**
Collected: 5/25/2006 2:00:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/8/2006 5:45:50 PM	6010B	0.050	< 0.050
Manganese	mg/L	6/8/2006 5:45:50 PM	6010B	0.0050	**0.029**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-03D
Field Sample ID: **Angle Spring**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/8/2006 5:49:45 PM	6010B	0.050	< 0.050
Manganese	mg/L	6/8/2006 5:49:45 PM	6010B	0.0050	< 0.0050

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-04D
Field Sample ID: **Mud Creek**
Collected: 5/25/2006 1:50:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/8/2006 5:53:39 PM	6010B	0.050	**2.5**
Manganese	mg/L	6/8/2006 5:53:39 PM	6010B	0.0050	**0.096**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-05D
Field Sample ID: **CR-06-03**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/8/2006 5:57:34 PM	6010B	0.050	**0.51**
Manganese	mg/L	6/8/2006 5:57:34 PM	6010B	0.0050	**0.053**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-06D
Field Sample ID: **Eagle Spring**
Collected: 5/25/2006 3:00:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Iron	mg/L	6/8/2006 6:05:24 PM	6010B	0.050	**2.2**	[1]
Manganese	mg/L	6/8/2006 6:05:24 PM	6010B	0.0050	**0.0093**	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-01E
Field Sample ID: **Eagle Outlet**
Collected: 5/25/2006 2:30:00 PM
Received: 5/26/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	6/9/2006 8:22:15 AM	6010B	0.10	< 0.10
Arsenic	mg/L	6/8/2006 4:00:29 PM	6020	0.0050	< 0.0050
Boron	mg/L	6/9/2006 8:22:15 AM	6010B	0.50	< 0.50
Cadmium	mg/L	6/8/2006 4:00:29 PM	6020	0.0040	< 0.0040
Calcium	mg/L	6/9/2006 8:22:15 AM	6010B	10	**73**
Copper	mg/L	6/8/2006 4:00:29 PM	6020	0.0040	< 0.0040
Iron	mg/L	6/9/2006 8:22:15 AM	6010B	0.050	< 0.050
Lead	mg/L	6/8/2006 4:00:29 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	6/9/2006 8:22:15 AM	6010B	10	**14**
Manganese	mg/L	6/8/2006 4:00:29 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	6/9/2006 8:22:15 AM	6010B	0.10	< 0.10
Potassium	mg/L	6/9/2006 8:22:15 AM	6010B	1.0	**2.0**
Selenium	mg/L	6/8/2006 4:00:29 PM	6020	0.0050	< 0.0050
Sodium	mg/L	6/9/2006 8:22:15 AM	6010B	10	**15**
Zinc	mg/L	6/8/2006 4:00:29 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-02E
Field Sample ID: **Sulfur Spring**
Collected: 5/25/2006 2:00:00 PM
Received: 5/26/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	6/9/2006 8:38:11 AM	6010B	0.10	< 0.10
Arsenic	mg/L	6/8/2006 4:32:52 PM	6020	0.0050	< 0.0050
Boron	mg/L	6/9/2006 8:38:11 AM	6010B	0.50	< 0.50
Cadmium	mg/L	6/8/2006 4:32:52 PM	6020	0.0040	< 0.0040
Calcium	mg/L	6/9/2006 8:38:11 AM	6010B	10	**84**
Copper	mg/L	6/8/2006 4:32:52 PM	6020	0.0040	< 0.0040
Iron	mg/L	6/9/2006 8:38:11 AM	6010B	0.050	< 0.050
Lead	mg/L	6/8/2006 4:32:52 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	6/9/2006 8:38:11 AM	6010B	10	**35**
Manganese	mg/L	6/8/2006 4:32:52 PM	6020	0.0050	**0.028**
Molybdenum	mg/L	6/9/2006 8:38:11 AM	6010B	0.10	< 0.10
Potassium	mg/L	6/9/2006 8:38:11 AM	6010B	1.0	**5.0**
Selenium	mg/L	6/8/2006 4:32:52 PM	6020	0.0050	< 0.0050
Sodium	mg/L	6/9/2006 8:38:11 AM	6010B	1.0	**8.6**
Zinc	mg/L	6/8/2006 4:32:52 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-03E
Field Sample ID: **Angle Spring**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	6/9/2006 8:42:06 AM	6010B	0.10	< 0.10
Arsenic	mg/L	6/8/2006 4:38:18 PM	6020	0.0050	< 0.0050
Boron	mg/L	6/9/2006 8:42:06 AM	6010B	0.50	< 0.50
Cadmium	mg/L	6/8/2006 4:38:18 PM	6020	0.0040	< 0.0040
Calcium	mg/L	6/9/2006 8:42:06 AM	6010B	10	**90**
Copper	mg/L	6/8/2006 4:38:18 PM	6020	0.0040	< 0.0040
Iron	mg/L	6/9/2006 8:42:06 AM	6010B	0.050	< 0.050
Lead	mg/L	6/8/2006 4:38:18 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	6/9/2006 8:42:06 AM	6010B	10	**18**
Manganese	mg/L	6/8/2006 4:38:18 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	6/9/2006 8:42:06 AM	6010B	0.10	< 0.10
Potassium	mg/L	6/9/2006 8:42:06 AM	6010B	1.0	**1.5**
Selenium	mg/L	6/8/2006 4:38:18 PM	6020	0.0050	< 0.0050
Sodium	mg/L	6/9/2006 8:42:06 AM	6010B	1.0	**9.6**
Zinc	mg/L	6/8/2006 4:38:18 PM	6020	0.010	**0.010**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-04E
Field Sample ID: **Mud Creek**
Collected: 5/25/2006 1:50:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	6/9/2006 8:46:01 AM	6010B	0.10	< 0.10
Arsenic	mg/L	6/8/2006 4:43:43 PM	6020	0.0050	< 0.0050
Boron	mg/L	6/9/2006 8:46:01 AM	6010B	0.50	< 0.50
Cadmium	mg/L	6/8/2006 4:43:43 PM	6020	0.0040	< 0.0040
Calcium	mg/L	6/9/2006 8:46:01 AM	6010B	10	**48**
Copper	mg/L	6/8/2006 4:43:43 PM	6020	0.0040	< 0.0040
Iron	mg/L	6/9/2006 8:46:01 AM	6010B	0.050	**0.052**
Lead	mg/L	6/8/2006 4:43:43 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	6/9/2006 8:46:01 AM	6010B	10	**14**
Manganese	mg/L	6/8/2006 4:43:43 PM	6020	0.0050	**0.012**
Molybdenum	mg/L	6/9/2006 8:46:01 AM	6010B	0.10	< 0.10
Potassium	mg/L	6/9/2006 8:46:01 AM	6010B	1.0	**1.9**
Selenium	mg/L	6/8/2006 4:43:43 PM	6020	0.0050	< 0.0050
Sodium	mg/L	6/9/2006 8:46:01 AM	6010B	10	**18**
Zinc	mg/L	6/8/2006 4:43:43 PM	6020	0.010	**0.014**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-05E
Field Sample ID: **CR-06-03**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	6/9/2006 8:49:56 AM	6010B	0.10	< 0.10
Arsenic	mg/L	6/8/2006 4:49:08 PM	6020	0.0050	**0.027**
Boron	mg/L	6/9/2006 8:49:56 AM	6010B	0.50	< 0.50
Cadmium	mg/L	6/8/2006 4:49:08 PM	6020	0.0040	< 0.0040
Calcium	mg/L	6/9/2006 8:49:56 AM	6010B	10	**110**
Copper	mg/L	6/8/2006 4:49:08 PM	6020	0.0040	**0.0064**
Iron	mg/L	6/9/2006 8:49:56 AM	6010B	0.050	< 0.050
Lead	mg/L	6/8/2006 4:49:08 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	6/9/2006 8:49:56 AM	6010B	10	**28**
Manganese	mg/L	6/8/2006 4:49:08 PM	6020	0.0050	**0.048**
Molybdenum	mg/L	6/9/2006 8:49:56 AM	6010B	0.10	< 0.10
Potassium	mg/L	6/9/2006 8:49:56 AM	6010B	1.0	**2.3**
Selenium	mg/L	6/8/2006 4:49:08 PM	6020	0.0050	< 0.0050
Sodium	mg/L	6/9/2006 8:49:56 AM	6010B	10	**20**
Zinc	mg/L	6/8/2006 4:49:08 PM	6020	0.010	**0.36**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-06E
Field Sample ID: **Eagle Spring**
Collected: 5/25/2006 3:00:00 PM
Received: 5/26/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
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QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	6/9/2006 8:53:58 AM	6010B	0.10	**1.2**
Arsenic	mg/L	6/8/2006 4:54:34 PM	6020	0.0050	< 0.0050
Boron	mg/L	6/9/2006 8:53:58 AM	6010B	0.50	< 0.50
Cadmium	mg/L	6/8/2006 4:54:34 PM	6020	0.0040	< 0.0040
Calcium	mg/L	6/9/2006 8:53:58 AM	6010B	10	**11**
Copper	mg/L	6/8/2006 4:54:34 PM	6020	0.0040	**0.0063**
Iron	mg/L	6/9/2006 8:53:58 AM	6010B	0.050	**0.94**
Lead	mg/L	6/8/2006 4:54:34 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	6/9/2006 8:53:58 AM	6010B	1.0	**2.7**
Manganese	mg/L	6/8/2006 4:54:34 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	6/9/2006 8:53:58 AM	6010B	0.10	< 0.10
Potassium	mg/L	6/9/2006 8:53:58 AM	6010B	1.0	**1.1**
Selenium	mg/L	6/8/2006 4:54:34 PM	6020	0.0050	< 0.0050
Sodium	mg/L	6/9/2006 8:53:58 AM	6010B	10	**11**
Zinc	mg/L	6/8/2006 4:54:34 PM	6020	0.010	**0.027**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-01
Field Sample ID: **Eagle Outlet**
Collected: 5/25/2006 2:30:00 PM
Received: 5/26/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	5/30/2006 11:20:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**220**	
Ammonia (as N)	mg/L	5/31/2006 11:44:00 AM	350.1	0.050	**0.088**	
Bicarbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**210**	
Carbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**14**	
Chloride	mg/L	6/1/2006 2:33:56 AM	300.0	5.0	**8.5**	
Hardness (as CaCO3)	mg/L	6/9/2006	2340B	10	**180**	
Nitrate (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	**0.17**	
Nitrite (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	< 0.010	[1]
Oil & Grease	mg/L	5/30/2006	EPA 1664	3.0	**4.1**	
Phosphate, ortho (as P)	mg/L	5/26/2006 1:58:00 PM	365.1	0.050	< 0.050	
Settable Solids	ml/L	5/26/2006 12:30:00 PM	160.5	0.10	**0.30**	
Sulfate	mg/L	6/1/2006 2:33:56 AM	300.0	5.0	**19**	[1]
TDS	mg/L	5/26/2006 2:30:00 PM	160.1	10	**240**	
TSS	mg/L	5/26/2006 4:30:00 PM	160.2	3.0	**170**	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-02
Field Sample ID: **Sulfur Spring**
Collected: 5/25/2006 2:00:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	5/30/2006 11:20:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**340**
Ammonia (as N)	mg/L	5/31/2006 11:44:00 AM	350.1	0.050	**0.075** [1]
Bicarbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**340**
Carbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	< 10
Chloride	mg/L	6/1/2006 6:32:52 AM	300.0	1.0	**6.2**
Hardness (as CaCO3)	mg/L	6/9/2006	2340B	10	**210**
Nitrate (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	5/30/2006	EPA 1664	3.0	**3.7**
Phosphate, ortho (as P)	mg/L	5/26/2006 1:58:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	5/26/2006 12:30:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	6/1/2006 6:32:52 AM	300.0	10	**41**
TDS	mg/L	5/26/2006 2:30:00 PM	160.1	10	**350**
TSS	mg/L	5/26/2006 4:30:00 PM	160.2	3.0	**3.0**

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-03
Field Sample ID: **Angle Spring**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	5/30/2006 11:20:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**290**
Ammonia (as N)	mg/L	5/31/2006 11:44:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**290**
Carbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	< 10
Chloride	mg/L	6/1/2006 8:46:00 AM	300.0	10	**22**
Hardness (as CaCO3)	mg/L	6/9/2006	2340B	10	**220**
Nitrate (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	**0.96**
Nitrite (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	5/30/2006	EPA 1664	3.0	**4.3**
Phosphate, ortho (as P)	mg/L	5/26/2006 1:58:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	5/26/2006 12:30:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	6/1/2006 8:46:00 AM	300.0	10	**14**
TDS	mg/L	5/26/2006 2:30:00 PM	160.1	10	**330**
TSS	mg/L	5/26/2006 4:30:00 PM	160.2	3.0	< 3.0

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-04
Field Sample ID: **Mud Creek**
Collected: 5/25/2006 1:50:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	5/30/2006 11:20:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**160**
Ammonia (as N)	mg/L	5/31/2006 11:44:00 AM	350.1	0.050	**0.061**
Bicarbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**150**
Carbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	< 10
Chloride	mg/L	6/1/2006 9:19:18 AM	300.0	10	**10**
Hardness (as CaCO3)	mg/L	6/9/2006	2340B	10	**120**
Nitrate (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	**0.74**
Nitrite (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	5/30/2006	EPA 1664	3.0	**3.2**
Phosphate, ortho (as P)	mg/L	5/26/2006 1:58:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	5/26/2006 12:30:00 PM	160.5	0.10	**0.50**
Sulfate	mg/L	6/1/2006 9:19:18 AM	300.0	10	**42**
TDS	mg/L	5/26/2006 2:30:00 PM	160.1	10	**230**
TSS	mg/L	5/26/2006 4:30:00 PM	160.2	3.0	**320**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-05
Field Sample ID: **CR-06-03**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	5/30/2006 11:20:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**370**
Ammonia (as N)	mg/L	5/31/2006 11:44:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**370**
Carbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	< 10
Chloride	mg/L	6/1/2006 10:25:51 AM	300.0	10	**19**
Hardness (as CaCO3)	mg/L	6/9/2006	2340B	10	**280**
Nitrate (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	**0.029**
Nitrite (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	**0.018**
Phosphate, ortho (as P)	mg/L	5/26/2006 1:58:00 PM	365.1	0.050	< 0.050
Sulfate	mg/L	6/1/2006 10:25:51 AM	300.0	10	**34**
TDS	mg/L	5/26/2006 2:30:00 PM	160.1	10	**430**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-06
Field Sample ID: **Eagle Spring**
Collected: 5/25/2006 3:00:00 PM
Received: 5/26/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	5/30/2006 11:20:00 AM	305.1	15	**18**
Alkalinity,(As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**34**
Ammonia (as N)	mg/L	5/31/2006 11:44:00 AM	350.1	0.050	**0.091**
Bicarbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	**34**
Carbonate (As CaCO3)	mg/L	5/30/2006 10:25:00 AM	2320B	10	< 10
Chloride	mg/L	6/1/2006 10:59:08 AM	300.0	1.0	**5.0**
Hardness (as CaCO3)	mg/L	6/9/2006	2340B	10	**28**
Nitrate (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	**0.099**
Nitrite (as N)	mg/L	5/26/2006 3:52:00 PM	353.2	0.010	**0.025**
Oil & Grease	mg/L	5/30/2006	EPA 1664	3.0	**3.4**
Phosphate, ortho (as P)	mg/L	5/26/2006 1:58:00 PM	365.1	0.050	**0.060**
Settable Solids	ml/L	5/26/2006 12:30:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	6/1/2006 10:59:08 AM	300.0	1.0	**6.0**
TDS	mg/L	5/26/2006 2:30:00 PM	160.1	10	**140**
TSS	mg/L	5/26/2006 4:30:00 PM	160.2	3.0	**33**

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-28869	Arsenic	mg/L	6020	0.1992	0.2	0	99.6	85-115				6/8/2006
LCS-28869	Cadmium	mg/L	6020	0.2070	0.2	0	103	85-115				6/8/2006
LCS-28869	Copper	mg/L	6020	0.1959	0.2	0.001271	97.3	85-115				6/8/2006
LCS-28869	Lead	mg/L	6020	0.2062	0.2	0	103	85-115				6/8/2006
LCS-28869	Manganese	mg/L	6020	0.1973	0.2	0.001246	98.0	85-115				6/8/2006
LCS-28869	Selenium	mg/L	6020	0.2045	0.2	0	102	85-115				6/8/2006
LCS-28869	Zinc	mg/L	6020	1.025	1	0.005381	102	85-115				6/8/2006
LCS-28847	Iron	mg/L	6010B	1.070	1	0	107	75-125				6/8/2006
LCS-28847	Manganese	mg/L	6010B	0.2098	0.2	0	105	75-125				6/8/2006
LCS-28869	Aluminum	mg/L	6010B	0.8537	1	0	85.4	75-125				6/9/2006
LCS-28869	Boron	mg/L	6010B	0.9591	1	0	95.9	75-125				6/9/2006
LCS-28869	Calcium	mg/L	6010B	9.889	10	0	98.9	75-125				6/9/2006
LCS-28869	Iron	mg/L	6010B	1.046	1	0	105	75-125				6/9/2006
LCS-28869	Magnesium	mg/L	6010B	10.08	10	0	101	75-125				6/9/2006
LCS-28869	Molybdenum	mg/L	6010B	0.1982	0.2	0	99.1	75-125				6/9/2006
LCS-28869	Potassium	mg/L	6010B	10.25	10	0	103	75-125				6/9/2006
LCS-28869	Sodium	mg/L	6010B	10.08	10	0	101	75-125				6/9/2006

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-28869	Arsenic	mg/L	6020	< 0.0050				-				6/8/2006
MB-28869	Cadmium	mg/L	6020	< 0.0040				-				6/8/2006
MB-28869	Copper	mg/L	6020	< 0.0040				-				6/8/2006
MB-28869	Lead	mg/L	6020	< 0.0050				-				6/8/2006
MB-28869	Manganese	mg/L	6020	< 0.0050				-				6/8/2006
MB-28869	Selenium	mg/L	6020	< 0.0050				-				6/8/2006
MB-28869	Zinc	mg/L	6020	< 0.010				-				6/8/2006
MB-28847	Iron	mg/L	6010B	< 0.050				-				6/8/2006
MB-28847	Manganese	mg/L	6010B	< 0.0050				-				6/8/2006
MB-28869	Aluminum	mg/L	6010B	< 0.10				-				6/9/2006
MB-28869	Boron	mg/L	6010B	< 0.50				-				6/9/2006
MB-28869	Calcium	mg/L	6010B	< 1.0				-				6/9/2006
MB-28869	Iron	mg/L	6010B	< 0.050				-				6/9/2006
MB-28869	Magnesium	mg/L	6010B	< 1.0				-				6/9/2006
MB-28869	Molybdenum	mg/L	6010B	< 0.10				-				6/9/2006
MB-28869	Potassium	mg/L	6010B	< 1.0				-				6/9/2006
MB-28869	Sodium	mg/L	6010B	< 1.0				-				6/9/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72071-01EMS	Arsenic	mg/L	6020	0.1822	0.2	0	91.1	70-130				6/8/2006
L72071-01EMS	Cadmium	mg/L	6020	0.2003	0.2	0	100	70-130				6/8/2006
L72071-01EMS	Copper	mg/L	6020	0.2029	0.2	0.001984	100	70-130				6/8/2006
L72071-01EMS	Lead	mg/L	6020	0.2044	0.2	0	102	70-130				6/8/2006
L72071-01EMS	Manganese	mg/L	6020	0.2034	0.2	0.002744	100	70-130				6/8/2006
L72071-01EMS	Selenium	mg/L	6020	0.1967	0.2	0.001008	97.8	70-130				6/8/2006
L72071-01EMS	Zinc	mg/L	6020	1.002	1	0.008989	99.3	70-130				6/8/2006
L72071-06DMS	Iron	mg/L	6010B	3.870	1	2.245	163	75-125			[1]	6/8/2006
L72071-06DMS	Manganese	mg/L	6010B	0.2226	0.2	0.009323	107	75-125				6/8/2006
L72071-01EMS	Aluminum	mg/L	6010B	0.9483	1	0	94.8	75-125				6/9/2006
L72071-01EMS	Boron	mg/L	6010B	1.071	1	0.02007	105	75-125				6/9/2006
L72071-01EMS	Calcium	mg/L	6010B	82.78	10	72.91	98.7	75-125				6/9/2006
L72071-01EMS	Iron	mg/L	6010B	1.072	1	0.01717	106	75-125				6/9/2006
L72071-01EMS	Magnesium	mg/L	6010B	24.15	10	14.45	97.0	75-125				6/9/2006
L72071-01EMS	Molybdenum	mg/L	6010B	0.2186	0.2	0	109	75-125				6/9/2006
L72071-01EMS	Potassium	mg/L	6010B	12.58	10	1.973	106	75-125				6/9/2006
L72071-01EMS	Sodium	mg/L	6010B	25.58	10	15.27	103	75-125				6/9/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72071-01EMSD	Arsenic	mg/L	6020	0.1979	0.2	0	99.0	70-130	8.28	20		6/8/2006
L72071-01EMSD	Cadmium	mg/L	6020	0.2009	0.2	0	100	70-130	0.255	20		6/8/2006
L72071-01EMSD	Copper	mg/L	6020	0.2065	0.2	0.001984	102	70-130	1.76	20		6/8/2006
L72071-01EMSD	Lead	mg/L	6020	0.2080	0.2	0	104	70-130	1.75	20		6/8/2006
L72071-01EMSD	Manganese	mg/L	6020	0.2076	0.2	0.002744	102	70-130	2.00	20		6/8/2006
L72071-01EMSD	Selenium	mg/L	6020	0.2063	0.2	0.001008	103	70-130	4.79	20		6/8/2006
L72071-01EMSD	Zinc	mg/L	6020	0.9970	1	0.008989	98.8	70-130	0.462	20		6/8/2006
L72071-06DMSD	Iron	mg/L	6010B	3.828	1	2.245	158	75-125	1.09	20	1	6/8/2006
L72071-06DMSD	Manganese	mg/L	6010B	0.2187	0.2	0.009323	105	75-125	1.76	20		6/8/2006
L72071-01EMSD	Aluminum	mg/L	6010B	0.9052	1	0	90.5	75-125	4.64	20		6/9/2006
L72071-01EMSD	Boron	mg/L	6010B	1.102	1	0.02007	108	75-125	2.89	20		6/9/2006
L72071-01EMSD	Calcium	mg/L	6010B	82.94	10	72.91	100	75-125	0.193	20		6/9/2006
L72071-01EMSD	Iron	mg/L	6010B	1.080	1	0.01717	106	75-125	0.697	20		6/9/2006
L72071-01EMSD	Magnesium	mg/L	6010B	24.58	10	14.45	101	75-125	1.76	20		6/9/2006
L72071-01EMSD	Molybdenum	mg/L	6010B	0.2164	0.2	0	108	75-125	0.972	20		6/9/2006
L72071-01EMSD	Potassium	mg/L	6010B	13.26	10	1.973	113	75-125	5.29	20		6/9/2006
L72071-01EMSD	Sodium	mg/L	6010B	25.62	10	15.27	104	75-125	0.156	20		6/9/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L71960-06DDUP	TDS	mg/L	160.1	1900	0	1840		-	3.21	20		5/26/2006
L72023-05ADUP	TDS	mg/L	160.1	1980	0	2000		-	1.01	20		5/26/2006
L72056-02ADUP	TDS	mg/L	160.1	2680	0	2440		-	9.38	20		5/26/2006
L72071-06ADUP	TDS	mg/L	160.1	140.0	0	136		-	2.90	20		5/26/2006
L72051-01ADUP	TSS	mg/L	160.2	5.000	0	0		-	22.2	20	*	5/26/2006
L72071-06ADUP	TSS	mg/L	160.2	32.00	0	0		-	3.08	20		5/26/2006

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R58257	Alkalinity,(As CaCO3)	mg/L	2320B	53320	50000	0	107	90-110				5/30/2006
LCS-R58397	Chloride	mg/L	300.0	4.986	5	0	99.7	90-110				5/31/2006
LCS-R58397	Sulfate	mg/L	300.0	5.453	5	0	109	90-110				5/31/2006
LCS-R58258	Acidity	mg/L	305.1	50.00	50	0	100	80-120				5/30/2006
LCS-28854	Ammonia (as N)	mg/L	350.1	1.001	1	0	100	90-110				5/31/2006
LCS-28854	Ammonia (as N)	mg/L	350.1	1.001	1	0	100	90-110				5/31/2006
LCS-58204	Nitrite (as N)	mg/L	353.2	0.9540	1	0	95.4	90-110				5/26/2006
LCS-58205	Nitrate (as N)	mg/L	353.2	0.9310	1	0	93.1	90-110				5/26/2006
LCS-R58289	Oil & Grease	mg/L	EPA 1664	41.80	40	0	104	79-114				5/30/2006
LCS-58198	Phosphate, ortho (as P)	mg/L	365.1	1.014	1	0	101	90-110				5/26/2006
LCS-R58294	TDS	mg/L	160.1	194.0	205	0	94.6	80-120				5/26/2006
LCS-R58244	TSS	mg/L	160.2	101.0	100	0	101	80-120				5/26/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R58257	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				5/30/2006
MB-R58257	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				5/30/2006
MB-R58257	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				5/30/2006
MB-R58397	Chloride	mg/L	300.0	< 1.0				-				5/31/2006
MB-R58397	Sulfate	mg/L	300.0	< 1.0				-				5/31/2006
MB-R58258	Acidity	mg/L	305.1	< 15				-				5/30/2006
MB-28854	Ammonia (as N)	mg/L	350.1	< 0.050				-				5/31/2006
MB-28854	Ammonia (as N)	mg/L	350.1	< 0.050				-				5/31/2006
MB-58204	Nitrite (as N)	mg/L	353.2	< 0.010				-				5/26/2006
MB-58205	Nitrate (as N)	mg/L	353.2	< 0.010				-				5/26/2006
MB-R58289	Oil & Grease	mg/L	EPA 1664	< 3.0				-				5/30/2006
MB-58198	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				5/26/2006
MB-R58294	TDS	mg/L	160.1	< 10				-				5/26/2006
MB-R58244	TSS	mg/L	160.2	< 3.0				-				5/26/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72071-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	329.0	100	225	104	80-120				5/30/2006
L71960-01CMS	Chloride	mg/L	300.0	179.4	100	80.62	98.8	90-110				5/31/2006
L71960-01CMS	Sulfate	mg/L	300.0	163.7	100	49.39	114	90-110			1	5/31/2006
L72071-01BMS	Chloride	mg/L	300.0	34.10	25	8.522	102	90-110				6/1/2006
L72071-01BMS	Sulfate	mg/L	300.0	46.45	25	18.74	111	90-110			1	6/1/2006
L72071-05BMS	Acidity	mg/L	305.1	46.00	50	0	92.0	80-120				5/30/2006
L72071-02CMS	Ammonia (as N)	mg/L	350.1	0.9220	1	0.075	84.7	90-110			1	5/31/2006
L72084-05AMS	Ammonia (as N)	mg/L	350.1	4.572	1	3.593	97.9	90-110				5/31/2006
L72071-01BMS	Nitrite (as N)	mg/L	353.2	0.9380	1	0.009	92.9	90-110				5/26/2006
L72071-01BMS	Nitrate (as N)	mg/L	353.2	1.116	1	0.169	94.7	90-110				5/26/2006
L72071-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.066	1	0.046	102	90-110				5/26/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: WC
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72071-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	325.0	100	225	100	80-120	1.22	10		5/30/2006
L71960-01CMSD	Chloride	mg/L	300.0	178.7	100	80.62	98.1	90-110	0.384	20		5/31/2006
L71960-01CMSD	Sulfate	mg/L	300.0	155.0	100	49.39	106	90-110	5.41	20		5/31/2006
L72071-01BMSD	Chloride	mg/L	300.0	34.10	25	8.522	102	90-110	0.00586	20		6/1/2006
L72071-01BMSD	Sulfate	mg/L	300.0	47.87	25	18.74	116	90-110	3.01	20	1	6/1/2006
L72071-05BMSD	Acidity	mg/L	305.1	46.00	50	0	92.0	80-120	0	20		5/30/2006
L72071-02CMSD	Ammonia (as N)	mg/L	350.1	0.9570	1	0.075	88.2	90-110	3.73	10	1	5/31/2006
L72084-05AMSD	Ammonia (as N)	mg/L	350.1	4.445	1	3.593	85.2	90-110	2.82	10	1	5/31/2006
L72071-01BMSD	Nitrite (as N)	mg/L	353.2	0.8990	1	0.009	89.0	90-110	4.25	10	1	5/26/2006
L72071-01BMSD	Nitrate (as N)	mg/L	353.2	1.116	1	0.169	94.7	90-110	0	10		5/26/2006
L72071-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.080	1	0.046	103	90-110	1.30	10		5/26/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R58289	Oil & Grease	mg/L	EPA 1664	39.80	40	0	99.5	79-114				5/30/2006

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R58289	Oil & Grease	mg/L	EPA 1664	40.10	40	0	100	79-114	0.751	18		5/30/2006

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

American West Analytical Labs

WORK ORDER Summary

30-May-06

Work Order L72071

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:** Hook

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L72071-01A	Eagle Outlet	5/25/2006 2:30:00 PM	5/26/2006	6/9/2006	Aqueous	SS	ww - tss/tds/ss	1
				6/9/2006		TDS-W	ww - tss/tds/ss	1
				6/9/2006		TSS-W	ww - tss/tds/ss	1
L72071-01B				6/9/2006		2320B-ALK-W	may 26 - wc	1
				6/9/2006		300.0-W	may 26 - wc	1
				6/9/2006		ACIDITY-W	may 26 - wc	1
				6/9/2006		NO2-W	may 26 - wc	1
				6/9/2006		NO3-W	may 26 - wc	1
				6/9/2006		PO4-O	may 26 - wc	1
L72071-01C				6/9/2006		NH3-W	may 26 - nh3	1
				6/9/2006		NH3-W-PREP	may 26 - nh3	1
L72071-01D				6/9/2006		3005A-ICPMS	may 26 - met	1
				6/9/2006		ICP-W	may 26 - met	1
L72071-01E				6/9/2006	Aqueous-Dissolved	3005A-Diss	may 26 - dis met	1
				6/9/2006		6020-W-DISS	may 26 - dis met	1
				6/9/2006		HARD	may 26 - dis met	1
				6/9/2006		ICP-W-DIS	may 26 - dis met	1
L72071-01F				6/9/2006	Aqueous	OGB-W	ogb	1
L72071-02A	Sulfur Spring	5/25/2006 2:00:00 PM		6/9/2006		SS	ww - tss/tds/ss	1
				6/9/2006		TDS-W	ww - tss/tds/ss	1
				6/9/2006		TSS-W	ww - tss/tds/ss	1
L72071-02B				6/9/2006		2320B-ALK-W	may 26 - wc	1
				6/9/2006		300.0-W	may 26 - wc	1
				6/9/2006		ACIDITY-W	may 26 - wc	1
				6/9/2006		NO2-W	may 26 - wc	1
				6/9/2006		NO3-W	may 26 - wc	1
				6/9/2006		PO4-O	may 26 - wc	1

72071

WORK ORDER Summary

30-May-06

Work Order L72071

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L72071-02C	Sulfur Spring	5/25/2006 2:00:00 PM	5/26/2006	6/9/2006	Aqueous	NH3-W	may 26 - nh3	1
				6/9/2006		NH3-W-PREP	may 26 - nh3	1
L72071-02D				6/9/2006		3005A-ICPMS	may 26 - met	1
				6/9/2006		ICP-W	may 26 - met	1
L72071-02E				6/9/2006	Aqueous-Dissolved	3005A-Diss	may 26 - dis met	1
				6/9/2006		6020-W-DISS	may 26 - dis met	1
				6/9/2006		HARD	may 26 - dis met	1
				6/9/2006		ICP-W-DIS	may 26 - dis met	1
L72071-02F				6/9/2006	Aqueous	OGB-W	ogb	1
L72071-03A	Angle Spring	5/25/2006 1:00:00 PM		6/9/2006		SS	ww - tss/tds/ss	1
				6/9/2006		TDS-W	ww - tss/tds/ss	1
				6/9/2006		TSS-W	ww - tss/tds/ss	1
L72071-03B				6/9/2006		2320B-ALK-W	may 26 - wc	1
				6/9/2006		300.0-W	may 26 - wc	1
				6/9/2006		ACIDITY-W	may 26 - wc	1
				6/9/2006		NO2-W	may 26 - wc	1
				6/9/2006		NO3-W	may 26 - wc	1
				6/9/2006		PO4-O	may 26 - wc	1
L72071-03C				6/9/2006		NH3-W	may 26 - nh3	1
				6/9/2006		NH3-W-PREP	may 26 - nh3	1
L72071-03D				6/9/2006		3005A-ICPMS	may 26 - met	1
				6/9/2006		ICP-W	may 26 - met	1
L72071-03E				6/9/2006	Aqueous-Dissolved	3005A-Diss	may 26 - dis met	1
				6/9/2006		6020-W-DISS	may 26 - dis met	1
				6/9/2006		HARD	may 26 - dis met	1
				6/9/2006		ICP-W-DIS	may 26 - dis met	1
L72071-03F				6/9/2006	Aqueous	OGB-W	ogb	1
L72071-04A	Mud Creek	5/25/2006 1:50:00 PM		6/9/2006		SS	ww - tss/tds/ss	1

WORK ORDER Summary

30-May-06

Work Order L72071

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L72071-04A	Mud Creek	5/25/2006 1:50:00 PM	5/26/2006	6/9/2006	Aqueous	TDS-W	ww - tss/tds/ss	1
				6/9/2006		TSS-W	ww - tss/tds/ss	1
L72071-04B				6/9/2006		2320B-ALK-W	may 26 - wc	1
				6/9/2006		300.0-W	may 26 - wc	1
				6/9/2006		ACIDITY-W	may 26 - wc	1
				6/9/2006		NO2-W	may 26 - wc	1
				6/9/2006		NO3-W	may 26 - wc	1
				6/9/2006		PO4-O	may 26 - wc	1
L72071-04C				6/9/2006		NH3-W	may 26 - nh3	1
				6/9/2006		NH3-W-PREP	may 26 - nh3	1
L72071-04D				6/9/2006		3005A-ICPMS	may 26 - met	1
				6/9/2006		ICP-W	may 26 - met	1
L72071-04E				6/9/2006	Aqueous-Dissolved	3005A-Diss	may 26 - dis met	1
				6/9/2006		6020-W-DISS	may 26 - dis met	1
				6/9/2006		HARD	may 26 - dis met	1
				6/9/2006		ICP-W-DIS	may 26 - dis met	1
L72071-04F				6/9/2006	Aqueous	OGB-W	ogb	1
L72071-05A	CR-06-03	5/25/2006 1:00:00 PM		6/9/2006		TDS-W	ww - tds	1
L72071-05B				6/9/2006		2320B-ALK-W	may 26 - wc	1
				6/9/2006		300.0-W	may 26 - wc	1
				6/9/2006		ACIDITY-W	may 26 - wc	1
				6/9/2006		NO2-W	may 26 - wc	1
				6/9/2006		NO3-W	may 26 - wc	1
				6/9/2006		PO4-O	may 26 - wc	1
L72071-05C				6/9/2006		NH3-W	may 26 - nh3	1
				6/9/2006		NH3-W-PREP	may 26 - nh3	1
L72071-05D				6/9/2006		3005A-ICPMS	may 26 - met	1
				6/9/2006		ICP-W	may 26 - met	1

WORK ORDER Summary

30-May-06

Work Order L72071

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L72071-05E	CR-06-03	5/25/2006 1:00:00 PM	5/26/2006	6/9/2006	Aqueous-Dissolved	3005A-Diss	may 26 - dis met	1
				6/9/2006		6020-W-DISS	may 26 - dis met	1
				6/9/2006		HARD	may 26 - dis met	1
				6/9/2006		ICP-W-DIS	may 26 - dis met	1
L72071-06A	Eagle Spring	5/25/2006 3:00:00 PM		6/9/2006	Aqueous	SS	ww - tss/tds/ss	1
				6/9/2006		TDS-W	ww - tss/tds/ss	1
				6/9/2006		TSS-W	ww - tss/tds/ss	1
L72071-06B				6/9/2006		2320B-ALK-W	may 26 - wc	1
				6/9/2006		300.0-W	may 26 - wc	1
				6/9/2006		ACIDITY-W	may 26 - wc	1
				6/9/2006		NO2-W	may 26 - wc	1
				6/9/2006		NO3-W	may 26 - wc	1
				6/9/2006		PO4-O	may 26 - wc	1
L72071-06C				6/9/2006		NH3-W	may 26 - nh3	1
				6/9/2006		NH3-W-PREP	may 26 - nh3	1
L72071-06D				6/9/2006		3005A-ICPMS	may 26 - met	1
				6/9/2006		ICP-W	may 26 - met	1
L72071-06E				6/9/2006	Aqueous-Dissolved	3005A-Diss	may 26 - dis met	1
				6/9/2006		6020-W-DISS	may 26 - dis met	1
				6/9/2006		HARD	may 26 - dis met	1
				6/9/2006		ICP-W-DIS	may 26 - dis met	1
L72071-06F				6/9/2006	Aqueous	OGB-W	ogb	1

American West Analytical Laboratories

Chain of Custody — Lab Sample Set # 72071

Page 1 of 1

Client: **Carbon Resources - CO Rock Logic**
Address: **PO Box 544**
Cedaredge, CO 81413
Project Name: **Scofield Baseline**
PO#:

Contact: **Brad Lindsay**
Phone: **(435) 851-9044**
Fax :
Email: **rocklogicconsulting@gmail.com**

QC Level: **2+**
Turn Around Time

	Sample ID:	Date Sampled	Time	# of Containers	Sample Matrix		Table 3	Table 4	Comments
1	**Eagle Outlet**	5/25/2006	14:30	6	w		x		
2	**Sulfur Spring**	5/25/2006	14:00	6	w		x		
3	**Angle Spring**	5/25/2006	13:00	6	w		x		
4	**Mud Creek**	5/25/2006	13:50	6	w		x		
5	**CR-06-03**	5/25/2006	13:00	5	w			x	
6	**Eagle Spring**	5/25/2006	15:00	6	w		x		
7									
8									
9									
10									
11									
12									
13									
14									
15									

Laboratory Use Only

Samples Were:
1. Shipped or hand delivered — UPS
2. Ambient or Chilled
3. Temperature: 10 °C
4. Received Broken/Leaking (Improperly Sealed): Y N
5. Properly Preserved: Y N
6. Received Within Holding Times: Y N

COC Tape Was:
1. Present on Outer Package: Y N NA
2. Unbroken on Outer Package: Y N NA
3. Present on Sample: Y N NA
4. Unbroken on Sample: Y N NA

Discrepancies Between Sample Labels and COC Record? Y N

Special Instructions: **Lab to filter for Metals. Include EDD in Excel format.**

Relinquished by: Signature: Brad Lindsay	Date: 5/25/06	Received by: Signature: UPS	Date: 5/26/06
Print Name: BRAD LINDSAY	Time: 17:00	Print Name:	Time: 17:00
Relinquished by: Signature: UPS	Date: 5/26/06	Received by: Signature: Rebekah Winkler	Date: 5/26/06
Print Name:	Time: 11:19	Print Name: REBEKAH WINKLER	Time: 11:19

May 30 06 07:54a Clay Wisdom 435-448-9693 p.2

Brad Lindsay <lindsay.brad@gmail.com>

Missing Chain of Custody

1 message

Rebekah Winkler <Rebekah@awal-labs.com> **Fri, May 26, 2006 at 5:41 PM**
To: "Brad Lindsay (E-mail)" <ROCKLOGICCONSULTING@gmail.com>

Brad,

I received your samples for Scofield Baseline today in good condition, but without a chain of custody. I've created one based on the ID's from the sample containers. If I could get you to sign it and fax it back to me it should be considered legalish.
<<IMAGE.PDF>>
Thanks,
-Rebekah Winkler
Sample Custody Officer
American West Analytical Laboratories
463 W. 3600 S.
Salt Lake City, UT 84115
www.awal-labs.com
Tel: (801) 263-8686
Fax: (801) 263-8687
email: rebekah@awal-labs.com

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IMAGE.PDF
178K

30 MAY 06

REBEKAH –

THANKS! THE CHAIN LOOKS GOOD.

I WILL BE SENDING ONE MORE SAMPLE TODAY (TUESDAY). I WILL REMEMBER THE CHAIN THIS TIME –

THIS IS A TWO PAGE FAX

American West Analytical Laboratories

Chain of Custody

Lab Sample Set # 72071

Page 1 of 1

Client: **Carbon Resources - CO Rock Logic**
Address: **PO Box 544**
Cedaredge, CO 81413
Project Name: **Scofield Baseline**
PO#:

Contact: **Brad Lindsay**
Phone: **(435) 851-9044**
Fax :
Email: **rocklogicconsulting@gmail.com**

QC Level: **2+**
Turn Around Time

	Sample ID:	Date Sampled	Time	# of Containers	Sample Matrix		Table 3	Table 4											Comments
1	**Eagle Outlet**	5/25/2006	14:30	6	w		x												
2	**Sulfur Spring**	5/25/2006	14:00	6	w		x												
3	**Angle Spring**	5/25/2006	13:00	6	w		x												
4	**Mud Creek**	5/25/2006	13:50	6	w		x												
5	**CR-06-03**	5/25/2006	13:00	5	w			x											
6	**Eagle Spring**	5/25/2006	15:00	6	w		x												
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			

Laboratory Use Only

Samples Were:
1 Shipped or hand delivered — UPS
2 Ambient or Chilled
3 Temperature 10°C
4 Received Broken/Leaking (Improperly Sealed) — Y **N**
5 Properly Preserved — **Y** N
6 Received Within Holding Times — **Y** N

COC Tape Was:
1 Present on Outer Package — Y **N** NA
2 Unbroken on Outer Package — Y N **NA**
3 Present on Sample — Y **N** NA
4 Unbroken on Sample — Y N **NA**

Discrepancies Between Sample Labels and COC Record? — Y **N**

Special Instructions: **Lab to filter for Metals. Include EDD in Excel format.**

Relinquished by: *Signature*	Date:	Received by: *Signature*	Date:
Print Name	Time:	*Print Name*	Time:
Relinquished by: *Signature* UPS	Date: 5/26/06	Received by: *Signature*	Date: 5/26/06
Print Name	Time: 11:19	*Print Name* REBEKAH WINKLER	Time: 11:19

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Temperature	°C

		LABORATORY MEASUREMENTS		
*	-	Total Dissolved Solids		mg/l
*	-	Total Hardness ($CaCO_3$)		mg/l
*	-	Total Alkalinity		mg/l
	-	Acidity		mg/l
	-	Aluminum (Dissolved)		mg/l
	-	Arsenic (Dissolved)		mg/l
	-	Boron (Dissolved)[1]		mg/l
*	-	Carbonate		mg/l
*	-	Bicarbonate		mg/l
	-	Cadmium (Dissolved)		mg/l
*	-	Calcium (Dissolved)		mg/l
*	-	Chloride	mg/l	
	-	Copper (Dissolved)		mg/l
*	-	Iron (Dissolved)		mg/l
*	-	Iron (Total)		mg/l
	-	Lead (Dissolved)	mg/l	
*	-	Magnesium (Dissolved)		mg/l
*	-	Manganese (Dissolved)		mg/l
*	-	Manganese (Total)		mg/l
	-	Molybdenum (Dissolved)		mg/l
	-	Ammonia		mg/l
	-	Nitrates		mg/l
	-	Nitrites		mg/l
*	-	Potassium (Dissolved)		mg/l
	-	Phosphate (Ortho)		mg/l
	-	Selenium[1] (Dissolved)		mg/l
*	-	Sodium (Dissolved)		mg/l
*	-	Sulfate		mg/l
	-	Zinc (Dissolved)	mg/l	
*	-	Cations		meq/l
*	-	Anions		meq/l

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 72071

Preservation Check Sheet

			Sample Set Extension and pH															
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓																
COD[1]	pH <2 H_2SO_4																	
Cyanide	PH >12 NaOH																	
Metals	pH <2 HNO_3	✓																
NO_2 & NO_3[1]	pH <2 H_2SO_4																	
Nutrients[1]	pH <2 H_2SO_4																	
O & G	pH <2 HCL	✓																
Phenols[2]	pH <2 H_2SO_4																	
Sulfide	pH > 9NaOH, Zn Acetate																	
TKN[1]	pH <2 H_2SO_4																	
TOC	pH <2 H_3PO_4																	
TOX[2]	pH <2 H_2SO_4																	
T PO_4[1]	pH <2 H_2SO_4																	

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

June 13, 2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L72109

Dear Brad Lindsay:

American West Analytical Labs received 1 sample on 5/31/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72109-01D
Field Sample ID: **Res-1**
Collected: 5/30/2006 9:30:00 AM
Received: 5/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/8/2006 7:00:48 PM	6010B	0.050	**0.35**
Manganese	mg/L	6/7/2006 1:09:43 AM	6010B	0.0050	**0.092**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72109-01E
Field Sample ID: **Res-1**
Collected: 5/30/2006 9:30:00 AM
Received: 5/31/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	6/12/2006 11:45:17 AM	6010B	0.10	< 0.10	@
Arsenic	mg/L	6/12/2006 7:48:04 PM	6020	0.0050	< 0.0050	
Boron	mg/L	6/12/2006 11:45:17 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	6/12/2006 7:48:04 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	6/12/2006 11:45:17 AM	6010B	1.0	**53**	
Copper	mg/L	6/12/2006 7:48:04 PM	6020	0.0040	< 0.0040	
Iron	mg/L	6/12/2006 11:45:17 AM	6010B	0.050	< 0.050	
Lead	mg/L	6/12/2006 7:48:04 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	6/12/2006 11:45:17 AM	6010B	1.0	**16**	
Manganese	mg/L	6/13/2006 12:02:52 AM	6020	0.0050	< 0.0050	
Molybdenum	mg/L	6/12/2006 11:45:17 AM	6010B	0.10	< 0.10	
Potassium	mg/L	6/12/2006 11:45:17 AM	6010B	1.0	**2.1**	
Selenium	mg/L	6/12/2006 7:48:04 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	6/12/2006 11:45:17 AM	6010B	1.0	**9.1**	
Zinc	mg/L	6/12/2006 7:48:04 PM	6020	0.010	**0.013**	

@ High RPD due to suspected matrix interference.

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INORGANIC ANALYSIS REPORT

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72109-01
Field Sample ID: **Res-1**
Collected: 5/30/2006 9:30:00 AM
Received: 5/31/2006

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	6/1/2006 8:40:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	6/1/2006 8:10:00 AM	2320B	10	**170**	
Ammonia (as N)	mg/L	6/5/2006 12:17:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	6/1/2006 8:10:00 AM	2320B	10	**170**	
Carbonate (As CaCO3)	mg/L	6/1/2006 8:10:00 AM	2320B	10	< 10	
Chloride	mg/L	6/2/2006 1:10:05 AM	300.0	1.0	**3.6**	
Hardness (as CaCO3)	mg/L	6/12/2006	2340B	10	**200**	
Nitrate (as N)	mg/L	5/31/2006 1:34:00 PM	353.2	0.010	**0.056**	
Nitrite (as N)	mg/L	5/31/2006 1:34:00 PM	353.2	0.010	< 0.010	
Oil & Grease	mg/L	6/6/2006	EPA 1664	3.0	**4.3**	* #
Phosphate, ortho (as P)	mg/L	6/1/2006 8:03:00 AM	365.1	0.050	< 0.050	[1]@
Settable Solids	ml/L	5/31/2006 11:45:00 AM	160.5	0.10	**0.10**	
Sulfate	mg/L	6/2/2006 1:10:05 AM	300.0	10	**34**	[1]
TDS	mg/L	5/31/2006 3:00:00 PM	160.1	10	**230**	
TSS	mg/L	5/31/2006 4:00:00 PM	160.2	3.0	**14**	

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
@ High RPD due to suspected matrix interference.
 # Sample required additional preservative upon receipt.
** Sample was received in incorrect container.*

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-28931	Arsenic	mg/L	6020	0.2208	0.2	0	110	85-115				6/12/2006
LCS-28931	Cadmium	mg/L	6020	0.2240	0.2	0	112	85-115				6/12/2006
LCS-28931	Copper	mg/L	6020	0.1853	0.2	0	92.6	85-115				6/12/2006
LCS-28931	Lead	mg/L	6020	0.2100	0.2	0	105	85-115				6/12/2006
LCS-28931	Selenium	mg/L	6020	0.2221	0.2	0	111	85-115				6/12/2006
LCS-28931	Zinc	mg/L	6020	1.129	1	0.003792	113	85-115				6/12/2006
LCS-28931	Manganese	mg/L	6020	0.2102	0.2	0	105	85-115				6/12/2006
LCS-28932	Manganese	mg/L	6010B	0.2144	0.2	0	107	75-125				6/7/2006
LCS-28932	Iron	mg/L	6010B	1.070	1	0	107	75-125				6/8/2006
LCS-28931	Aluminum	mg/L	6010B	1.037	1	0	104	75-125				6/12/2006
LCS-28931	Boron	mg/L	6010B	1.049	1	0	105	75-125				6/12/2006
LCS-28931	Calcium	mg/L	6010B	10.53	10	0	105	75-125				6/12/2006
LCS-28931	Iron	mg/L	6010B	1.080	1	0	108	75-125				6/12/2006
LCS-28931	Magnesium	mg/L	6010B	10.69	10	0	107	75-125				6/12/2006
LCS-28931	Molybdenum	mg/L	6010B	0.2156	0.2	0	108	75-125				6/12/2006
LCS-28931	Potassium	mg/L	6010B	9.709	10	0	97.1	75-125				6/12/2006
LCS-28931	Sodium	mg/L	6010B	10.31	10	0	103	75-125				6/12/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-28931	Arsenic	mg/L	6020	< 0.0050				-				6/12/2006
MB-28931	Cadmium	mg/L	6020	< 0.0040				-				6/12/2006
MB-28931	Copper	mg/L	6020	< 0.0040				-				6/12/2006
MB-28931	Lead	mg/L	6020	< 0.0050				-				6/12/2006
MB-28931	Selenium	mg/L	6020	< 0.0050				-				6/12/2006
MB-28931	Zinc	mg/L	6020	< 0.010				-				6/12/2006
MB-28931	Manganese	mg/L	6020	< 0.0050				-				6/12/2006
MB-28932	Manganese	mg/L	6010B	< 0.0050				-				6/7/2006
MB-28932	Iron	mg/L	6010B	< 0.050				-				6/8/2006
MB-28931	Aluminum	mg/L	6010B	< 0.10				-				6/12/2006
MB-28931	Boron	mg/L	6010B	< 0.50				-				6/12/2006
MB-28931	Calcium	mg/L	6010B	< 1.0				-				6/12/2006
MB-28931	Iron	mg/L	6010B	< 0.050				-				6/12/2006
MB-28931	Magnesium	mg/L	6010B	< 1.0				-				6/12/2006
MB-28931	Molybdenum	mg/L	6010B	< 0.10				-				6/12/2006
MB-28931	Potassium	mg/L	6010B	< 1.0				-				6/12/2006
MB-28931	Sodium	mg/L	6010B	< 1.0				-				6/12/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72094-04AMS	Zinc	mg/L	6020	3.250	1	2.157	109	70-130				6/12/2006
L72109-01EMS	Arsenic	mg/L	6020	0.1945	0.2	0	97.3	70-130				6/12/2006
L72109-01EMS	Cadmium	mg/L	6020	0.2023	0.2	0	101	70-130				6/12/2006
L72109-01EMS	Copper	mg/L	6020	0.1743	0.2	0.001792	86.3	70-130				6/12/2006
L72109-01EMS	Lead	mg/L	6020	0.1915	0.2	0	95.8	70-130				6/12/2006
L72109-01EMS	Selenium	mg/L	6020	0.2190	0.2	0	110	70-130				6/12/2006
L72109-01EMS	Zinc	mg/L	6020	1.016	1	0.0131	100	70-130				6/12/2006
L72109-01EMS	Manganese	mg/L	6020	0.2037	0.2	0.001869	101	70-130				6/13/2006
L72109-01DMS	Manganese	mg/L	6010B	0.2958	0.2	0.09197	102	75-125				6/7/2006
L72109-01DMS	Iron	mg/L	6010B	1.379	1	0.3454	103	75-125				6/8/2006
L72109-01EMS	Aluminum	mg/L	6010B	0.8648	1	0	86.5	75-125				6/12/2006
L72109-01EMS	Boron	mg/L	6010B	0.9986	1	0	99.9	75-125				6/12/2006
L72109-01EMS	Calcium	mg/L	6010B	61.46	10	53.34	81.1	75-125				6/12/2006
L72109-01EMS	Iron	mg/L	6010B	1.016	1	0.01065	101	75-125				6/12/2006
L72109-01EMS	Magnesium	mg/L	6010B	25.34	10	16.26	90.8	75-125				6/12/2006
L72109-01EMS	Molybdenum	mg/L	6010B	0.1986	0.2	0	99.3	75-125				6/12/2006
L72109-01EMS	Potassium	mg/L	6010B	11.99	10	2.071	99.2	75-125				6/12/2006
L72109-01EMS	Sodium	mg/L	6010B	18.25	10	9.136	91.2	75-125				6/12/2006

Sample L72094-4A required additional preservative upon receipt.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72094-04AMSD	Zinc	mg/L	6020	3.188	1	2.157	103	70-130	1.95	20		6/12/2006
L72109-01EMSD	Arsenic	mg/L	6020	0.2234	0.2	0	112	70-130	13.8	20		6/12/2006
L72109-01EMSD	Cadmium	mg/L	6020	0.2156	0.2	0	108	70-130	6.35	20		6/12/2006
L72109-01EMSD	Copper	mg/L	6020	0.1739	0.2	0.001792	86.1	70-130	0.230	20		6/12/2006
L72109-01EMSD	Lead	mg/L	6020	0.2054	0.2	0	103	70-130	7.01	20		6/12/2006
L72109-01EMSD	Selenium	mg/L	6020	0.2468	0.2	0	123	70-130	11.9	20		6/12/2006
L72109-01EMSD	Zinc	mg/L	6020	1.079	1	0.0131	107	70-130	6.03	20		6/12/2006
L72109-01EMSD	Manganese	mg/L	6020	0.2127	0.2	0.001869	105	70-130	4.28	20		6/13/2006
L72109-01DMSD	Manganese	mg/L	6010B	0.2942	0.2	0.09197	101	75-125	0.539	20		6/7/2006
L72109-01DMSD	Iron	mg/L	6010B	1.341	1	0.3454	99.5	75-125	2.81	20		6/8/2006
L72109-01EMSD	Aluminum	mg/L	6010B	1.078	1	0	108	75-125	21.9	20	@	6/12/2006
L72109-01EMSD	Boron	mg/L	6010B	1.051	1	0	105	75-125	5.13	20		6/12/2006
L72109-01EMSD	Calcium	mg/L	6010B	63.01	10	53.34	96.6	75-125	2.49	20		6/12/2006
L72109-01EMSD	Iron	mg/L	6010B	1.124	1	0.01065	111	75-125	10.0	20		6/12/2006
L72109-01EMSD	Magnesium	mg/L	6010B	25.98	10	16.26	97.2	75-125	2.49	20		6/12/2006
L72109-01EMSD	Molybdenum	mg/L	6010B	0.2115	0.2	0	106	75-125	6.27	20		6/12/2006
L72109-01EMSD	Potassium	mg/L	6010B	12.98	10	2.071	109	75-125	7.90	20		6/12/2006
L72109-01EMSD	Sodium	mg/L	6010B	18.99	10	9.136	98.5	75-125	3.94	20		6/12/2006

@ High RPD due to suspected matrix interference.
Sample L72094-4A required additional preservative upon receipt.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72097-01CDUP	TDS	mg/L	160.1	508.0	0	544		-	6.84	20		5/31/2006
L72109-01ADUP	TDS	mg/L	160.1	212.0	0	228		-	7.27	20		5/31/2006
L72095-02ADUP	TSS	mg/L	160.2	4.000	0	5		-	22.2	20	*	5/31/2006
L72097-02CDUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		5/31/2006
L72109-01ADUP	TSS	mg/L	160.2	14.00	0	14		-	0	20		5/31/2006
L72110-03ADUP	TSS	mg/L	160.2	7.000	0	9		-	25.0	20	*	5/31/2006

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R58360	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				6/1/2006
LCS-R58446	Chloride	mg/L	300.0	5.010	5	0	100	90-110				6/2/2006
LCS-R58446	Sulfate	mg/L	300.0	5.277	5	0	106	90-110				6/2/2006
LCS-R58359	Acidity	mg/L	305.1	55.00	50	0	110	80-120				6/1/2006
LCS-28890	Ammonia (as N)	mg/L	350.1	1.033	1	0	103	90-110				6/5/2006
LCS-58324	Nitrite (as N)	mg/L	353.2	1.010	1	0	101	90-110				5/31/2006
LCS	Nitrate (as N)	mg/L	353.2	1.054	1	0	105	90-110				5/31/2006
LCS-R58550	Oil & Grease	mg/L	EPA 1664	44.60	40	0	112	79-114				6/6/2006
LCS-58358	Phosphate, ortho (as P)	mg/L	365.1	1.042	1	0	104	90-110				6/1/2006
LCS-R58370	TDS	mg/L	160.1	204.0	205	0	99.5	80-120				5/31/2006
LCS-R58364	TSS	mg/L	160.2	105.0	100	0	105	80-120				5/31/2006

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R58360	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				6/1/2006
MB-R58360	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				6/1/2006
MB-R58360	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				6/1/2006
MB-R58446	Chloride	mg/L	300.0	< 1.0				-				6/2/2006
MB-R58446	Sulfate	mg/L	300.0	< 1.0				-				6/2/2006
MB-R58359	Acidity	mg/L	305.1	< 15				-				6/1/2006
MB-28890	Ammonia (as N)	mg/L	350.1	< 0.050				-				6/5/2006
MB-58324	Nitrite (as N)	mg/L	353.2	< 0.010				-				5/31/2006
MBLK	Nitrate (as N)	mg/L	353.2	< 0.010				-				5/31/2006
MB-R58550	Oil & Grease	mg/L	EPA 1664	< 3.0				-				6/6/2006
MB-58358	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				6/1/2006
MB-R58370	TDS	mg/L	160.1	< 10				-				5/31/2006
MB-R58364	TSS	mg/L	160.2	< 3.0				-				5/31/2006

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72109-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	268.0	100	167	101	80-120				6/1/2006
L72109-01BMS	Chloride	mg/L	300.0	8.508	5	3.635	97.5	90-110				6/2/2006
L72109-01BMS	Sulfate	mg/L	300.0	91.09	50	34.46	113	90-110			1	6/2/2006
L72110-05AMS	Ammonia (as N)	mg/L	350.1	2.929	1	2.069	86.0	90-110			1	6/5/2006
L72109-01CMS	Ammonia (as N)	mg/L	350.1	0.9450	1	0.031	91.4	90-110				6/5/2006
L72109-01BMS	Nitrite (as N)	mg/L	353.2	1.005	1	0	101	90-110				5/31/2006
L72109-01BMS	Nitrate (as N)	mg/L	353.2	1.092	1	0.056	104	90-110				5/31/2006
L72109-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.128	1	0.02	111	90-110			1	6/1/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72109-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	268.0	100	167	101	80-120	0	10		6/1/2006
L72109-01BMSD	Chloride	mg/L	300.0	8.411	5	3.635	95.5	90-110	1.15	20		6/2/2006
L72109-01BMSD	Sulfate	mg/L	300.0	87.02	50	34.46	105	90-110	4.57	20		6/2/2006
L72110-05AMSD	Ammonia (as N)	mg/L	350.1	2.983	1	2.069	91.4	90-110	1.83	10		6/5/2006
L72109-01CMSD	Ammonia (as N)	mg/L	350.1	0.9660	1	0.031	93.5	90-110	2.20	10		6/5/2006
L72109-01BMSD	Nitrite (as N)	mg/L	353.2	1.003	1	0	100	90-110	0.199	10		5/31/2006
L72109-01BMSD	Nitrate (as N)	mg/L	353.2	1.081	1	0.056	103	90-110	1.01	10		5/31/2006
L72109-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.018	1	0.02	99.8	90-110	10.3	10	@	6/1/2006

@ High RPD due to suspected matrix interference.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R58550	Oil & Grease	mg/L	EPA 1664	40.20	40	0	100	79-114				6/6/2006

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R58550	Oil & Grease	mg/L	EPA 1664	41.80	40	0	104	79-114	3.90	18		6/6/2006

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American West Analytical Labs

WORK ORDER Summary

31-May-06

Work Order L72109

Client ID: WHI100 **QC Level:** 2+

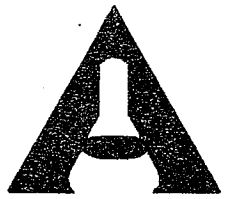
Project: Scofield Baseline **Location:**

Comments: QCLevel: 2+. Footnote report, O&G required additional preservative.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L72109-01A	Res-1	5/30/2006 9:30:00 AM	5/31/2006	6/14/2006	Aqueous	SS	ww - tss/tds/ss	1
				6/14/2006		TDS-W	ww - tss/tds/ss	1
				6/14/2006		TSS-W	ww - tss/tds/ss	1
L72109-01B				6/14/2006		2320B-ALK-W	may 31 - wc	1
				6/14/2006		300.0-W	may 31 - wc	1
				6/14/2006		ACIDITY-W	may 31 - wc	1
				6/14/2006		NO2-W	may 31 - wc	1
				6/14/2006		NO3-W	may 31 - wc	1
				6/14/2006		PO4-O	may 31 - wc	1
L72109-01C				6/14/2006		NH3-W	may 31 - nh3	1
				6/14/2006		NH3-W-PREP	may 31 - nh3	1
L72109-01D				6/14/2006		3005A-ICPMS	may 31 - met	1
				6/14/2006		ICP-W	may 31 - met	1
L72109-01E				6/14/2006	Aqueous-Dissolved	3005A-Diss	may 31 - dis met	1
				6/14/2006		6020-W-DISS	may 31 - dis met	1
				6/14/2006		HARD	may 31 - dis met	1
				6/14/2006		ICP-W-DIS	may 31 - dis met	1
L72109-01F				6/14/2006	Aqueous	OGB-W	ogb	1

72109

Client Carbon Resources co Rock Logic
Address Po Box 544
Cedaredge CO 81413
City State Zip
Phone 970.856.6788 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name Scofield baseline
Project Number/P.O.#
Sampler Name Brad Lindsay



AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 72109
Page 1 of 1

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)		table 3									COMMENTS
Res-1	5.30.06 9:30	W	1		✓									

Please indicate tests needed below

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 13:00	PRINT NAME UPS
Relinquished By: Signature UPS	Date 5/31/06	Received By: Signature
PRINT NAME	Time 10:20	PRINT NAME KEBEKAH NIMMER
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

please filter for dissolved metals

O and G bottle preserved with approx. 2 ml 10% HCl

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS
2 Ambient or Chilled
Notes:
3 Temperature 3°C
4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:
5 Properly Preserved
Y N
Notes: O+G out
6 Received Within Holding Times
Y N
Notes:

COC Tape Was:
1 Present on Outer Package
Y N NA
2 Unbroken on Outer Package
Y N NA
3 Present on Sample
Y N NA
4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 72109

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except 01	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL		5														
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

July 12, 2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L72660

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 6/30/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-01D
Field Sample ID: **Miller Outlet**
Collected: 6/29/2006 12:00:00 PM
Received: 6/30/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Iron	mg/L	7/11/2006 5:17:38 PM	6010B	0.050	**2.4**	[2]
Manganese	mg/L	7/11/2006 5:17:38 PM	6010B	0.0050	**0.13**	

[2] *Analyte concentration is too high for accurate spike recovery.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-03D
Field Sample ID: **Sulfer Spring**
Collected: 6/29/2006 11:00:00 AM
Received: 6/30/2006

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463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	7/11/2006 5:41:23 PM	6010B	0.050	< 0.050
Manganese	mg/L	7/11/2006 5:41:23 PM	6010B	0.0050	**0.029**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-04D
Field Sample ID: **Mud Creek**
Collected: 6/29/2006 10:30:00 AM
Received: 6/30/2006

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Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	7/11/2006 5:45:19 PM	6010B	0.050	**0.25**
Manganese	mg/L	7/11/2006 5:45:19 PM	6010B	0.0050	**0.030**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-05D
Field Sample ID: **Angle Spring**
Collected: 6/29/2006 10:00:00 AM
Received: 6/30/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	7/11/2006 5:49:15 PM	6010B	0.050	< 0.050
Manganese	mg/L	7/11/2006 5:49:15 PM	6010B	0.0050	< 0.0050

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-06D
Field Sample ID: **CR-06-03-ABV**
Collected: 6/29/2006 9:00:00 AM
Received: 6/30/2006

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463 West 3600 South
Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	7/11/2006 5:53:11 PM	6010B	0.050	**0.31**
Manganese	mg/L	7/11/2006 5:53:11 PM	6010B	0.0050	**0.025**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-07D
Field Sample ID: **Scofield Res. 1**
Collected: 6/29/2006 11:30:00 AM
Received: 6/30/2006

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463 West 3600 South
Salt Lake City, Utah
84115

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Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	7/11/2006 5:57:07 PM	6010B	0.050	**0.37**
Manganese	mg/L	7/11/2006 5:57:07 PM	6010B	0.0050	**0.058**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-01E
Field Sample ID: **Miller Outlet**
Collected: 6/29/2006 12:00:00 PM
Received: 6/30/2006

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Salt Lake City, Utah
84115

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Fax (801) 263-8687
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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	7/12/2006 8:31:45 AM	6010B	0.10	< 0.10
Arsenic	mg/L	7/11/2006 5:35:50 PM	6020	0.0050	< 0.0050
Boron	mg/L	7/12/2006 8:31:45 AM	6010B	0.50	< 0.50
Cadmium	mg/L	7/11/2006 5:35:50 PM	6020	0.0040	< 0.0040
Calcium	mg/L	7/12/2006 8:31:45 AM	6010B	10	**67**
Copper	mg/L	7/11/2006 5:35:50 PM	6020	0.0040	< 0.0040
Iron	mg/L	7/12/2006 8:31:45 AM	6010B	0.050	< 0.050
Lead	mg/L	7/11/2006 5:35:50 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	7/12/2006 8:31:45 AM	6010B	1.0	**16**
Manganese	mg/L	7/11/2006 5:35:50 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	7/12/2006 8:31:45 AM	6010B	0.10	< 0.10
Potassium	mg/L	7/12/2006 8:31:45 AM	6010B	1.0	**1.9**
Selenium	mg/L	7/12/2006 12:58:39 PM	6020	0.0050	< 0.0050
Sodium	mg/L	7/12/2006 8:31:45 AM	6010B	1.0	**5.4**
Zinc	mg/L	7/11/2006 5:35:50 PM	6020	0.010	**0.010**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-03E
Field Sample ID: **Sulfer Spring**
Collected: 6/29/2006 11:00:00 AM
Received: 6/30/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	7/12/2006 8:35:42 AM	6010B	0.10	< 0.10
Arsenic	mg/L	7/11/2006 5:41:15 PM	6020	0.0050	< 0.0050
Boron	mg/L	7/12/2006 8:35:42 AM	6010B	0.50	< 0.50
Cadmium	mg/L	7/11/2006 5:41:15 PM	6020	0.0040	< 0.0040
Calcium	mg/L	7/12/2006 8:35:42 AM	6010B	10	**84**
Copper	mg/L	7/11/2006 5:41:15 PM	6020	0.0040	< 0.0040
Iron	mg/L	7/12/2006 8:35:42 AM	6010B	0.050	< 0.050
Lead	mg/L	7/11/2006 5:41:15 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	7/12/2006 8:35:42 AM	6010B	10	**35**
Manganese	mg/L	7/11/2006 5:41:15 PM	6020	0.0050	**0.029**
Molybdenum	mg/L	7/12/2006 8:35:42 AM	6010B	0.10	< 0.10
Potassium	mg/L	7/12/2006 8:35:42 AM	6010B	1.0	**4.4**
Selenium	mg/L	7/12/2006 1:04:00 PM	6020	0.0050	< 0.0050
Sodium	mg/L	7/12/2006 8:35:42 AM	6010B	1.0	**7.8**
Zinc	mg/L	7/11/2006 5:41:15 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-04E
Field Sample ID: **Mud Creek**
Collected: 6/29/2006 10:30:00 AM
Received: 6/30/2006

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Salt Lake City, Utah
84115

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QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	7/12/2006 8:39:39 AM	6010B	0.10	< 0.10
Arsenic	mg/L	7/11/2006 5:46:39 PM	6020	0.0050	< 0.0050
Boron	mg/L	7/12/2006 8:39:39 AM	6010B	0.50	< 0.50
Cadmium	mg/L	7/11/2006 5:46:39 PM	6020	0.0040	< 0.0040
Calcium	mg/L	7/12/2006 8:39:39 AM	6010B	10	**71**
Copper	mg/L	7/11/2006 5:46:39 PM	6020	0.0040	< 0.0040
Iron	mg/L	7/12/2006 8:39:39 AM	6010B	0.050	< 0.050
Lead	mg/L	7/11/2006 5:46:39 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	7/12/2006 8:39:39 AM	6010B	10	**39**
Manganese	mg/L	7/11/2006 5:46:39 PM	6020	0.0050	**0.019**
Molybdenum	mg/L	7/12/2006 8:39:39 AM	6010B	0.10	< 0.10
Potassium	mg/L	7/12/2006 8:39:39 AM	6010B	1.0	**6.0**
Selenium	mg/L	7/12/2006 1:09:23 PM	6020	0.0050	< 0.0050
Sodium	mg/L	7/12/2006 8:39:39 AM	6010B	1.0	**28**
Zinc	mg/L	7/11/2006 5:46:39 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-05E
Field Sample ID: **Angle Spring**
Collected: 6/29/2006 10:00:00 AM
Received: 6/30/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	7/12/2006 8:51:28 AM	6010B	0.10	< 0.10
Arsenic	mg/L	7/11/2006 5:52:03 PM	6020	0.0050	< 0.0050
Boron	mg/L	7/12/2006 8:51:28 AM	6010B	0.50	< 0.50
Cadmium	mg/L	7/11/2006 5:52:03 PM	6020	0.0040	< 0.0040
Calcium	mg/L	7/12/2006 8:51:28 AM	6010B	10	**92**
Copper	mg/L	7/11/2006 5:52:03 PM	6020	0.0040	< 0.0040
Iron	mg/L	7/12/2006 8:51:28 AM	6010B	0.050	< 0.050
Lead	mg/L	7/11/2006 5:52:03 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	7/12/2006 8:51:28 AM	6010B	10	**18**
Manganese	mg/L	7/11/2006 5:52:03 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	7/12/2006 8:51:28 AM	6010B	0.10	< 0.10
Potassium	mg/L	7/12/2006 8:51:28 AM	6010B	1.0	**1.2**
Selenium	mg/L	7/12/2006 1:14:47 PM	6020	0.0050	< 0.0050
Sodium	mg/L	7/12/2006 8:51:28 AM	6010B	1.0	**8.7**
Zinc	mg/L	7/11/2006 5:52:03 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-06E
Field Sample ID: **CR-06-03-ABV**
Collected: 6/29/2006 9:00:00 AM
Received: 6/30/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	7/12/2006 8:55:20 AM	6010B	0.10	< 0.10
Arsenic	mg/L	7/11/2006 5:57:27 PM	6020	0.0050	**0.033**
Boron	mg/L	7/12/2006 8:55:20 AM	6010B	0.50	< 0.50
Cadmium	mg/L	7/11/2006 5:57:27 PM	6020	0.0040	< 0.0040
Calcium	mg/L	7/12/2006 8:55:20 AM	6010B	10	**110**
Copper	mg/L	7/11/2006 5:57:27 PM	6020	0.0040	< 0.0040
Iron	mg/L	7/12/2006 8:55:20 AM	6010B	0.050	< 0.050
Lead	mg/L	7/11/2006 5:57:27 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	7/12/2006 8:55:20 AM	6010B	10	**29**
Manganese	mg/L	7/11/2006 5:57:27 PM	6020	0.0050	**0.031**
Molybdenum	mg/L	7/12/2006 8:55:20 AM	6010B	0.10	< 0.10
Potassium	mg/L	7/12/2006 8:55:20 AM	6010B	1.0	**2.0**
Selenium	mg/L	7/12/2006 1:20:10 PM	6020	0.0050	< 0.0050
Sodium	mg/L	7/12/2006 8:55:20 AM	6010B	1.0	**8.7**
Zinc	mg/L	7/11/2006 5:57:27 PM	6020	0.010	**0.38**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-07E
Field Sample ID: **Scofield Res. 1**
Collected: 6/29/2006 11:30:00 AM
Received: 6/30/2006

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Salt Lake City, Utah
84115

(801) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	7/12/2006 9:03:05 AM	6010B	0.10	< 0.10
Arsenic	mg/L	7/11/2006 6:02:52 PM	6020	0.0050	< 0.0050
Boron	mg/L	7/12/2006 9:03:05 AM	6010B	0.50	< 0.50
Cadmium	mg/L	7/11/2006 6:02:52 PM	6020	0.0040	< 0.0040
Calcium	mg/L	7/12/2006 9:03:05 AM	6010B	10	**32**
Copper	mg/L	7/11/2006 6:02:52 PM	6020	0.0040	< 0.0040
Iron	mg/L	7/12/2006 9:03:05 AM	6010B	0.050	< 0.050
Lead	mg/L	7/11/2006 6:02:52 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	7/12/2006 9:03:05 AM	6010B	1.0	**16**
Manganese	mg/L	7/11/2006 6:02:52 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	7/12/2006 9:03:05 AM	6010B	0.10	< 0.10
Potassium	mg/L	7/12/2006 9:03:05 AM	6010B	1.0	**1.3**
Selenium	mg/L	7/12/2006 1:25:34 PM	6020	0.0050	< 0.0050
Sodium	mg/L	7/12/2006 9:03:05 AM	6010B	1.0	**8.4**
Zinc	mg/L	7/11/2006 6:02:52 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-01
Field Sample ID: **Miller Outlet**
Collected: 6/29/2006 12:00:00 PM
Received: 6/30/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	7/3/2006 8:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**220**
Ammonia (as N)	mg/L	7/7/2006 4:41:00 PM	350.1	0.050	**0.055**
Bicarbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	< 20
Chloride	mg/L	7/5/2006 12:05:29 PM	300.0	1.0	**8.8**
Hardness (as CaCO3)	mg/L	7/11/2006	2340B	10	**260**
Nitrate (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	**0.075**
Nitrite (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	6/30/2006	EPA 1664	3.0	**3.9**
Phosphate, ortho (as P)	mg/L	6/30/2006 12:20:00 PM	365.1	0.050	**0.077**
Settable Solids	ml/L	6/30/2006 10:30:00 AM	160.5	0.10	**0.20**
Sulfate	mg/L	7/5/2006 12:05:29 PM	300.0	10	**20**
TDS	mg/L	6/30/2006 3:00:00 PM	160.1	20	**200**
TSS	mg/L	6/30/2006 5:15:00 PM	160.2	3.0	**150**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-03
Field Sample ID: **Sulfer Spring**
Collected: 6/29/2006 11:00:00 AM
Received: 6/30/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	7/3/2006 8:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**330**
Ammonia (as N)	mg/L	7/7/2006 4:41:00 PM	350.1	0.050	**0.064**
Bicarbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**330**
Carbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	< 20
Chloride	mg/L	7/5/2006 1:45:11 AM	300.0	1.0	**6.2**
Hardness (as CaCO3)	mg/L	7/11/2006	2340B	10	**390**
Nitrate (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	6/30/2006	EPA 1664	3.0	**4.4**
Phosphate, ortho (as P)	mg/L	6/30/2006 12:20:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	6/30/2006 10:30:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	7/5/2006 1:45:11 AM	300.0	10	**44**
TDS	mg/L	6/30/2006 3:00:00 PM	160.1	20	**310**
TSS	mg/L	6/30/2006 5:15:00 PM	160.2	3.0	**6.0**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-04
Field Sample ID: **Mud Creek**
Collected: 6/29/2006 10:30:00 AM
Received: 6/30/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	7/3/2006 8:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**230**
Ammonia (as N)	mg/L	7/7/2006 4:41:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**180**
Carbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**55**
Chloride	mg/L	7/5/2006 2:51:40 AM	300.0	10	**14**
Hardness (as CaCO3)	mg/L	7/11/2006	2340B	10	**380**
Nitrate (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	**0.22**
Nitrite (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	6/30/2006	EPA 1664	3.0	**4.4**
Phosphate, ortho (as P)	mg/L	6/30/2006 12:20:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	6/30/2006 10:30:00 AM	160.5	0.10	**0.10**
Sulfate	mg/L	7/5/2006 2:51:40 AM	300.0	100	**160**
TDS	mg/L	6/30/2006 3:00:00 PM	160.1	20	**380**
TSS	mg/L	6/30/2006 5:15:00 PM	160.2	3.0	**21**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-05
Field Sample ID: **Angle Spring**
Collected: 6/29/2006 10:00:00 AM
Received: 6/30/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	7/3/2006 8:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**290**
Ammonia (as N)	mg/L	7/7/2006 4:41:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**290**
Carbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	< 20
Chloride	mg/L	7/5/2006 3:58:08 AM	300.0	10	**22**
Hardness (as CaCO3)	mg/L	7/11/2006	2340B	10	**330**
Nitrate (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	**0.94**
Nitrite (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	6/30/2006	EPA 1664	3.0	**3.1**
Phosphate, ortho (as P)	mg/L	6/30/2006 12:20:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	6/30/2006 10:30:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	7/5/2006 3:58:08 AM	300.0	10	**18**
TDS	mg/L	6/30/2006 3:00:00 PM	160.1	20	**280**
TSS	mg/L	6/30/2006 5:15:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-06
Field Sample ID: **CR-06-03-ABV**
Collected: 6/29/2006 9:00:00 AM
Received: 6/30/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	7/3/2006 8:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**380**
Ammonia (as N)	mg/L	7/7/2006 4:41:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**380**
Carbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	< 20
Chloride	mg/L	7/5/2006 5:37:53 AM	300.0	10	**17**
Hardness (as CaCO3)	mg/L	7/11/2006	2340B	10	**430**
Nitrate (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	< 0.010
Phosphate, ortho (as P)	mg/L	6/30/2006 12:20:00 PM	365.1	0.050	< 0.050
Sulfate	mg/L	7/5/2006 5:37:53 AM	300.0	10	**39**
TDS	mg/L	6/30/2006 3:00:00 PM	160.1	20	**370**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-07
Field Sample ID: **Scofield Res. 1**
Collected: 6/29/2006 11:30:00 AM
Received: 6/30/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	7/3/2006 8:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**160**
Ammonia (as N)	mg/L	7/7/2006 4:41:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**120**
Carbonate (As CaCO3)	mg/L	7/3/2006 7:40:00 AM	2320B	20	**31**
Chloride	mg/L	7/5/2006 7:17:35 AM	300.0	1.0	**6.9**
Hardness (as CaCO3)	mg/L	7/11/2006	2340B	10	**170**
Nitrate (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	6/30/2006 3:03:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	6/30/2006	EPA 1664	3.0	**3.2**
Phosphate, ortho (as P)	mg/L	6/30/2006 12:20:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	6/30/2006 10:30:00 AM	160.5	0.10	**0.70**
Sulfate	mg/L	7/5/2006 7:17:35 AM	300.0	10	**34**
TDS	mg/L	6/30/2006 3:00:00 PM	160.1	20	**96**
TSS	mg/L	6/30/2006 5:15:00 PM	160.2	3.0	**34**

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-29449	Arsenic	mg/L	6020	0.2148	0.2	0	107	85-115				7/11/2006
LCS-29449	Cadmium	mg/L	6020	0.2170	0.2	0	108	85-115				7/11/2006
LCS-29449	Copper	mg/L	6020	0.2021	0.2	0	101	85-115				7/11/2006
LCS-29449	Lead	mg/L	6020	0.2152	0.2	0	108	85-115				7/11/2006
LCS-29449	Manganese	mg/L	6020	0.2150	0.2	0.00446	105	85-115				7/11/2006
LCS-29449	Zinc	mg/L	6020	1.049	1	0	105	85-115				7/11/2006
LCS-29449	Selenium	mg/L	6020	0.2125	0.2	0	106	85-115				7/12/2006
LCS-29452	Iron	mg/L	6010B	1.125	1	0	113	75-125				7/11/2006
LCS-29452	Manganese	mg/L	6010B	0.2149	0.2	0	107	75-125				7/11/2006
LCS-29449	Aluminum	mg/L	6010B	0.9971	1	0	99.7	75-125				7/12/2006
LCS-29449	Boron	mg/L	6010B	1.063	1	0	106	75-125				7/12/2006
LCS-29449	Calcium	mg/L	6010B	10.48	10	0	105	75-125				7/12/2006
LCS-29449	Iron	mg/L	6010B	1.080	1	0	108	75-125				7/12/2006
LCS-29449	Magnesium	mg/L	6010B	10.79	10	0	108	75-125				7/12/2006
LCS-29449	Molybdenum	mg/L	6010B	0.2140	0.2	0	107	75-125				7/12/2006
LCS-29449	Potassium	mg/L	6010B	10.35	10	0	104	75-125				7/12/2006
LCS-29449	Sodium	mg/L	6010B	9.788	10	0	97.9	75-125				7/12/2006

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-29449	Arsenic	mg/L	6020	< 0.0050				-				7/11/2006
MB-29449	Cadmium	mg/L	6020	< 0.0040				-				7/11/2006
MB-29449	Lead	mg/L	6020	< 0.0050				-				7/11/2006
MB-29449	Manganese	mg/L	6020	< 0.0050				-				7/11/2006
MB-29449	Selenium	mg/L	6020	< 0.0050				-				7/11/2006
MB-29449	Copper	mg/L	6020	< 0.0040				-				7/12/2006
MB-29449	Zinc	mg/L	6020	< 0.010				-				7/12/2006
MB-29452	Iron	mg/L	6010B	< 0.050				-				7/11/2006
MB-29452	Manganese	mg/L	6010B	< 0.0050				-				7/11/2006
MB-29449	Aluminum	mg/L	6010B	< 0.10				-				7/12/2006
MB-29449	Boron	mg/L	6010B	< 0.50				-				7/12/2006
MB-29449	Calcium	mg/L	6010B	< 1.0				-				7/12/2006
MB-29449	Iron	mg/L	6010B	< 0.050				-				7/12/2006
MB-29449	Magnesium	mg/L	6010B	< 1.0				-				7/12/2006
MB-29449	Molybdenum	mg/L	6010B	< 0.10				-				7/12/2006
MB-29449	Potassium	mg/L	6010B	< 1.0				-				7/12/2006
MB-29449	Sodium	mg/L	6010B	< 1.0				-				7/12/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72660-07EMS	Arsenic	mg/L	6020	0.2215	0.2	0	111	70-130				7/11/2006
L72660-07EMS	Cadmium	mg/L	6020	0.2179	0.2	0	109	70-130				7/11/2006
L72660-07EMS	Copper	mg/L	6020	0.2005	0.2	0	100	70-130				7/11/2006
L72660-07EMS	Lead	mg/L	6020	0.2157	0.2	0	108	70-130				7/11/2006
L72660-07EMS	Manganese	mg/L	6020	0.2197	0.2	0.002477	109	70-130				7/11/2006
L72660-07EMS	Zinc	mg/L	6020	1.052	1	0.004945	105	70-130				7/11/2006
L72660-07EMS	Selenium	mg/L	6020	0.2252	0.2	0	113	70-130				7/12/2006
L72660-01DMS	Iron	mg/L	6010B	2.966	1	2.366	60.0	75-125			2	7/11/2006
L72660-01DMS	Manganese	mg/L	6010B	0.3310	0.2	0.134	98.5	75-125				7/11/2006
L72660-07EMS	Aluminum	mg/L	6010B	1.062	1	0	106	75-125				7/12/2006
L72660-07EMS	Boron	mg/L	6010B	1.141	1	0.04417	110	75-125				7/12/2006
L72660-07EMS	Calcium	mg/L	6010B	43.44	10	32.32	111	75-125				7/12/2006
L72660-07EMS	Iron	mg/L	6010B	1.084	1	0.0151	107	75-125				7/12/2006
L72660-07EMS	Magnesium	mg/L	6010B	26.84	10	16.49	104	75-125				7/12/2006
L72660-07EMS	Molybdenum	mg/L	6010B	0.2232	0.2	0	112	75-125				7/12/2006
L72660-07EMS	Potassium	mg/L	6010B	11.28	10	1.332	99.4	75-125				7/12/2006
L72660-07EMS	Sodium	mg/L	6010B	18.55	10	8.449	101	75-125				7/12/2006

[2] Analyte concentration is too high for accurate spike recovery.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72660-07EMSD	Arsenic	mg/L	6020	0.2265	0.2	0	113	70-130	2.26	20		7/11/2006
L72660-07EMSD	Cadmium	mg/L	6020	0.2212	0.2	0	111	70-130	1.49	20		7/11/2006
L72660-07EMSD	Copper	mg/L	6020	0.2019	0.2	0	101	70-130	0.664	20		7/11/2006
L72660-07EMSD	Lead	mg/L	6020	0.2175	0.2	0	109	70-130	0.826	20		7/11/2006
L72660-07EMSD	Manganese	mg/L	6020	0.2216	0.2	0.002477	110	70-130	0.869	20		7/11/2006
L72660-07EMSD	Zinc	mg/L	6020	1.060	1	0.004945	106	70-130	0.717	20		7/11/2006
L72660-07EMSD	Selenium	mg/L	6020	0.2321	0.2	0	116	70-130	2.98	20		7/12/2006
L72660-01DMSD	Iron	mg/L	6010B	3.092	1	2.366	72.5	75-125	4.14	20	2	7/11/2006
L72660-01DMSD	Manganese	mg/L	6010B	0.3447	0.2	0.134	105	75-125	4.05	20		7/11/2006
L72660-07EMSD	Aluminum	mg/L	6010B	1.041	1	0	104	75-125	2.01	20		7/12/2006
L72660-07EMSD	Boron	mg/L	6010B	1.111	1	0.04417	107	75-125	2.67	20		7/12/2006
L72660-07EMSD	Calcium	mg/L	6010B	44.21	10	32.32	119	75-125	1.76	20		7/12/2006
L72660-07EMSD	Iron	mg/L	6010B	1.100	1	0.0151	108	75-125	1.42	20		7/12/2006
L72660-07EMSD	Magnesium	mg/L	6010B	26.96	10	16.49	105	75-125	0.430	20		7/12/2006
L72660-07EMSD	Molybdenum	mg/L	6010B	0.2170	0.2	0	108	75-125	2.83	20		7/12/2006
L72660-07EMSD	Potassium	mg/L	6010B	11.46	10	1.332	101	75-125	1.62	20		7/12/2006
L72660-07EMSD	Sodium	mg/L	6010B	18.68	10	8.449	102	75-125	0.674	20		7/12/2006

[2] Analyte concentration is too high for accurate spike recovery.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72673-04DDUP	TDS	mg/L	160.1	348.0	0	352		-	1.14	20		6/30/2006
L72649-08DDUP	TDS	mg/L	160.1	760.0	0	784		-	3.11	20		6/30/2006
L72660-07ADUP	TDS	mg/L	160.1	108.0	0	96		-	11.8	20		6/30/2006
L72645-01ADUP	TSS	mg/L	160.2	4.000	0	4		-	0	20		6/30/2006
L72660-07ADUP	TSS	mg/L	160.2	36.00	0	34		-	5.71	20		6/30/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R59363	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				7/3/2006
LCS-R59442	Chloride	mg/L	300.0	5.056	5	0	101	90-110				7/5/2006
LCS-R59442	Sulfate	mg/L	300.0	5.241	5	0	105	90-110				7/5/2006
LCS-R59362	Acidity	mg/L	305.1	50.00	50	0	100	80-120				7/3/2006
LCS-29445	Ammonia (as N)	mg/L	350.1	0.9840	1	0	98.4	90-110				7/7/2006
LCS-29445	Ammonia (as N)	mg/L	350.1	0.9840	1	0	98.4	90-110				7/7/2006
LCS-59344	Nitrite (as N)	mg/L	353.2	0.9390	1	0	93.9	90-110				6/30/2006
LCS-59345	Nitrate (as N)	mg/L	353.2	0.9320	1	0	93.2	90-110				6/30/2006
LCS-R59352	Oil & Grease	mg/L	EPA 1664	35.60	40	0	89.0	79-114				6/30/2006
LCS-59340	Phosphate, ortho (as P)	mg/L	365.1	0.9230	1	0	92.3	90-110				6/30/2006
LCS-R59427	TDS	mg/L	160.1	198.0	205	0	96.6	80-120				6/30/2006
LCS-R59428	TDS	mg/L	160.1	190.0	205	0	92.7	80-120				6/30/2006
LCS-R59367	TSS	mg/L	160.2	99.00	100	0	99.0	80-120				6/30/2006

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463 West 3600 South
Salt Lake City, Utah 84115
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R59363	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				7/3/2006
MB-R59363	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				7/3/2006
MB-R59363	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				7/3/2006
MB-R59442	Chloride	mg/L	300.0	< 1.0				-				7/5/2006
MB-R59442	Sulfate	mg/L	300.0	< 1.0				-				7/5/2006
MB-R59362	Acidity	mg/L	305.1	< 15				-				7/3/2006
MB-29445	Ammonia (as N)	mg/L	350.1	< 0.050				-				7/7/2006
MB-29445	Ammonia (as N)	mg/L	350.1	< 0.050				-				7/7/2006
MB-59344	Nitrite (as N)	mg/L	353.2	< 0.010				-				6/30/2006
MB-59345	Nitrate (as N)	mg/L	353.2	< 0.010				-				6/30/2006
MB-R59352	Oil & Grease	mg/L	EPA 1664	< 3.0				-				6/30/2006
MB-59340	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				6/30/2006
MB-R59427	TDS	mg/L	160.1	< 10				-				6/30/2006
MB-R59428	TDS	mg/L	160.1	< 10				-				6/30/2006
MB-R59367	TSS	mg/L	160.2	< 3.0				-				6/30/2006

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72660-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	320.0	100	222	98.0	80-120				7/3/2006
L72660-06BMS	Chloride	mg/L	300.0	68.96	50	17.1	104	90-110				7/5/2006
L72660-06BMS	Sulfate	mg/L	300.0	90.12	50	39.09	102	90-110				7/5/2006
L72673-02CMS	Chloride	mg/L	300.0	661.3	500	142.3	104	90-110				7/5/2006
L72673-02CMS	Sulfate	mg/L	300.0	80.87	50	26.34	109	90-110				7/5/2006
L72660-06BMS	Acidity	mg/L	305.1	44.00	50	0	88.0	80-120				7/3/2006
L72649-01FMS	Ammonia (as N)	mg/L	350.1	0.9760	1	0	97.6	90-110				7/7/2006
L72660-03CMS	Ammonia (as N)	mg/L	350.1	1.054	1	0.064	99.0	90-110				7/7/2006
L72686-05AMS	Ammonia (as N)	mg/L	350.1	1.317	1	0.335	98.2	90-110				7/7/2006
L72660-01BMS	Nitrite (as N)	mg/L	353.2	0.9670	1	0.005	96.2	90-110				6/30/2006
L72660-01BMS	Nitrate (as N)	mg/L	353.2	0.9750	1	0.075	90.0	90-110				6/30/2006
L72660-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.008	1	0.077	93.1	90-110				6/30/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L72660-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	320.0	100	222	98.0	80-120	0	10		7/3/2006
L72660-06BMSD	Chloride	mg/L	300.0	68.48	50	17.1	103	90-110	0.709	20		7/5/2006
L72660-06BMSD	Sulfate	mg/L	300.0	89.73	50	39.09	101	90-110	0.440	20		7/5/2006
L72673-02CMSD	Chloride	mg/L	300.0	667.5	500	142.3	105	90-110	0.919	20		7/5/2006
L72673-02CMSD	Sulfate	mg/L	300.0	79.17	50	26.34	106	90-110	2.13	20		7/5/2006
L72660-06BMSD	Acidity	mg/L	305.1	46.00	50	0	92.0	80-120	4.44	20		7/3/2006
L72649-01FMSD	Ammonia (as N)	mg/L	350.1	0.9910	1	0	99.1	90-110	1.53	10		7/7/2006
L72660-03CMSD	Ammonia (as N)	mg/L	350.1	1.096	1	0.064	103	90-110	3.91	10		7/7/2006
L72686-05AMSD	Ammonia (as N)	mg/L	350.1	1.327	1	0.335	99.2	90-110	0.756	10		7/7/2006
L72660-01BMSD	Nitrite (as N)	mg/L	353.2	0.9590	1	0.005	95.4	90-110	0.831	10		6/30/2006
L72660-01BMSD	Nitrate (as N)	mg/L	353.2	1.036	1	0.075	96.1	90-110	6.07	10		6/30/2006
L72660-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.9970	1	0.077	92.0	90-110	1.10	10		6/30/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R59352	Oil & Grease	mg/L	EPA 1664	36.90	40	0	92.2	79-114				6/30/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R59352	Oil & Grease	mg/L	EPA 1664	33.90	40	0	84.8	79-114	8.47	18		6/30/2006

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American West Analytical Labs

WORK ORDER Summary

30-Jun-06

Work Order L72660

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+; Metals need to be filtered and preserved

DB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L72660-01A	Miller Outlet	6/29/2006 12:00:00 PM	6/30/2006	7/14/2006	Aqueous	SS	ww - tss/tds/ss	1
				7/14/2006		TDS-W	ww - tss/tds/ss	1
				7/14/2006		TSS-W	ww - tss/tds/ss	1
L72660-01B				7/14/2006		2320B-ALK-W	June 30 - wc	1
				7/14/2006		300.0-W	June 30 - wc	1
				7/14/2006		ACIDITY-W	June 30 - wc	1
				7/14/2006		NO2-W	June 30 - wc	1
				7/14/2006		NO3-W	June 30 - wc	1
				7/14/2006		PO4-O	June 30 - wc	1
L72660-01C				7/14/2006		NH3-W	June 30 - nh3	1
				7/14/2006		NH3-W-PREP	June 30 - nh3	1
L72660-01D				7/14/2006		3005A-ICPMS	June 30 - met	1
				7/14/2006		ICP-W	June 30 - met	1
L72660-01E				7/14/2006	Aqueous-Dissolved	3005A-Diss	June 30 - dis met	1
				7/14/2006		6020-W-DISS	June 30 - dis met	1
				7/14/2006		HARD	June 30 - dis met	1
				7/14/2006		ICP-W-DIS	June 30 - dis met	1
L72660-01F				7/14/2006	Aqueous	OGB-W	ogb	1
L72660-03A	Sulfer Spring	6/29/2006 11:00:00 AM		7/14/2006		SS	ww - tss/tds/ss	1
				7/14/2006		TDS-W	ww - tss/tds/ss	1
				7/14/2006		TSS-W	ww - tss/tds/ss	1
L72660-03B				7/14/2006		2320B-ALK-W	June 30 - wc	1
				7/14/2006		300.0-W	June 30 - wc	1
				7/14/2006		ACIDITY-W	June 30 - wc	1
				7/14/2006		NO2-W	June 30 - wc	1
				7/14/2006		NO3-W	June 30 - wc	1
				7/14/2006		PO4-O	June 30 - wc	1

WORK ORDER Summary

30-Jun-06

Work Order L72660

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+; Metals need to be filtered and preserved

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L72660-03C	Sulfer Spring	6/29/2006 11:00:00 AM	6/30/2006	7/14/2006	Aqueous	NH3-W	June 30 - nh3	1
				7/14/2006		NH3-W-PREP	June 30 - nh3	1
L72660-03D				7/14/2006		3005A-ICPMS	June 30 - met	1
				7/14/2006		ICP-W	June 30 - met	1
L72660-03E				7/14/2006	Aqueous-Dissolved	3005A-Diss	June 30 - dis met	1
				7/14/2006		6020-W-DISS	June 30 - dis met	1
				7/14/2006		HARD	June 30 - dis met	1
				7/14/2006		ICP-W-DIS	June 30 - dis met	1
L72660-03F				7/14/2006	Aqueous	OGB-W	ogb	1
L72660-04A	Mud Creek	6/29/2006 10:30:00 AM		7/14/2006		SS	ww - tss/tds/ss	1
				7/14/2006		TDS-W	ww - tss/tds/ss	1
				7/14/2006		TSS-W	ww - tss/tds/ss	1
L72660-04B				7/14/2006		2320B-ALK-W	June 30 - wc	1
				7/14/2006		300.0-W	June 30 - wc	1
				7/14/2006		ACIDITY-W	June 30 - wc	1
				7/14/2006		NO2-W	June 30 - wc	1
				7/14/2006		NO3-W	June 30 - wc	1
				7/14/2006		PO4-O	June 30 - wc	1
L72660-04C				7/14/2006		NH3-W	June 30 - nh3	1
				7/14/2006		NH3-W-PREP	June 30 - nh3	1
L72660-04D				7/14/2006		3005A-ICPMS	June 30 - met	1
				7/14/2006		ICP-W	June 30 - met	1
L72660-04E				7/14/2006	Aqueous-Dissolved	3005A-Diss	June 30 - dis met	1
				7/14/2006		6020-W-DISS	June 30 - dis met	1
				7/14/2006		HARD	June 30 - dis met	1
				7/14/2006		ICP-W-DIS	June 30 - dis met	1
L72660-04F				7/14/2006	Aqueous	OGB-W	ogb	1
L72660-05A	Angle Spring	6/29/2006 10:00:00 AM		7/14/2006		SS	ww - tss/tds/ss	1

WORK ORDER Summary

30-Jun-06

Work Order L72660

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+; Metals need to be filtered and preserved

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L72660-05A	Angle Spring	6/29/2006 10:00:00 AM	6/30/2006	7/14/2006	Aqueous	TDS-W	ww - tss/tds/ss	1
				7/14/2006		TSS-W	ww - tss/tds/ss	1
L72660-05B				7/14/2006		2320B-ALK-W	June 30 - wc	1
				7/14/2006		300.0-W	June 30 - wc	1
				7/14/2006		ACIDITY-W	June 30 - wc	1
				7/14/2006		NO2-W	June 30 - wc	1
				7/14/2006		NO3-W	June 30 - wc	1
				7/14/2006		PO4-O	June 30 - wc	1
L72660-05C				7/14/2006		NH3-W	June 30 - nh3	1
				7/14/2006		NH3-W-PREP	June 30 - nh3	1
L72660-05D				7/14/2006		3005A-ICPMS	June 30 - met	1
				7/14/2006		ICP-W	June 30 - met	1
L72660-05E				7/14/2006	Aqueous-Dissolved	3005A-Diss	June 30 - dis met	1
				7/14/2006		6020-W-DISS	June 30 - dis met	1
				7/14/2006		HARD	June 30 - dis met	1
				7/14/2006		ICP-W-DIS	June 30 - dis met	1
L72660-05F				7/14/2006	Aqueous	OGB-W	ogb	1
L72660-06A	CR-06-03-ABV	6/29/2006 9:00:00 AM		7/14/2006		TDS-W	ww - /tds/	1
L72660-06B				7/14/2006		2320B-ALK-W	June 30 - wc	1
				7/14/2006		300.0-W	June 30 - wc	1
				7/14/2006		ACIDITY-W	June 30 - wc	1
				7/14/2006		NO2-W	June 30 - wc	1
				7/14/2006		NO3-W	June 30 - wc	1
				7/14/2006		PO4-O	June 30 - wc	1
L72660-06C				7/14/2006		NH3-W	June 30 - nh3	1
				7/14/2006		NH3-W-PREP	June 30 - nh3	1
L72660-06D				7/14/2006		3005A-ICPMS	June 30 - met	1
				7/14/2006		ICP-W	June 30 - met	1

WORK ORDER Summary

30-Jun-06

Work Order L72660

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+; Metals need to be filtered and preserved

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L72660-06E	CR-06-03-ABV	6/29/2006 9:00:00 AM	6/30/2006	7/14/2006	Aqueous-Dissolved	3005A-Diss	June 30 - dis met	1
				7/14/2006		6020-W-DISS	June 30 - dis met	1
				7/14/2006		HARD	June 30 - dis met	1
				7/14/2006		ICP-W-DIS	June 30 - dis met	1
L72660-07A	Scofield Res. 1	6/29/2006 11:30:00 AM		7/14/2006	Aqueous	SS	ww - tss/tds/ss	1
				7/14/2006		TDS-W	ww - tss/tds/ss	1
				7/14/2006		TSS-W	ww - tss/tds/ss	1
L72660-07B				7/14/2006		2320B-ALK-W	June 30 - wc	1
				7/14/2006		300.0-W	June 30 - wc	1
				7/14/2006		ACIDITY-W	June 30 - wc	1
				7/14/2006		NO2-W	June 30 - wc	1
				7/14/2006		NO3-W	June 30 - wc	1
				7/14/2006		PO4-O	June 30 - wc	1
L72660-07C				7/14/2006		NH3-W	June 30 - nh3	1
				7/14/2006		NH3-W-PREP	June 30 - nh3	1
L72660-07D				7/14/2006		3005A-ICPMS	June 30 - met	1
				7/14/2006		ICP-W	June 30 - met	1
L72660-07E				7/14/2006	Aqueous-Dissolved	3005A-Diss	June 30 - dis met	1
				7/14/2006		6020-W-DISS	June 30 - dis met	1
				7/14/2006		HARD	June 30 - dis met	1
				7/14/2006		ICP-W-DIS	June 30 - dis met	1
L72660-07F				7/14/2006	Aqueous	OGB-W	ogb	1

Client Carbon Resources / Rock Logic Consulting
Address PO Box 544
Cedaredge CO 81413
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name Scofield Baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 72660
Page of

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

	Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Table 4	Table 3	COMMENTS
1	Miller Outlet	6-29-06/12:00	W	6		✓	
2	Miller Spring	6-29-06/12:30	W	6		✓	Not rec.
3	Sulfer Spring	6-29-06/11:00	W	6		✓	
4	Mud Creek	6-29-06/10:30	W	6		✓	
5	Angle Spring	6-29-06/10:00	W	6		✓	
6	CR-06-03-ABV	6-29-06/9:00	W	5	✓		
7	Scofield Res. 1	6-29-06/11:30	W	5		✓	

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature 2°
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved (Y) N
Notes:
6 Received Within Holding Times (Y) N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

DB

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 20:51	PRINT NAME JEFFREY D. LINDSAY
Relinquished By: Signature	Date 30JUN06	Received By: Signature Denise Bruun
PRINT NAME JEFFREY D. LINDSAY	Time 8:09 AM	PRINT NAME Denise Bruun
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

Please filter for dissolved metals

Client was called

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Temperature	°C

		LABORATORY MEASUREMENTS		
*	-	Total Dissolved Solids		mg/l
*	-	Total Hardness ($CaCO_3$)		mg/l
*	-	Total Alkalinity		mg/l
	-	Acidity		mg/l
	-	Aluminum (Dissolved)		mg/l
	-	Arsenic (Dissolved)		mg/l
	-	Boron (Dissolved)[1]		mg/l
*	-	Carbonate		mg/l
*	-	Bicarbonate		mg/l
	-	Cadmium (Dissolved)		mg/l
*	-	Calcium (Dissolved)		mg/l
*	-	Chloride	mg/l	
	-	Copper (Dissolved)		mg/l
*	-	Iron (Dissolved)		mg/l
*	-	Iron (Total)		mg/l
	-	Lead (Dissolved)	mg/l	
*	-	Magnesium (Dissolved)		mg/l
*	-	Manganese (Dissolved)		mg/l
*	-	Manganese (Total)		mg/l
	-	Molybdenum (Dissolved)		mg/l
	-	Ammonia		mg/l
	-	Nitrates		mg/l
	-	Nitrites		mg/l
*	-	Potassium (Dissolved)		mg/l
	-	Phosphate (Ortho)		mg/l
	-	Selenium[1] (Dissolved)		mg/l
*	-	Sodium (Dissolved)		mg/l
*	-	Sulfate		mg/l
	-	Zinc (Dissolved)	mg/l	
*	-	Cations		meq/l
*	-	Anions		meq/l

---

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 72660

Preservation Check Sheet

		Sample Set Extension and pH																
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓																
COD[1]	pH <2 H_2SO_4																	
Cyanide	PH >12 NaOH																	
Metals	pH <2 HNO_3	✓																
NO_2 & NO_3[1]	pH <2 H_2SO_4																	
Nutrients[1]	pH <2 H_2SO_4																	
O & G	pH <2 HCL	✓																
Phenols[2]	pH <2 H_2SO_4																	
Sulfide	pH > 9NaOH, Zn Acetate																	
TKN[1]	pH <2 H_2SO_4																	
TOC	pH <2 H_3PO_4																	
TOX[2]	pH <2 H_2SO_4																	
T PO_4[1]	pH <2 H_2SO_4																	

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

August 15, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L73160

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 8/1/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-01D
Field Sample ID: **CR-06-03 ABV**
Collected: 7/31/2006 4:30:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	8/8/2006 3:53:09 PM	6010B	0.050	**0.64**
Manganese	mg/L	8/8/2006 3:53:09 PM	6010B	0.0050	**0.022**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-02D
Field Sample ID: **Angle Spring**
Collected: 7/31/2006 6:30:00 PM
Received: 8/1/2006

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463 West 3600 South
Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	8/8/2006 3:57:02 PM	6010B	0.050	< 0.050
Manganese	mg/L	8/8/2006 3:57:02 PM	6010B	0.0050	< 0.0050

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-03D
Field Sample ID: **Mud Creek**
Collected: 7/31/2006 6:00:00 PM
Received: 8/1/2006

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Salt Lake City, Utah
84115

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	8/8/2006 4:00:55 PM	6010B	0.050	**0.24**
Manganese	mg/L	8/8/2006 4:00:55 PM	6010B	0.0050	**0.033**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-04D
Field Sample ID: **Sulfer Spring**
Collected: 7/31/2006 7:30:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	8/8/2006 4:04:49 PM	6010B	0.050	< 0.050
Manganese	mg/L	8/8/2006 4:04:49 PM	6010B	0.0050	**0.029**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-05D
Field Sample ID: **Scofield Res. 1**
Collected: 7/31/2006 8:00:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	8/8/2006 4:08:45 PM	6010B	0.050	**0.096**
Manganese	mg/L	8/8/2006 4:08:45 PM	6010B	0.0050	**0.068**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-06D
Field Sample ID: **Miller Outlet**
Collected: 7/31/2006 8:50:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Iron	mg/L	8/8/2006 4:16:33 PM	6010B	0.050	**2.4**	[1]
Manganese	mg/L	8/8/2006 4:16:33 PM	6010B	0.0050	**0.13**	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-01E
Field Sample ID: **CR-06-03 ABV**
Collected: 7/31/2006 4:30:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	8/14/2006 6:31:14 PM	6010B	0.10	**0.12**
Arsenic	mg/L	8/4/2006 6:04:32 PM	6020	0.0050	**0.035**
Boron	mg/L	8/14/2006 6:31:14 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/4/2006 6:04:32 PM	6020	0.0040	< 0.0040
Calcium	mg/L	8/15/2006 9:32:00 AM	6010B	10	**120**
Copper	mg/L	8/4/2006 6:04:32 PM	6020	0.0040	< 0.0040
Iron	mg/L	8/14/2006 6:31:14 PM	6010B	0.050	< 0.050
Lead	mg/L	8/4/2006 6:04:32 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	8/14/2006 6:31:14 PM	6010B	1.0	**29**
Manganese	mg/L	8/4/2006 6:04:32 PM	6020	0.0050	**0.021**
Molybdenum	mg/L	8/14/2006 6:31:14 PM	6010B	0.10	< 0.10
Potassium	mg/L	8/14/2006 6:31:14 PM	6010B	1.0	**1.9**
Selenium	mg/L	8/4/2006 6:04:32 PM	6020	0.0050	< 0.0050
Sodium	mg/L	8/15/2006 10:10:31 AM	6010B	1.0	**9.0**
Zinc	mg/L	8/4/2006 6:04:32 PM	6020	0.010	**0.28**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-02E
Field Sample ID: **Angle Spring**
Collected: 7/31/2006 6:30:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	8/14/2006 6:35:07 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/4/2006 6:09:55 PM	6020	0.0050	< 0.0050
Boron	mg/L	8/14/2006 6:35:07 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/4/2006 6:09:55 PM	6020	0.0040	< 0.0040
Calcium	mg/L	8/15/2006 9:35:53 AM	6010B	10	**96**
Copper	mg/L	8/4/2006 6:09:55 PM	6020	0.0040	< 0.0040
Iron	mg/L	8/14/2006 6:35:07 PM	6010B	0.050	< 0.050
Lead	mg/L	8/4/2006 6:09:55 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	8/14/2006 6:35:07 PM	6010B	1.0	**18**
Manganese	mg/L	8/4/2006 6:09:55 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	8/14/2006 6:35:07 PM	6010B	0.10	< 0.10
Potassium	mg/L	8/14/2006 6:35:07 PM	6010B	1.0	**1.1**
Selenium	mg/L	8/4/2006 6:09:55 PM	6020	0.0050	< 0.0050
Sodium	mg/L	8/15/2006 10:14:27 AM	6010B	1.0	**9.4**
Zinc	mg/L	8/4/2006 6:09:55 PM	6020	0.010	**0.021**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-03E
Field Sample ID: **Mud Creek**
Collected: 7/31/2006 6:00:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	8/14/2006 6:39:10 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/4/2006 6:15:19 PM	6020	0.0050	< 0.0050
Boron	mg/L	8/14/2006 6:39:10 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/4/2006 6:15:19 PM	6020	0.0040	< 0.0040
Calcium	mg/L	8/15/2006 9:39:48 AM	6010B	10	**70**
Copper	mg/L	8/4/2006 6:15:19 PM	6020	0.0040	< 0.0040
Iron	mg/L	8/14/2006 6:39:10 PM	6010B	0.050	< 0.050
Lead	mg/L	8/4/2006 6:15:19 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	8/14/2006 6:39:10 PM	6010B	1.0	**38**
Manganese	mg/L	8/4/2006 6:15:19 PM	6020	0.0050	**0.019**
Molybdenum	mg/L	8/14/2006 6:39:10 PM	6010B	0.10	< 0.10
Potassium	mg/L	8/14/2006 6:39:10 PM	6010B	1.0	**6.1**
Selenium	mg/L	8/4/2006 6:15:19 PM	6020	0.0050	< 0.0050
Sodium	mg/L	8/15/2006 10:18:20 AM	6010B	1.0	**27**
Zinc	mg/L	8/4/2006 6:15:19 PM	6020	0.010	**0.019**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-04E
Field Sample ID: **Sulfer Spring**
Collected: 7/31/2006 7:30:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	8/14/2006 6:47:09 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/4/2006 6:20:42 PM	6020	0.0050	< 0.0050
Boron	mg/L	8/14/2006 6:47:09 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/4/2006 6:20:42 PM	6020	0.0040	< 0.0040
Calcium	mg/L	8/15/2006 9:47:37 AM	6010B	10	**90** [2]
Copper	mg/L	8/4/2006 6:20:42 PM	6020	0.0040	< 0.0040
Iron	mg/L	8/14/2006 6:47:09 PM	6010B	0.050	< 0.050
Lead	mg/L	8/4/2006 6:20:42 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	8/14/2006 6:47:09 PM	6010B	1.0	**35**
Manganese	mg/L	8/4/2006 6:20:42 PM	6020	0.0050	**0.030**
Molybdenum	mg/L	8/14/2006 6:47:09 PM	6010B	0.10	< 0.10
Potassium	mg/L	8/14/2006 6:47:09 PM	6010B	1.0	**4.5**
Selenium	mg/L	8/4/2006 6:20:42 PM	6020	0.0050	< 0.0050
Sodium	mg/L	8/15/2006 10:26:08 AM	6010B	1.0	**8.4**
Zinc	mg/L	8/4/2006 6:20:42 PM	6020	0.010	**0.022**

[2] *Analyte concentration is too high for accurate spike recovery.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-05E
Field Sample ID: **Scofield Res. 1**
Collected: 7/31/2006 8:00:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	8/14/2006 7:15:21 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/4/2006 6:58:25 PM	6020	0.0050	< 0.0050
Boron	mg/L	8/14/2006 7:15:21 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/4/2006 6:58:25 PM	6020	0.0040	< 0.0040
Calcium	mg/L	8/14/2006 7:15:21 PM	6010B	1.0	**28**
Copper	mg/L	8/4/2006 6:58:25 PM	6020	0.0040	< 0.0040
Iron	mg/L	8/14/2006 7:15:21 PM	6010B	0.050	< 0.050
Lead	mg/L	8/4/2006 6:58:25 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	8/14/2006 7:15:21 PM	6010B	1.0	**20**
Manganese	mg/L	8/4/2006 6:58:25 PM	6020	0.0050	**0.014**
Molybdenum	mg/L	8/14/2006 7:15:21 PM	6010B	0.10	< 0.10
Potassium	mg/L	8/14/2006 7:15:21 PM	6010B	1.0	**2.8**
Selenium	mg/L	8/4/2006 6:58:25 PM	6020	0.0050	**0.0056**
Sodium	mg/L	8/15/2006 10:41:48 AM	6010B	1.0	**11**
Zinc	mg/L	8/4/2006 6:58:25 PM	6020	0.010	**0.018**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-06E
Field Sample ID: **Miller Outlet**
Collected: 7/31/2006 8:50:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	8/14/2006 7:19:19 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/4/2006 7:03:49 PM	6020	0.0050	< 0.0050
Boron	mg/L	8/14/2006 7:19:19 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/4/2006 7:03:49 PM	6020	0.0040	< 0.0040
Calcium	mg/L	8/14/2006 7:19:19 PM	6010B	1.0	**67**
Copper	mg/L	8/4/2006 7:03:49 PM	6020	0.0040	< 0.0040
Iron	mg/L	8/14/2006 7:19:19 PM	6010B	0.050	< 0.050
Lead	mg/L	8/4/2006 7:03:49 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	8/14/2006 7:19:19 PM	6010B	1.0	**15**
Manganese	mg/L	8/4/2006 7:03:49 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	8/14/2006 7:19:19 PM	6010B	0.10	< 0.10
Potassium	mg/L	8/14/2006 7:19:19 PM	6010B	1.0	**2.4**
Selenium	mg/L	8/4/2006 7:03:49 PM	6020	0.0050	< 0.0050
Sodium	mg/L	8/15/2006 10:45:43 AM	6010B	1.0	**5.8**
Zinc	mg/L	8/4/2006 7:03:49 PM	6020	0.010	**0.020**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-01
Field Sample ID: **CR-06-03 ABV**
Collected: 7/31/2006 4:30:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/2/2006 8:10:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**380**
Ammonia (as N)	mg/L	8/4/2006 12:43:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**380**
Carbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	< 20
Chloride	mg/L	8/8/2006 11:46:14 AM	300.0	10	**63**
Hardness (as CaCO3)	mg/L	8/15/2006	2340B	10	**430**
Nitrate (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	**0.069**
Nitrite (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	< 0.010
Phosphate, ortho (as P)	mg/L	8/2/2006 8:14:00 AM	365.1	0.050	< 0.050 [1]
Sulfate	mg/L	8/8/2006 11:46:14 AM	300.0	10	**42**
TDS	mg/L	8/3/2006 1:30:00 PM	160.1	20	**370**

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-02
Field Sample ID: **Angle Spring**
Collected: 7/31/2006 6:30:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/2/2006 8:10:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**290**
Ammonia (as N)	mg/L	8/4/2006 12:43:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	< 20
Carbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	< 20
Chloride	mg/L	8/8/2006 12:19:28 PM	300.0	10	**67**
Hardness (as CaCO3)	mg/L	8/15/2006	2340B	10	**310**
Nitrate (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	**1.0**
Nitrite (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/8/2006	EPA 1664	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	8/2/2006 8:14:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	8/2/2006 12:15:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	8/8/2006 12:19:28 PM	300.0	10	**18**
TDS	mg/L	8/3/2006 1:30:00 PM	160.1	20	**290**
TSS	mg/L	8/2/2006 4:15:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-03
Field Sample ID: **Mud Creek**
Collected: 7/31/2006 6:00:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/2/2006 8:10:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**230**
Ammonia (as N)	mg/L	8/4/2006 12:43:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**< 20**
Chloride	mg/L	8/8/2006 12:52:43 PM	300.0	10	**63**
Hardness (as CaCO3)	mg/L	8/15/2006	2340B	10	**330**
Nitrate (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	**0.14**
Nitrite (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/8/2006	EPA 1664	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	8/2/2006 8:14:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	8/2/2006 12:15:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	8/8/2006 12:52:43 PM	300.0	100	**160**
TDS	mg/L	8/3/2006 1:30:00 PM	160.1	20	**380**
TSS	mg/L	8/2/2006 4:15:00 PM	160.2	3.0	**11**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-04
Field Sample ID: **Sulfer Spring**
Collected: 7/31/2006 7:30:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/2/2006 8:10:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**340**
Ammonia (as N)	mg/L	8/4/2006 12:43:00 PM	350.1	0.050	**0.089**
Bicarbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**340**
Carbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**< 20**
Chloride	mg/L	8/4/2006 6:27:36 AM	300.0	1.0	**6.3**
Hardness (as CaCO3)	mg/L	8/15/2006	2340B	10	**370**
Nitrate (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/8/2006	EPA 1664	3.0	**3.2**
Phosphate, ortho (as P)	mg/L	8/2/2006 8:14:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	8/2/2006 12:15:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	8/4/2006 6:27:36 AM	300.0	10	**47**
TDS	mg/L	8/3/2006 1:30:00 PM	160.1	20	**330**
TSS	mg/L	8/2/2006 4:15:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-05
Field Sample ID: **Scofield Res. 1**
Collected: 7/31/2006 8:00:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/2/2006 8:10:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**170**
Ammonia (as N)	mg/L	8/4/2006 12:43:00 PM	350.1	0.050	**0.055**
Bicarbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**26**
Carbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**140**
Chloride	mg/L	8/5/2006 12:33:41 PM	300.0	1.0	**9.9**
Hardness (as CaCO3)	mg/L	8/14/2006	2340B	10	**150**
Nitrate (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	**0.081**
Nitrite (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/8/2006	EPA 1664	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	8/2/2006 8:14:00 AM	365.1	0.050	**0.12**
Settable Solids	ml/L	8/2/2006 12:15:00 PM	160.5	0.10	**0.50**
Sulfate	mg/L	8/5/2006 12:33:41 PM	300.0	10	**24**
TDS	mg/L	8/3/2006 1:30:00 PM	160.1	20	**170**
TSS	mg/L	8/2/2006 4:15:00 PM	160.2	3.0	**26**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-06
Field Sample ID: **Miller Outlet**
Collected: 7/31/2006 8:50:00 PM
Received: 8/1/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/2/2006 8:10:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**210**
Ammonia (as N)	mg/L	8/4/2006 12:43:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	**210**
Carbonate (As CaCO3)	mg/L	8/2/2006 7:30:00 AM	2320B	20	< 20
Hardness (as CaCO3)	mg/L	8/14/2006	2340B	10	**230**
Nitrate (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	**0.14**
Nitrite (as N)	mg/L	8/2/2006 11:01:00 AM	353.2	0.010	**0.015**
Oil & Grease	mg/L	8/8/2006	EPA 1664	3.0	**3.4**
Phosphate, ortho (as P)	mg/L	8/2/2006 8:14:00 AM	365.1	0.050	**0.078**
Settable Solids	ml/L	8/2/2006 12:15:00 PM	160.5	0.10	**0.20**
TDS	mg/L	8/3/2006 1:30:00 PM	160.1	20	**620**
TSS	mg/L	8/2/2006 4:15:00 PM	160.2	3.0	**100**

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-29902	Arsenic	mg/L	6020	0.2129	0.2	0	106	85-115				8/4/2006
LCS-29902	Cadmium	mg/L	6020	0.2136	0.2	0	107	85-115				8/4/2006
LCS-29902	Copper	mg/L	6020	0.2092	0.2	0	105	85-115				8/4/2006
LCS-29902	Lead	mg/L	6020	0.2157	0.2	0	108	85-115				8/4/2006
LCS-29902	Manganese	mg/L	6020	0.2106	0.2	0.001927	104	85-115				8/4/2006
LCS-29902	Selenium	mg/L	6020	0.2206	0.2	0.001802	109	85-115				8/4/2006
LCS-29902	Zinc	mg/L	6020	1.074	1	0	107	85-115				8/4/2006
LCS-29903	Iron	mg/L	6010B	1.080	1	0	108	75-125				8/8/2006
LCS-29903	Manganese	mg/L	6010B	0.2125	0.2	0	106	75-125				8/8/2006
LCS-29902	Aluminum	mg/L	6010B	1.011	1	0	101	75-125				8/14/2006
LCS-29902	Boron	mg/L	6010B	1.044	1	0	104	75-125				8/14/2006
LCS-29902	Calcium	mg/L	6010B	10.69	10	0	107	75-125				8/14/2006
LCS-29902	Iron	mg/L	6010B	1.065	1	0	107	75-125				8/14/2006
LCS-29902	Magnesium	mg/L	6010B	10.52	10	0	105	75-125				8/14/2006
LCS-29902	Molybdenum	mg/L	6010B	0.2065	0.2	0	103	75-125				8/14/2006
LCS-29902	Potassium	mg/L	6010B	9.907	10	0	99.1	75-125				8/14/2006
LCS-29902	Sodium	mg/L	6010B	10.19	10	0	102	75-125				8/15/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-29902	Arsenic	mg/L	6020	< 0.0050				-				8/4/2006
MB-29902	Cadmium	mg/L	6020	< 0.0040				-				8/4/2006
MB-29902	Copper	mg/L	6020	< 0.0040				-				8/4/2006
MB-29902	Lead	mg/L	6020	< 0.0050				-				8/4/2006
MB-29902	Manganese	mg/L	6020	< 0.0050				-				8/4/2006
MB-29902	Selenium	mg/L	6020	< 0.0050				-				8/4/2006
MB-29902	Zinc	mg/L	6020	< 0.010				-				8/7/2006
MB-29903	Iron	mg/L	6010B	< 0.050				-				8/8/2006
MB-29903	Manganese	mg/L	6010B	< 0.0050				-				8/8/2006
MB-29902	Aluminum	mg/L	6010B	< 0.10				-				8/14/2006
MB-29902	Boron	mg/L	6010B	< 0.50				-				8/14/2006
MB-29902	Calcium	mg/L	6010B	< 1.0				-				8/14/2006
MB-29902	Iron	mg/L	6010B	< 0.050				-				8/14/2006
MB-29902	Magnesium	mg/L	6010B	< 1.0				-				8/14/2006
MB-29902	Molybdenum	mg/L	6010B	< 0.10				-				8/14/2006
MB-29902	Potassium	mg/L	6010B	< 1.0				-				8/14/2006
MB-29902	Sodium	mg/L	6010B	< 1.0				-				8/15/2006

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73160-04EMS	Arsenic	mg/L	6020	0.2264	0.2	0.001839	112	70-130				8/4/2006
L73160-04EMS	Cadmium	mg/L	6020	0.2152	0.2	0	108	70-130				8/4/2006
L73160-04EMS	Copper	mg/L	6020	0.2021	0.2	0.001012	101	70-130				8/4/2006
L73160-04EMS	Lead	mg/L	6020	0.2138	0.2	0	107	70-130				8/4/2006
L73160-04EMS	Manganese	mg/L	6020	0.2356	0.2	0.02986	103	70-130				8/4/2006
L73160-04EMS	Selenium	mg/L	6020	0.2311	0.2	0	116	70-130				8/4/2006
L73160-04EMS	Zinc	mg/L	6020	1.067	1	0.02222	104	70-130				8/4/2006
L73160-06DMS	Iron	mg/L	6010B	3.629	1	2.362	127	75-125			[1]	8/8/2006
L73160-06DMS	Manganese	mg/L	6010B	0.3391	0.2	0.1298	105	75-125				8/8/2006
L73160-04EMS	Aluminum	mg/L	6010B	1.011	1	0.04262	96.9	75-125				8/14/2006
L73160-04EMS	Boron	mg/L	6010B	1.091	1	0.01136	108	75-125				8/14/2006
L73160-04EMS	Iron	mg/L	6010B	1.070	1	0.01166	106	75-125				8/14/2006
L73160-04EMS	Magnesium	mg/L	6010B	43.34	10	34.53	88.1	75-125				8/14/2006
L73160-04EMS	Molybdenum	mg/L	6010B	0.2041	0.2	0	102	75-125				8/14/2006
L73160-04EMS	Potassium	mg/L	6010B	15.37	10	4.482	109	75-125				8/14/2006
L73160-04EMS	Calcium	mg/L	6010B	96.23	10	89.88	63.5	75-125			[2]	8/15/2006
L73160-04EMS	Sodium	mg/L	6010B	18.65	10	8.392	103	75-125				8/15/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73160-04EMSD	Arsenic	mg/L	6020	0.2288	0.2	0.001839	113	70-130	1.07	20		8/4/2006
L73160-04EMSD	Cadmium	mg/L	6020	0.2167	0.2	0	108	70-130	0.691	20		8/4/2006
L73160-04EMSD	Copper	mg/L	6020	0.1959	0.2	0.001012	97.4	70-130	3.10	20		8/4/2006
L73160-04EMSD	Lead	mg/L	6020	0.2143	0.2	0	107	70-130	0.229	20		8/4/2006
L73160-04EMSD	Manganese	mg/L	6020	0.2348	0.2	0.02986	102	70-130	0.329	20		8/4/2006
L73160-04EMSD	Selenium	mg/L	6020	0.2332	0.2	0	117	70-130	0.928	20		8/4/2006
L73160-04EMSD	Zinc	mg/L	6020	1.061	1	0.02222	104	70-130	0.549	20		8/4/2006
L73160-06DMSD	Iron	mg/L	6010B	3.664	1	2.362	130	75-125	0.984	20	1	8/8/2006
L73160-06DMSD	Manganese	mg/L	6010B	0.3398	0.2	0.1298	105	75-125	0.182	20		8/8/2006
L73160-04EMSD	Aluminum	mg/L	6010B	1.053	1	0.04262	101	75-125	4.04	20		8/14/2006
L73160-04EMSD	Boron	mg/L	6010B	1.111	1	0.01136	110	75-125	1.83	20		8/14/2006
L73160-04EMSD	Iron	mg/L	6010B	1.075	1	0.01166	106	75-125	0.471	20		8/14/2006
L73160-04EMSD	Magnesium	mg/L	6010B	44.79	10	34.53	103	75-125	3.30	20		8/14/2006
L73160-04EMSD	Molybdenum	mg/L	6010B	0.2083	0.2	0	104	75-125	2.05	20		8/14/2006
L73160-04EMSD	Potassium	mg/L	6010B	15.83	10	4.482	113	75-125	2.92	20		8/14/2006
L73160-04EMSD	Calcium	mg/L	6010B	99.43	10	89.88	95.4	75-125	3.27	20		8/15/2006
L73160-04EMSD	Sodium	mg/L	6010B	19.05	10	8.392	107	75-125	2.10	20		8/15/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73160-06ADUP	TDS	mg/L	160.1	604.0	0	624		-	3.26	20		8/3/2006
L73160-06ADUP	TSS	mg/L	160.2	106.0	0	104		-	1.90	20		8/2/2006

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R60230	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				8/2/2006
LCS-R60477	Chloride	mg/L	300.0	4.825	5	0	96.5	90-110				8/8/2006
LCS-R60477	Sulfate	mg/L	300.0	5.338	5	0	107	90-110				8/8/2006
LCS-R60231	Acidity	mg/L	305.1	55.00	50	0	110	80-120				8/2/2006
LCS-29858	Ammonia (as N)	mg/L	350.1	0.9210	1	0	92.1	90-110				8/4/2006
LCS-60243	Nitrite (as N)	mg/L	353.2	1.047	1	0	105	90-110				8/2/2006
LCS-60244	Nitrate (as N)	mg/L	353.2	0.9350	1	0	93.5	90-110				8/2/2006
LCS-R60451	Oil & Grease	mg/L	EPA 1664	39.50	40	0	98.8	79-114				8/8/2006
LCS-60228	Phosphate, ortho (as P)	mg/L	365.1	0.9120	1	0	91.2	90-110				8/2/2006
LCS-R60404	TDS	mg/L	160.1	202.0	205	0	98.5	80-120				8/3/2006
LCS-R60282	TSS	mg/L	160.2	104.0	100	0	104	80-120				8/2/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R60230	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				8/2/2006
MB-R60230	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				8/2/2006
MB-R60230	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				8/2/2006
MB-R60477	Chloride	mg/L	300.0	< 1.0				-				8/8/2006
MB-R60477	Sulfate	mg/L	300.0	< 1.0				-				8/8/2006
MB-R60231	Acidity	mg/L	305.1	< 15				-				8/2/2006
MB-29858	Ammonia (as N)	mg/L	350.1	< 0.050				-				8/4/2006
MB-60243	Nitrite (as N)	mg/L	353.2	< 0.010				-				8/2/2006
MB-60244	Nitrate (as N)	mg/L	353.2	< 0.010				-				8/2/2006
MB-R60451	Oil & Grease	mg/L	EPA 1664	< 3.0				-				8/8/2006
MB-60228	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				8/2/2006
MB-R60404	TDS	mg/L	160.1	< 10				-				8/3/2006
MB-R60282	TSS	mg/L	160.2	< 3.0				-				8/2/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73160-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	478.0	100	375	103	80-120				8/2/2006
L73160-03BMS	Chloride	mg/L	300.0	1069	1000	63.26	101	90-110				8/8/2006
L73160-03BMS	Sulfate	mg/L	300.0	1137	1000	163.7	97.3	90-110				8/8/2006
L73160-01BMS	Acidity	mg/L	305.1	42.00	50	0	84.0	80-120				8/2/2006
L73160-01CMS	Ammonia (as N)	mg/L	350.1	0.9380	1	0.017	92.1	90-110				8/4/2006
L73160-01BMS	Nitrite (as N)	mg/L	353.2	1.032	1	0	103	90-110				8/2/2006
L73160-01BMS	Nitrate (as N)	mg/L	353.2	1.050	1	0.069	98.1	90-110				8/2/2006
L73160-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.5830	1	0	58.3	90-110			[1]	8/2/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73160-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	475.0	100	375	100	80-120	0.630	10		8/2/2006
L73160-03BMSD	Chloride	mg/L	300.0	1051	1000	63.26	98.8	90-110	1.70	20		8/8/2006
L73160-03BMSD	Sulfate	mg/L	300.0	1195	1000	163.7	103	90-110	4.97	20		8/8/2006
L73160-01BMSD	Acidity	mg/L	305.1	38.00	50	0	80.0	80-120	4.88	20		8/2/2006
L73160-01CMSD	Ammonia (as N)	mg/L	350.1	0.9660	1	0.017	94.9	90-110	2.94	10		8/4/2006
L73160-01BMSD	Nitrite (as N)	mg/L	353.2	0.9920	1	0	99.2	90-110	3.95	10		8/2/2006
L73160-01BMSD	Nitrate (as N)	mg/L	353.2	1.035	1	0.069	96.6	90-110	1.44	10		8/2/2006
L73160-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.5380	1	0	53.8	90-110	8.03	10	[1]	8/2/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R60451	Oil & Grease	mg/L	EPA 1664	39.20	40	0	98.0	79-114				8/8/2006

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R60451	Oil & Grease	mg/L	EPA 1664	40.00	40	0	100	79-114	2.02	18		8/8/2006

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American West Analytical Labs

WORK ORDER Summary

02-Aug-06

Work Order L73160

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:** Huntsville DB

Comments: QCLevel: QC 2+ Include EDD in Excel Format. LT/eh

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L73160-01A	CR-06-03 ABV	7/31/2006 4:30:00 PM	8/1/2006	8/15/2006	Aqueous	TDS-W	ww - tds	1
L73160-01B				8/15/2006		2320B-ALK-W	aug 1 wc	1
				8/15/2006		300.0-W	aug 1 wc	1
				8/15/2006		ACIDITY-W	aug 1 wc	1
				8/15/2006		NO2-W	aug 1 wc	1
				8/15/2006		NO3-W	aug 1 wc	1
				8/15/2006		PO4-O	aug 1 wc	1
L73160-01C				8/15/2006		NH3-W	aug 1 - nh3	1
				8/15/2006		NH3-W-PREP	aug 1 - nh3	1
L73160-01D				8/15/2006		3005A-ICPMS	Aug 1 - met	1
				8/15/2006		ICP-W	Aug 1 - met	1
L73160-01E				8/15/2006	Aqueous-Dissolved	3005A-Diss	Aug 1 - dis met	1
				8/15/2006		6020-W-DISS	Aug 1 - dis met	1
				8/15/2006		HARD	Aug 1 - dis met	1
				8/15/2006		ICP-W-DIS	Aug 1 - dis met	1
L73160-02A	Angle Spring	7/31/2006 6:30:00 PM		8/15/2006	Aqueous	SS	ww - tds.tss.ss	1
				8/15/2006		TDS-W	ww - tds.tss.ss	1
				8/15/2006		TSS-W	ww - tds.tss.ss	1
L73160-02B				8/15/2006		2320B-ALK-W	aug 1 wc	1
				8/15/2006		300.0-W	aug 1 wc	1
				8/15/2006		ACIDITY-W	aug 1 wc	1
				8/15/2006		NO2-W	aug 1 wc	1
				8/15/2006		NO3-W	aug 1 wc	1
				8/15/2006		PO4-O	aug 1 wc	1
L73160-02C				8/15/2006		NH3-W	aug 1 - nh3	1
				8/15/2006		NH3-W-PREP	aug 1 - nh3	1
L73160-02D				8/15/2006		3005A-ICPMS	Aug 1 - met	1

WORK ORDER Summary

02-Aug-06

Work Order L73160

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L73160-02D	Angle Spring	7/31/2006 6:30:00 PM	8/1/2006	8/15/2006	Aqueous	ICP-W	Aug 1 - met	1
L73160-02E				8/15/2006	Aqueous-Dissolved	3005A-Diss	Aug 1 - dis met	1
				8/15/2006		6020-W-DISS	Aug 1 - dis met	1
				8/15/2006		HARD	Aug 1 - dis met	1
				8/15/2006		ICP-W-DIS	Aug 1 - dis met	1
L73160-02F				8/15/2006	Aqueous	OGB-W	OGBFridge	1
L73160-03A	Mud Creek	7/31/2006 6:00:00 PM		8/15/2006		SS	ww - tds.tss.ss	1
				8/15/2006		TDS-W	ww - tds.tss.ss	1
				8/15/2006		TSS-W	ww - tds.tss.ss	1
L73160-03B				8/15/2006		2320B-ALK-W	aug1 wc	1
				8/15/2006		300.0-W	aug1 wc	1
				8/15/2006		ACIDITY-W	aug1 wc	1
				8/15/2006		NO2-W	aug1 wc	1
				8/15/2006		NO3-W	aug1 wc	1
				8/15/2006		PO4-O	aug1 wc	1
L73160-03C				8/15/2006		NH3-W	aug 1 - nh3	1
				8/15/2006		NH3-W-PREP	aug 1 - nh3	1
L73160-03D				8/15/2006		3005A-ICPMS	Aug 1 - met	1
				8/15/2006		ICP-W	Aug 1 - met	1
L73160-03E				8/15/2006	Aqueous-Dissolved	3005A-Diss	Aug 1 - dis met	1
				8/15/2006		6020-W-DISS	Aug 1 - dis met	1
				8/15/2006		HARD	Aug 1 - dis met	1
				8/15/2006		ICP-W-DIS	Aug 1 - dis met	1
L73160-03F				8/15/2006	Aqueous	OGB-W	OGBFridge	1
L73160-04A	Sulfer Spring	7/31/2006 7:30:00 PM		8/15/2006		SS	ww - tds.tss.ss	1
				8/15/2006		TDS-W	ww - tds.tss.ss	1
				8/15/2006		TSS-W	ww - tds.tss.ss	1
L73160-04B				8/15/2006		2320B-ALK-W	aug 1 wc	1

WORK ORDER Summary

02-Aug-06

Work Order L73160

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L73160-04B	Sulfer Spring	7/31/2006 7:30:00 PM	8/1/2006	8/15/2006	Aqueous	300.0-W	aug 1 wc	1
				8/15/2006		ACIDITY-W	aug 1 wc	1
				8/15/2006		NO2-W	aug 1 wc	1
				8/15/2006		NO3-W	aug 1 wc	1
				8/15/2006		PO4-O	aug 1 wc	1
L73160-04C				8/15/2006		NH3-W	aug 1 - nh3	1
				8/15/2006		NH3-W-PREP	aug 1 - nh3	1
L73160-04D				8/15/2006		3005A-ICPMS	Aug 1 - met	1
				8/15/2006		ICP-W	Aug 1 - met	1
L73160-04E				8/15/2006	Aqueous-Dissolved	3005A-Diss	Aug 1 - dis met	1
				8/15/2006		6020-W-DISS	Aug 1 - dis met	1
				8/15/2006		HARD	Aug 1 - dis met	1
				8/15/2006		ICP-W-DIS	Aug 1 - dis met	1
L73160-04F				8/15/2006	Aqueous	OGB-W	OGBFridge	1
L73160-05A	Scofield Res. 1	7/31/2006 8:00:00 PM		8/15/2006		SS	ww - tds.tss.ss	1
				8/15/2006		TDS-W	ww - tds.tss.ss	1
				8/15/2006		TSS-W	ww - tds.tss.ss	1
L73160-05B				8/15/2006		2320B-ALK-W	aug 1 wc	1
				8/15/2006		300.0-W	aug 1 wc	1
				8/15/2006		ACIDITY-W	aug 1 wc	1
				8/15/2006		NO2-W	aug 1 wc	1
				8/15/2006		NO3-W	aug 1 wc	1
				8/15/2006		PO4-O	aug 1 wc	1
L73160-05C				8/15/2006		NH3-W	aug 1 - nh3	1
				8/15/2006		NH3-W-PREP	aug 1 - nh3	1
L73160-05D				8/15/2006		3005A-ICPMS	Aug 1 - met	1
				8/15/2006		ICP-W	Aug 1 - met	1
L73160-05E				8/15/2006	Aqueous-Dissolved	3005A-Diss	Aug 1 - dis met	1

WORK ORDER Summary

02-Aug-06

Work Order L73160

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L73160-05E	Scofield Res. 1	7/31/2006 8:00:00 PM	8/1/2006	8/15/2006	Aqueous-Dissolved	6020-W-DISS	Aug 1 - dis met	1
				8/15/2006		HARD	Aug 1 - dis met	1
				8/15/2006		ICP-W-DIS	Aug 1 - dis met	1
L73160-05F				8/15/2006	Aqueous	OGB-W	OGBFridge	1
L73160-06A	Miller Outlet	7/31/2006 8:50:00 PM		8/15/2006		SS	ww - tds.tss.ss	1
				8/15/2006		TDS-W	ww - tds.tss.ss	1
				8/15/2006		TSS-W	ww - tds.tss.ss	1
L73160-06B				8/15/2006		2320B-ALK-W	aug 1 wc	1
				8/15/2006		300.0-W	aug 1 wc	1
				8/15/2006		ACIDITY-W	aug 1 wc	1
				8/15/2006		NO2-W	aug 1 wc	1
				8/15/2006		NO3-W	aug 1 wc	1
				8/15/2006		PO4-O	aug 1 wc	1
L73160-06C				8/15/2006		NH3-W	aug 1 - nh3	1
				8/15/2006		NH3-W-PREP	aug 1 - nh3	1
L73160-06D				8/15/2006		3005A-ICPMS	Aug 1 - met	1
				8/15/2006		ICP-W	Aug 1 - met	1
L73160-06E				8/15/2006	Aqueous-Dissolved	3005A-Diss	Aug 1 - dis met	1
				8/15/2006		6020-W-DISS	Aug 1 - dis met	1
				8/15/2006		HARD	Aug 1 - dis met	1
				8/15/2006		ICP-W-DIS	Aug 1 - dis met	1
L73160-06F				8/15/2006	Aqueous	OGB-W	OGBFridge	1

Client Carbon Resources / Rock Logic Consulting

Address PO Box 544

Cedaredge CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 73160

Page _____ of _____

Turn Around Time (Circle One)

1 day	2 day	3 day	4 day	5 day	Standard
QC	1	(2)	2+	3	3+	4

Sample ID	Date/Time Collected (see attached)	Matrix	Number of Containers (Total)	table 3	table 4	COMMENTS
CR-06-03 ABV	7-25-06/1800	W	5		✓	see letter
Angle Spring	7-25-06/1950	W	6	✓		for correct
Mud Creek	7-25-06/2000	W	6	✓		sampling date
Sulfer Spring	7-25-06/2050	W	6	✓		and times
Scofield Res. 1	7-25-06/2100	W	6	✓		
Miller Outlet	7-25-06/2150	W	6	✓		

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or (Chilled)
Notes:

3 Temperature 4 °

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME Kalie Lindsay	Time 1305	PRINT NAME Elana Hayward
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

Please filter for dissolved metals

Lynn Turner

From: Brad Lindsay [lindsay.brad@gmail.com]
Sent: Tuesday, August 01, 2006 5:06 PM
To: Lynn Turner
Subject: Re: AWAL Set # 73160 (Scofield Baseline)

Lynn-

I messed it up again. That was the day I wanted to sample. I collected the samples yesterday the 31st. I changed the date and time on the bottles, but must have forgotten to fix the chain. Can you get that information off of the bottles? I am sorry about the hassle.

thanks,

brad

–
Brad Lindsay
Rock Logic Consulting LLC
P.O. Box 544
Cedaredge CO 81413
(435)851-9044

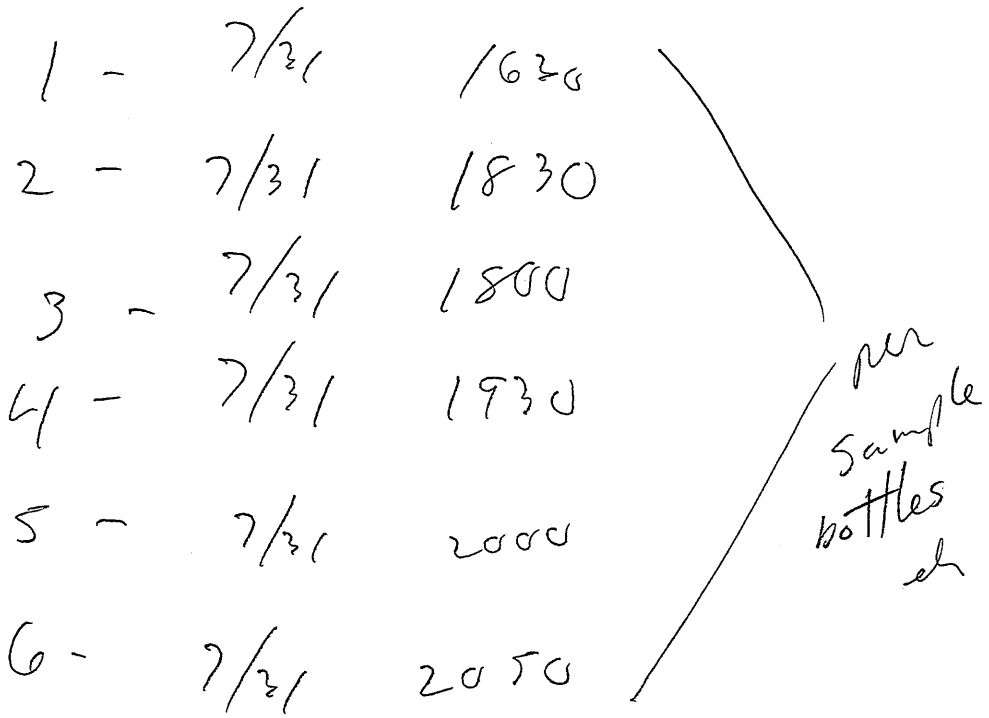

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphate (Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Client Carbon Resources | Rock Logic Consulting

Address po Box 344

Cedaredge (City) Co (State) 81413 (Zip)

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 73160

Page ____ of ____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Table 3	Table 4									COMMENTS
CR-06-03-ADV	7.31.06 / 1630	W	8		✓									
Angle Spring	7.31.06 / 1830	W	6	✓										
Mud Creek	7.31.06 / 1900	W	10	✓										
Sulfer Spring	7.31.06 / 1030	W	10	✓										
Scofield Res	7.31.06 / 2000	W	10	✓										
Miller Outlet	7.31.06 / 2030	W	10	✓										

Please indicate tests needed below

Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME
Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME
Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME
Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME

Special Instructions:

PLEASE FILTER

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature ____

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

Sample Set: 73160

Preservation Check Sheet

		Sample Set Extension and pH																
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓																
COD[1]	pH <2 H_2SO_4																	
Cyanide	PH >12 NaOH																	
Metals	pH <2 HNO_3																	
NO_2 & NO_3[1]	pH <2 H_2SO_4																	
Nutrients[1]	pH <2 H_2SO_4																	
O & G	pH <2 HCL	✓																
Phenols[2]	pH <2 H_2SO_4																	
Sulfide	pH > 9NaOH, Zn Acetate																	
TKN[1]	pH <2 H_2SO_4																	
TOC	pH <2 H_3PO_4																	
TOX[2]	pH <2 H_2SO_4																	
T PO_4[1]	pH <2 H_2SO_4																	

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

September 05, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L73504

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 8/22/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-01D
Field Sample ID: **CR-06-03 ABV**
Collected: 8/21/2006 2:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/1/2006 3:59:37 PM	6010B	0.050	**0.95**
Manganese	mg/L	9/1/2006 3:59:37 PM	6010B	0.0050	**0.018**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-02D
Field Sample ID: **Angle Spring**
Collected: 8/21/2006 4:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/1/2006 4:15:28 PM	6010B	0.050	< 0.050
Manganese	mg/L	9/1/2006 4:15:28 PM	6010B	0.0050	< 0.0050

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-03D
Field Sample ID: **Mud Creek**
Collected: 8/21/2006 4:30:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/1/2006 4:19:28 PM	6010B	0.050	**0.24**
Manganese	mg/L	9/1/2006 4:19:28 PM	6010B	0.0050	**0.028**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-04D
Field Sample ID: **Sulfer Spring**
Collected: 8/21/2006 5:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/1/2006 4:23:27 PM	6010B	0.050	< 0.050
Manganese	mg/L	9/1/2006 4:23:27 PM	6010B	0.0050	**0.031**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-05D
Field Sample ID: **Scofield Res. 1**
Collected: 8/21/2006 5:30:00 PM
Received: 8/22/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/1/2006 4:36:10 PM	6010B	0.050	**0.67**
Manganese	mg/L	9/1/2006 4:36:10 PM	6010B	0.0050	**0.17**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73504-06D
Field Sample ID: **Miller Outlet**
Collected: 8/21/2006 6:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/1/2006 4:40:11 PM	6010B	0.050	**3.3**
Manganese	mg/L	9/1/2006 4:40:11 PM	6010B	0.0050	**0.15**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-01E
Field Sample ID: **CR-06-03 ABV**
Collected: 8/21/2006 2:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/5/2006 2:18:37 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/25/2006 10:37:00 AM	6020	0.0050	**0.037**
Boron	mg/L	9/5/2006 2:18:37 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/25/2006 10:37:00 AM	6020	0.0040	< 0.0040
Calcium	mg/L	9/5/2006 11:59:15 AM	6010B	10	**120**
Copper	mg/L	8/25/2006 10:37:00 AM	6020	0.0040	< 0.0040
Iron	mg/L	9/5/2006 2:18:37 PM	6010B	0.050	< 0.050
Lead	mg/L	8/25/2006 10:37:00 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	9/5/2006 11:59:15 AM	6010B	10	**30**
Manganese	mg/L	8/25/2006 10:37:00 AM	6020	0.0050	**0.021**
Molybdenum	mg/L	9/5/2006 2:18:37 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/5/2006 2:18:37 PM	6010B	1.0	**2.0**
Selenium	mg/L	8/25/2006 10:37:00 AM	6020	0.0050	< 0.0050
Sodium	mg/L	9/5/2006 2:18:37 PM	6010B	1.0	**9.8**
Zinc	mg/L	8/25/2006 10:37:00 AM	6020	0.010	**0.23**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-02E
Field Sample ID: **Angle Spring**
Collected: 8/21/2006 4:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/5/2006 2:35:23 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/25/2006 11:03:57 AM	6020	0.0050	< 0.0050
Boron	mg/L	9/5/2006 2:35:23 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/25/2006 11:03:57 AM	6020	0.0040	< 0.0040
Calcium	mg/L	9/5/2006 12:15:32 PM	6010B	10	**100**
Copper	mg/L	8/25/2006 11:03:57 AM	6020	0.0040	< 0.0040
Iron	mg/L	9/5/2006 2:35:23 PM	6010B	0.050	< 0.050
Lead	mg/L	8/25/2006 11:03:57 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	9/5/2006 12:15:32 PM	6010B	10	**19**
Manganese	mg/L	8/25/2006 11:03:57 AM	6020	0.0050	< 0.0050
Molybdenum	mg/L	9/5/2006 2:35:23 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/5/2006 2:35:23 PM	6010B	1.0	**1.5**
Selenium	mg/L	8/25/2006 11:03:57 AM	6020	0.0050	< 0.0050
Sodium	mg/L	9/5/2006 2:35:23 PM	6010B	1.0	**10**
Zinc	mg/L	8/25/2006 11:03:57 AM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-03E
Field Sample ID: **Mud Creek**
Collected: 8/21/2006 4:30:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/5/2006 2:39:32 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/25/2006 11:09:21 AM	6020	0.0050	< 0.0050
Boron	mg/L	9/5/2006 2:39:32 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/25/2006 11:09:21 AM	6020	0.0040	< 0.0040
Calcium	mg/L	9/5/2006 12:19:26 PM	6010B	10	**74**
Copper	mg/L	8/25/2006 11:09:21 AM	6020	0.0040	< 0.0040
Iron	mg/L	9/5/2006 2:39:32 PM	6010B	0.050	< 0.050
Lead	mg/L	8/25/2006 11:09:21 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	9/5/2006 12:19:26 PM	6010B	10	**42**
Manganese	mg/L	8/25/2006 11:09:21 AM	6020	0.0050	**0.016**
Molybdenum	mg/L	9/5/2006 2:39:32 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/5/2006 2:39:32 PM	6010B	1.0	**7.6**
Selenium	mg/L	8/25/2006 11:09:21 AM	6020	0.0050	< 0.0050
Sodium	mg/L	9/5/2006 2:39:32 PM	6010B	1.0	**37**
Zinc	mg/L	8/25/2006 11:09:21 AM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-04E
Field Sample ID: **Sulfer Spring**
Collected: 8/21/2006 5:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/5/2006 2:43:44 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/25/2006 11:14:45 AM	6020	0.0050	< 0.0050
Boron	mg/L	9/5/2006 2:43:44 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/25/2006 11:14:45 AM	6020	0.0040	< 0.0040
Calcium	mg/L	9/5/2006 12:23:22 PM	6010B	10	**88**
Copper	mg/L	8/25/2006 11:14:45 AM	6020	0.0040	< 0.0040
Iron	mg/L	9/5/2006 2:43:44 PM	6010B	0.050	< 0.050
Lead	mg/L	8/25/2006 11:14:45 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	9/5/2006 12:23:22 PM	6010B	10	**35**
Manganese	mg/L	8/25/2006 11:14:45 AM	6020	0.0050	**0.030**
Molybdenum	mg/L	9/5/2006 2:43:44 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/5/2006 2:43:44 PM	6010B	1.0	**4.7**
Selenium	mg/L	8/25/2006 11:14:45 AM	6020	0.0050	< 0.0050
Sodium	mg/L	9/5/2006 2:43:44 PM	6010B	1.0	**8.7**
Zinc	mg/L	8/25/2006 11:14:45 AM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-05E
Field Sample ID: **Scofield Res. 1**
Collected: 8/21/2006 5:30:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/5/2006 2:47:57 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/25/2006 11:30:53 AM	6020	0.0050	< 0.0050
Boron	mg/L	9/5/2006 2:47:57 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/25/2006 11:30:53 AM	6020	0.0040	< 0.0040
Calcium	mg/L	9/5/2006 12:27:17 PM	6010B	10	**29**
Copper	mg/L	8/25/2006 11:30:53 AM	6020	0.0040	< 0.0040
Iron	mg/L	9/5/2006 2:47:57 PM	6010B	0.050	**0.14**
Lead	mg/L	8/25/2006 11:30:53 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	9/5/2006 12:27:17 PM	6010B	10	**24**
Manganese	mg/L	8/25/2006 11:30:53 AM	6020	0.0050	**0.045**
Molybdenum	mg/L	9/5/2006 2:47:57 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/5/2006 2:47:57 PM	6010B	1.0	**7.8**
Selenium	mg/L	8/25/2006 11:30:53 AM	6020	0.0050	< 0.0050
Sodium	mg/L	9/5/2006 2:47:57 PM	6010B	1.0	**22**
Zinc	mg/L	8/25/2006 11:30:53 AM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-06E
Field Sample ID: **Miller Outlet**
Collected: 8/21/2006 6:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/5/2006 2:51:59 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/25/2006 11:36:18 AM	6020	0.0050	< 0.0050
Boron	mg/L	9/5/2006 2:51:59 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/25/2006 11:36:18 AM	6020	0.0040	< 0.0040
Calcium	mg/L	9/5/2006 12:31:12 PM	6010B	10	**63**
Copper	mg/L	8/25/2006 11:36:18 AM	6020	0.0040	< 0.0040
Iron	mg/L	9/5/2006 2:51:59 PM	6010B	0.050	< 0.050
Lead	mg/L	8/25/2006 11:36:18 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	9/5/2006 12:31:12 PM	6010B	10	**15**
Manganese	mg/L	8/25/2006 11:36:18 AM	6020	0.0050	< 0.0050
Molybdenum	mg/L	9/5/2006 2:51:59 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/5/2006 2:51:59 PM	6010B	1.0	**2.3**
Selenium	mg/L	8/25/2006 11:36:18 AM	6020	0.0050	< 0.0050
Sodium	mg/L	9/5/2006 2:51:59 PM	6010B	1.0	**6.4**
Zinc	mg/L	8/25/2006 11:36:18 AM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-01
Field Sample ID: **CR-06-03-ABV**
Collected: 8/21/2006 2:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	8/23/2006 6:00:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**370**	
Ammonia (as N)	mg/L	8/24/2006 7:33:05 AM	350.1	0.050	< 0.050	1
Bicarbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**370**	
Carbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	< 20	
Chloride	mg/L	8/24/2006 12:06:47 PM	300.0	10	**20**	
Hardness (as CaCO3)	mg/L	9/5/2006	2340B	10	**420**	
Nitrate (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	< 0.010	1
Nitrite (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	< 0.010	
Phosphate, ortho (as P)	mg/L	8/23/2006 10:15:00 AM	365.1	0.050	< 0.050	
Sulfate	mg/L	8/24/2006 12:06:47 PM	300.0	10	**40**	
TDS	mg/L	8/25/2006 3:00:00 PM	160.1	20	**400**	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-02
Field Sample ID: **Angle Spring**
Collected: 8/21/2006 4:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/23/2006 6:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**300**
Ammonia (as N)	mg/L	8/24/2006 7:33:05 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**300**
Carbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	10	< 10
Chloride	mg/L	8/24/2006 7:07:37 AM	300.0	10	**23**
Hardness (as CaCO3)	mg/L	9/5/2006	2340B	10	**330**
Nitrate (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	**0.94**
Nitrite (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/23/2006 12:45:00 PM	EPA 1664	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	8/23/2006 10:15:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	8/23/2006 11:20:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	8/24/2006 7:07:37 AM	300.0	10	**18**
TDS	mg/L	8/25/2006 3:00:00 PM	160.1	20	**270**
TSS	mg/L	8/23/2006 3:30:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-03
Field Sample ID: **Mud Creek**
Collected: 8/21/2006 4:30:00 PM
Received: 8/22/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/23/2006 6:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**230**
Ammonia (as N)	mg/L	8/24/2006 7:33:05 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	10	**14**
Chloride	mg/L	8/24/2006 1:13:16 AM	300.0	10	**22**
Hardness (as CaCO3)	mg/L	9/5/2006	2340B	10	**360**
Nitrate (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	**0.16**
Nitrite (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/23/2006 12:45:00 PM	EPA 1664	3.0	**3.8**
Phosphate, ortho (as P)	mg/L	8/23/2006 10:15:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	8/23/2006 11:20:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	8/28/2006 11:24:00 AM	300.0	1.0	**130**
TDS	mg/L	8/25/2006 3:00:00 PM	160.1	20	**420**
TSS	mg/L	8/23/2006 3:30:00 PM	160.2	3.0	**9.0**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-04
Field Sample ID: **Sulfer Spring**
Collected: 8/21/2006 5:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/23/2006 6:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**340**
Ammonia (as N)	mg/L	8/24/2006 7:33:05 AM	350.1	0.050	**0.17**
Bicarbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**340**
Carbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	10	< 10
Chloride	mg/L	8/24/2006 10:27:04 AM	300.0	1.0	**6.6**
Hardness (as CaCO3)	mg/L	9/5/2006	2340B	10	**360**
Nitrate (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/23/2006 12:45:00 PM	EPA 1664	3.0	**5.3**
Phosphate, ortho (as P)	mg/L	8/23/2006 10:15:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	8/23/2006 11:20:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	8/24/2006 10:27:04 AM	300.0	10	**47**
TDS	mg/L	8/25/2006 3:00:00 PM	160.1	20	**320**
TSS	mg/L	8/23/2006 3:30:00 PM	160.2	3.0	**3.0**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-05
Field Sample ID: **Scofield Res. 1**
Collected: 8/21/2006 5:30:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/23/2006 6:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**130**
Ammonia (as N)	mg/L	8/24/2006 7:33:05 AM	350.1	0.050	**0.080**
Bicarbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	10	**14**
Carbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**120**
Chloride	mg/L	8/24/2006 4:32:21 AM	300.0	10	**32**
Hardness (as CaCO3)	mg/L	9/5/2006	2340B	10	**170**
Nitrate (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	**0.070**
Nitrite (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/23/2006 12:45:00 PM	EPA 1664	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	8/23/2006 10:15:00 AM	365.1	0.050	**0.060**
Settable Solids	ml/L	8/23/2006 11:20:00 AM	160.5	0.10	**0.60**
Sulfate	mg/L	8/24/2006 4:32:21 AM	300.0	10	**24**
TDS	mg/L	8/25/2006 3:00:00 PM	160.1	20	**200**
TSS	mg/L	8/23/2006 3:30:00 PM	160.2	3.0	**40**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-06
Field Sample ID: **Miller Outlet**
Collected: 8/21/2006 6:00:00 PM
Received: 8/22/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
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Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/23/2006 6:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**210**
Ammonia (as N)	mg/L	8/24/2006 7:33:05 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	20	**200**
Carbonate (As CaCO3)	mg/L	8/23/2006 5:40:00 AM	2320B	10	**17**
Chloride	mg/L	8/24/2006 5:05:52 AM	300.0	1.0	**9.4**
Hardness (as CaCO3)	mg/L	9/5/2006	2340B	10	**220**
Nitrate (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	**0.034**
Nitrite (as N)	mg/L	8/23/2006 11:43:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/23/2006 12:45:00 PM	EPA 1664	3.0	**4.8**
Phosphate, ortho (as P)	mg/L	8/23/2006 10:15:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	8/23/2006 11:20:00 AM	160.5	0.10	**0.30**
Sulfate	mg/L	8/24/2006 5:05:52 AM	300.0	10	**20**
TDS	mg/L	8/25/2006 3:00:00 PM	160.1	20	**200**
TSS	mg/L	8/23/2006 3:30:00 PM	160.2	3.0	**150**

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-30230	Arsenic	mg/L	6020	0.2220	0.2	0	111	85-115				8/25/2006
LCS-30230	Cadmium	mg/L	6020	0.2170	0.2	0	108	85-115				8/25/2006
LCS-30230	Copper	mg/L	6020	0.2053	0.2	0	103	85-115				8/25/2006
LCS-30230	Lead	mg/L	6020	0.2259	0.2	0	113	85-115				8/25/2006
LCS-30230	Manganese	mg/L	6020	0.2028	0.2	0.002465	100	85-115				8/25/2006
LCS-30230	Selenium	mg/L	6020	0.2110	0.2	0	106	85-115				8/25/2006
LCS-30230	Zinc	mg/L	6020	1.088	1	0.006958	108	85-115				8/25/2006
LCS-30228	Iron	mg/L	6010B	1.136	1	0	114	75-125				9/1/2006
LCS-30228	Manganese	mg/L	6010B	0.2130	0.2	0	106	75-125				9/1/2006
LCS-30230	Aluminum	mg/L	6010B	1.091	1	0	109	75-125				9/5/2006
LCS-30230	Boron	mg/L	6010B	1.151	1	0	115	75-125				9/5/2006
LCS-30230	Calcium	mg/L	6010B	10.70	10	0	107	75-125				9/5/2006
LCS-30230	Iron	mg/L	6010B	1.113	1	0	111	75-125				9/5/2006
LCS-30230	Magnesium	mg/L	6010B	10.80	10	0	108	75-125				9/5/2006
LCS-30230	Molybdenum	mg/L	6010B	0.2170	0.2	0	109	75-125				9/5/2006
LCS-30230	Potassium	mg/L	6010B	10.46	10	0	105	75-125				9/5/2006
LCS-30230	Sodium	mg/L	6010B	10.80	10	0	108	75-125				9/5/2006

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Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-30230	Arsenic	mg/L	6020	< 0.0050				-				8/25/2006
MB-30230	Cadmium	mg/L	6020	< 0.0040				-				8/25/2006
MB-30230	Copper	mg/L	6020	< 0.0040				-				8/25/2006
MB-30230	Lead	mg/L	6020	< 0.0050				-				8/25/2006
MB-30230	Manganese	mg/L	6020	< 0.0050				-				8/25/2006
MB-30230	Selenium	mg/L	6020	< 0.0050				-				8/25/2006
MB-30230	Zinc	mg/L	6020	< 0.010				-				8/25/2006
MB-30228	Iron	mg/L	6010B	< 0.050				-				9/1/2006
MB-30228	Manganese	mg/L	6010B	< 0.0050				-				9/1/2006
MB-30230	Aluminum	mg/L	6010B	< 0.10				-				9/5/2006
MB-30230	Boron	mg/L	6010B	< 0.50				-				9/5/2006
MB-30230	Calcium	mg/L	6010B	< 1.0				-				9/5/2006
MB-30230	Iron	mg/L	6010B	< 0.050				-				9/5/2006
MB-30230	Magnesium	mg/L	6010B	< 1.0				-				9/5/2006
MB-30230	Molybdenum	mg/L	6010B	< 0.10				-				9/5/2006
MB-30230	Potassium	mg/L	6010B	< 1.0				-				9/5/2006
MB-30230	Sodium	mg/L	6010B	< 1.0				-				9/5/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73504-01EMS	Arsenic	mg/L	6020	0.2720	0.2	0.03697	118	70-130				8/25/2006
L73504-01EMS	Cadmium	mg/L	6020	0.2254	0.2	0	113	70-130				8/25/2006
L73504-01EMS	Copper	mg/L	6020	0.2139	0.2	0.001167	106	70-130				8/25/2006
L73504-01EMS	Lead	mg/L	6020	0.2362	0.2	0	118	70-130				8/25/2006
L73504-01EMS	Manganese	mg/L	6020	0.2299	0.2	0.02105	104	70-130				8/25/2006
L73504-01EMS	Selenium	mg/L	6020	0.2255	0.2	0.001698	112	70-130				8/25/2006
L73504-01EMS	Zinc	mg/L	6020	1.385	1	0.2349	115	70-130				8/25/2006
L73504-01DMS	Iron	mg/L	6010B	2.014	1	0.9536	106	75-125				9/1/2006
L73504-01DMS	Manganese	mg/L	6010B	0.2280	0.2	0.01837	105	75-125				9/1/2006
L73504-01EMS	Calcium	mg/L	6010B	129.8	10	118.2	116	75-125				9/5/2006
L73504-01EMS	Magnesium	mg/L	6010B	39.41	10	29.9	95.1	75-125				9/5/2006
L73504-01EMS	Aluminum	mg/L	6010B	1.029	1	0.03513	99.4	75-125				9/5/2006
L73504-01EMS	Boron	mg/L	6010B	1.159	1	0.0388	112	75-125				9/5/2006
L73504-01EMS	Iron	mg/L	6010B	1.157	1	0.0429	111	75-125				9/5/2006
L73504-01EMS	Molybdenum	mg/L	6010B	0.2127	0.2	0	106	75-125				9/5/2006
L73504-01EMS	Potassium	mg/L	6010B	13.75	10	1.97	118	75-125				9/5/2006
L73504-01EMS	Sodium	mg/L	6010B	20.44	10	9.778	107	75-125				9/5/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73504-01EMSD	Arsenic	mg/L	6020	0.2794	0.2	0.03697	121	70-130	2.68	20		8/25/2006
L73504-01EMSD	Cadmium	mg/L	6020	0.2301	0.2	0	115	70-130	2.06	20		8/25/2006
L73504-01EMSD	Copper	mg/L	6020	0.2122	0.2	0.001167	106	70-130	0.804	20		8/25/2006
L73504-01EMSD	Lead	mg/L	6020	0.2388	0.2	0	119	70-130	1.11	20		8/25/2006
L73504-01EMSD	Manganese	mg/L	6020	0.2300	0.2	0.02105	104	70-130	0.0265	20		8/25/2006
L73504-01EMSD	Selenium	mg/L	6020	0.2266	0.2	0.001698	112	70-130	0.500	20		8/25/2006
L73504-01EMSD	Zinc	mg/L	6020	1.383	1	0.2349	115	70-130	0.148	20		8/25/2006
L73504-01DMSD	Iron	mg/L	6010B	2.059	1	0.9536	111	75-125	2.25	20		9/1/2006
L73504-01DMSD	Manganese	mg/L	6010B	0.2306	0.2	0.01837	106	75-125	1.15	20		9/1/2006
L73504-01EMSD	Calcium	mg/L	6010B	127.6	10	118.2	93.2	75-125	1.74	20		9/5/2006
L73504-01EMSD	Magnesium	mg/L	6010B	38.63	10	29.9	87.3	75-125	2.00	20		9/5/2006
L73504-01EMSD	Aluminum	mg/L	6010B	1.061	1	0.03513	103	75-125	3.08	20		9/5/2006
L73504-01EMSD	Boron	mg/L	6010B	1.167	1	0.0388	113	75-125	0.714	20		9/5/2006
L73504-01EMSD	Iron	mg/L	6010B	1.169	1	0.0429	113	75-125	1.05	20		9/5/2006
L73504-01EMSD	Molybdenum	mg/L	6010B	0.2149	0.2	0	107	75-125	0.992	20		9/5/2006
L73504-01EMSD	Potassium	mg/L	6010B	13.90	10	1.97	119	75-125	1.13	20		9/5/2006
L73504-01EMSD	Sodium	mg/L	6010B	20.93	10	9.778	112	75-125	2.38	20		9/5/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73504-06ADUP	TDS	mg/L	160.1	188.0	0	196		-	4.17	20		8/25/2006
L73573-02BDUP	TDS	mg/L	160.1	37100	0	36600		-	1.36	20		8/25/2006
L73504-06ADUP	TSS	mg/L	160.2	172.0	0	150		-	13.7	20		8/23/2006

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R60917	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				8/23/2006
LCS-R61018	Chloride	mg/L	300.0	4.843	5	0	96.9	90-110				8/23/2006
LCS-R61018	Sulfate	mg/L	300.0	4.654	5	0	93.1	90-110				8/23/2006
LCS-R61048	Sulfate	mg/L	300.0	4.868	5	0	97.4	90-110				8/28/2006
LCS-R60918	Acidity	mg/L	305.1	50.00	50	0	100	80-120				8/23/2006
LCS-30223	Ammonia (as N)	mg/L	350.1	0.9180	1	0	91.8	90-110				8/24/2006
LCS-60939	Nitrite (as N)	mg/L	353.2	0.9880	1	0	98.8	90-110				8/23/2006
LCS-60941	Nitrate (as N)	mg/L	353.2	0.9790	1	0	97.9	90-110				8/23/2006
LCS-R60957	Oil & Grease	mg/L	EPA 1664	38.10	40	0	95.2	79-114				8/23/2006
LCS-60927	Phosphate, ortho (as P)	mg/L	365.1	0.9270	1	0	92.7	90-110				8/23/2006
LCS-R61087	TDS	mg/L	160.1	188.0	205	0	91.7	80-120				8/25/2006
LCS-R60977	TSS	mg/L	160.2	100.0	100	0	100	80-120				8/23/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R60917	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				8/23/2006
MB-R60917	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				8/23/2006
MB-R60917	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				8/23/2006
MB-R61018	Chloride	mg/L	300.0	< 1.0				-				8/23/2006
MB-R61018	Sulfate	mg/L	300.0	< 1.0				-				8/23/2006
MB-R61048	Sulfate	mg/L	300.0	< 1.0				-				8/28/2006
MB-R60918	Acidity	mg/L	305.1	< 15				-				8/23/2006
MB-30223	Ammonia (as N)	mg/L	350.1	< 0.050				-				8/24/2006
MB-60939	Nitrite (as N)	mg/L	353.2	< 0.010				-				8/23/2006
MB-60941	Nitrate (as N)	mg/L	353.2	< 0.010				-				8/23/2006
MB-R60957	Oil & Grease	mg/L	EPA 1664	< 3.0				-				8/23/2006
MB-60927	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				8/23/2006
MB-R61087	TDS	mg/L	160.1	< 10				-				8/25/2006
MB-R60977	TSS	mg/L	160.2	< 3.0				-				8/23/2006

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Laboratory Director

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73504-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	473.0	100	373	100	80-120				8/23/2006
L73465-02BMS	Chloride	mg/L	300.0	172.3	100	78.8	93.5	90-110				8/23/2006
L73465-02BMS	Sulfate	mg/L	300.0	152.6	100	58.54	94.0	90-110				8/23/2006
L73504-03BMS	Chloride	mg/L	300.0	69.14	50	21.91	94.5	90-110				8/24/2006
L73504-03BMS	Sulfate	mg/L	300.0	638.8	500	130.7	102	90-110				8/28/2006
L73504-01BMS	Acidity	mg/L	305.1	48.00	50	0	96.0	80-120				8/23/2006
L73504-01CMS	Ammonia (as N)	mg/L	350.1	0.8590	1	0.038	82.1	90-110			[1]	8/24/2006
L73515-02CMS	Ammonia (as N)	mg/L	350.1	5.404	2	3.847	77.8	90-110			[1]	8/24/2006
L73504-01BMS	Nitrite (as N)	mg/L	353.2	0.9790	1	0	97.9	90-110				8/23/2006
L73504-01BMS	Nitrate (as N)	mg/L	353.2	0.8770	1	0	87.7	90-110			[1]	8/23/2006
L73504-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.9700	1	0.022	94.8	90-110				8/23/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L73504-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	476.0	100	373	103	80-120	0.632	10		8/23/2006
L73465-02BMSD	Chloride	mg/L	300.0	173.6	100	78.8	94.8	90-110	0.734	20		8/23/2006
L73465-02BMSD	Sulfate	mg/L	300.0	154.5	100	58.54	96.0	90-110	1.26	20		8/23/2006
L73504-03BMSD	Chloride	mg/L	300.0	69.84	50	21.91	95.9	90-110	1.01	20		8/24/2006
L73504-03BMSD	Sulfate	mg/L	300.0	637.6	500	130.7	101	90-110	0.182	20		8/28/2006
L73504-01BMSD	Acidity	mg/L	305.1	46.00	50	0	92.0	80-120	4.26	20		8/23/2006
L73504-01CMSD	Ammonia (as N)	mg/L	350.1	0.8650	1	0.038	82.7	90-110	0.696	10	[1]	8/24/2006
L73515-02CMSD	Ammonia (as N)	mg/L	350.1	5.399	2	3.847	77.6	90-110	0.0926	10	[1]	8/24/2006
L73504-01BMSD	Nitrite (as N)	mg/L	353.2	0.9440	1	0	94.4	90-110	3.64	10		8/23/2006
L73504-01BMSD	Nitrate (as N)	mg/L	353.2	0.9030	1	0	90.3	90-110	2.92	10		8/23/2006
L73504-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.9590	1	0.022	93.7	90-110	1.14	10		8/23/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R60957	Oil & Grease	mg/L	EPA 1664	40.00	40	0	100	79-114				8/23/2006

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R60957	Oil & Grease	mg/L	EPA 1664	39.70	40	0	99.2	79-114	0.753	18		8/23/2006

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American West Analytical Labs

WORK ORDER Summary

22-Aug-06

Work Order L73504

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L73504-01A	CR-06-03-ABV	8/21/2006 2:00:00 PM	8/22/2006	9/5/2006	Aqueous	TDS-W	ww - tds	1
L73504-01B	CR-06-03 ABV			9/5/2006		2320B-ALK-W	aug 22 wc	1
				9/5/2006		300.0-W	aug 22 wc	1
				9/5/2006		ACIDITY-W	aug 22 wc	1
				9/5/2006		NO2-W	aug 22 wc	1
				9/5/2006		NO3-W	aug 22 wc	1
				9/5/2006		PO4-O	aug 22 wc	1
L73504-01C				9/5/2006		NH3-W	aug 22 - nh3	1
				9/5/2006		NH3-W-PREP	aug 22 - nh3	1
L73504-01D				9/5/2006		3005A-ICPMS	Aug 22 - met	1
				9/5/2006		ICP-W	Aug 22 - met	1
L73504-01E				9/5/2006	Aqueous-Dissolved	3005A-Diss	Aug 22 - dis met	1
				9/5/2006		6020-W-DISS	Aug 22 - dis met	1
				9/5/2006		HARD	Aug 22 - dis met	1
				9/5/2006		ICP-W-DIS	Aug 22 - dis met	1
L73504-02A	Angle Spring	8/21/2006 4:00:00 PM		9/5/2006	Aqueous	SS	ww - tds.tss.ss	1
				9/5/2006		TDS-W	ww - tds.tss.ss	1
				9/5/2006		TSS-W	ww - tds.tss.ss	1
L73504-02B				9/5/2006		2320B-ALK-W	aug 22 wc	1
				9/5/2006		300.0-W	aug 22 wc	1
				9/5/2006		ACIDITY-W	aug 22 wc	1
				9/5/2006		NO2-W	aug 22 wc	1
				9/5/2006		NO3-W	aug 22 wc	1
				9/5/2006		PO4-O	aug 22 wc	1
L73504-02C				9/5/2006		NH3-W	aug 22 - nh3	1
				9/5/2006		NH3-W-PREP	aug 22 - nh3	1
L73504-02D				9/5/2006		3005A-ICPMS	Aug 22 - met	1

WORK ORDER Summary

22-Aug-06

Work Order L73504

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L73504-02D	Angle Spring	8/21/2006 4:00:00 PM	8/22/2006	9/5/2006	Aqueous	ICP-W	Aug 22 - met	1
L73504-02E				9/5/2006	Aqueous-Dissolved	3005A-Diss	Aug 22 - dis met	1
				9/5/2006		6020-W-DISS	Aug 22 - dis met	1
				9/5/2006		HARD	Aug 22 - dis met	1
				9/5/2006		ICP-W-DIS	Aug 22 - dis met	1
L73504-02F				9/5/2006	Aqueous	OGB-W	OGBFridge	1
L73504-03A	Mud Creek	8/21/2006 4:30:00 PM		9/5/2006		SS	ww - tds.tss.ss	1
				9/5/2006		TDS-W	ww - tds.tss.ss	1
				9/5/2006		TSS-W	ww - tds.tss.ss	1
L73504-03B				9/5/2006		2320B-ALK-W	aug 22 wc	1
				9/5/2006		300.0-W	aug 22 wc	1
				9/5/2006		ACIDITY-W	aug 22 wc	1
				9/5/2006		NO2-W	aug 22 wc	1
				9/5/2006		NO3-W	aug 22 wc	1
				9/5/2006		PO4-O	aug 22 wc	1
L73504-03C				9/5/2006		NH3-W	aug 22 - nh3	1
				9/5/2006		NH3-W-PREP	aug 22 - nh3	1
L73504-03D				9/5/2006		3005A-ICPMS	Aug 22 - met	1
				9/5/2006		ICP-W	Aug 22 - met	1
L73504-03E				9/5/2006	Aqueous-Dissolved	3005A-Diss	Aug 22 - dis met	1
				9/5/2006		6020-W-DISS	Aug 22 - dis met	1
				9/5/2006		HARD	Aug 22 - dis met	1
				9/5/2006		ICP-W-DIS	Aug 22 - dis met	1
L73504-03F				9/5/2006	Aqueous	OGB-W	OGBFridge	1
L73504-04A	Sulfer Spring	8/21/2006 5:00:00 PM		9/5/2006		SS	ww - tds.tss.ss	1
				9/5/2006		TDS-W	ww - tds.tss.ss	1
				9/5/2006		TSS-W	ww - tds.tss.ss	1
L73504-04B				9/5/2006		2320B-ALK-W	aug 22 wc	1

WORK ORDER Summary

22-Aug-06

Work Order L73504

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L73504-04B	Sulfer Spring	8/21/2006 5:00:00 PM	8/22/2006	9/5/2006	Aqueous	300.0-W	aug 22 wc	1
				9/5/2006		ACIDITY-W	aug 22 wc	1
				9/5/2006		NO2-W	aug 22 wc	1
				9/5/2006		NO3-W	aug 22 wc	1
				9/5/2006		PO4-O	aug 22 wc	1
L73504-04C				9/5/2006		NH3-W	aug 22 - nh3	1
				9/5/2006		NH3-W-PREP	aug 22 - nh3	1
L73504-04D				9/5/2006		3005A-ICPMS	Aug 22 - met	1
				9/5/2006		ICP-W	Aug 22 - met	1
L73504-04E				9/5/2006	Aqueous-Dissolved	3005A-Diss	Aug 22 - dis met	1
				9/5/2006		6020-W-DISS	Aug 22 - dis met	1
				9/5/2006		HARD	Aug 22 - dis met	1
				9/5/2006		ICP-W-DIS	Aug 22 - dis met	1
L73504-04F				9/5/2006	Aqueous	OGB-W	OGBFridge	1
L73504-05A	Scofield Res. 1	8/21/2006 5:30:00 PM		9/5/2006		SS	ww - tds.tss.ss	1
				9/5/2006		TDS-W	ww - tds.tss.ss	1
				9/5/2006		TSS-W	ww - tds.tss.ss	1
L73504-05B				9/5/2006		2320B-ALK-W	aug 22 wc	1
				9/5/2006		300.0-W	aug 22 wc	1
				9/5/2006		ACIDITY-W	aug 22 wc	1
				9/5/2006		NO2-W	aug 22 wc	1
				9/5/2006		NO3-W	aug 22 wc	1
				9/5/2006		PO4-O	aug 22 wc	1
L73504-05C				9/5/2006		NH3-W	aug 22 - nh3	1
				9/5/2006		NH3-W-PREP	aug 22 - nh3	1
L73504-05D				9/5/2006		3005A-ICPMS	Aug 22 - met	1
				9/5/2006		ICP-W	Aug 22 - met	1
L73504-05E				9/5/2006	Aqueous-Dissolved	3005A-Diss	Aug 22 - dis met	1

WORK ORDER Summary

22-Aug-06

Work Order L73504

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ Include EDD in Excel Format.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L73504-05E	Scofield Res. 1	8/21/2006 5:30:00 PM	8/22/2006	9/5/2006	Aqueous-Dissolved	6020-W-DISS	Aug 22 - dis met	1
				9/5/2006		HARD	Aug 22 - dis met	1
				9/5/2006		ICP-W-DIS	Aug 22 - dis met	1
L73504-05F				9/5/2006	Aqueous	OGB-W	OGBFridge	1
L73504-06A	Miller Outlet	8/21/2006 6:00:00 PM		9/5/2006		SS	ww - tds.tss.ss	1
				9/5/2006		TDS-W	ww - tds.tss.ss	1
				9/5/2006		TSS-W	ww - tds.tss.ss	1
L73504-06B				9/5/2006		2320B-ALK-W	aug 22 wc	1
				9/5/2006		300.0-W	aug 22 wc	1
				9/5/2006		ACIDITY-W	aug 22 wc	1
				9/5/2006		NO2-W	aug 22 wc	1
				9/5/2006		NO3-W	aug 22 wc	1
				9/5/2006		PO4-O	aug 22 wc	1
L73504-06C				9/5/2006		NH3-W	aug 22 - nh3	1
				9/5/2006		NH3-W-PREP	aug 22 - nh3	1
L73504-06D				9/5/2006		3005A-ICPMS	Aug 22 - met	1
				9/5/2006		ICP-W	Aug 22 - met	1
L73504-06E				9/5/2006	Aqueous-Dissolved	3005A-Diss	Aug 22 - dis met	1
				9/5/2006		6020-W-DISS	Aug 22 - dis met	1
				9/5/2006		HARD	Aug 22 - dis met	1
				9/5/2006		ICP-W-DIS	Aug 22 - dis met	1
L73504-06F				9/5/2006	Aqueous	OGB-W	OGBFridge	1

Client Carbon Resources | Rock Logic Consulting

Address PO Box 544
Cedaredge CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 73504

Page _____ of _____

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

	Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	table 4	table 3	COMMENTS
1	CR-06-03-ABV	8.21.06/1400	W	5	✓		
2	Angle Spring	8.21.06/16:00	W	6		✓	
3	Mud Creek	8.21.06/16:30	W	6		✓	
4	Sulfer Spring	8.21.06/17:00	W	6		✓	
5	Scofield Res. 1	8.21.06/17:30	W	6		✓	
6	Miller Outlet	8.21.06/18:00	W	6		✓	

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature 8°
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 14:50	PRINT NAME Elma Hayward
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

Please filter for dissolved metals

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	✓Total Dissolved Solids	mg/l
*	-	✓Total Settleable Solids	(UPDES)
*	-	✓Total Suspended Solids	mg/l
*	-	✓Total Hardness ($CaCO_3$)	mg/l
*	-	✓Total Alkalinity	mg/l
	-	✓Acidity	mg/l
	-	✓Aluminum (Dissolved)	mg/l
	-	✓Arsenic (Dissolved)	mg/l
	-	✓Boron (Dissolved)[1]	mg/l
*	-	✓ Carbonate	mg/l
*	-	✓Bicarbonate	mg/l
	-	✓Cadmium (Dissolved)	mg/l
*	-	✓Calcium (Dissolved)	mg/l
*	-	✓Chloride	mg/l
	-	✓Copper (Dissolved)	mg/l
*	-	✓Iron (Dissolved)	mg/l
*	-	✓Iron (Total)	mg/l
	-	✓ Lead (Dissolved)	mg/l
*	-	✓Magnesium (Dissolved)	mg/l
*	-	✓Manganese (Dissolved)	mg/l
*	-	✓Manganese (Total)	mg/l
	-	✓ Molybdenum (Dissolved)	mg/l
	-	✓ Ammonia	mg/l
	-	✓Nitrates	mg/l
	-	✓Nitrites	mg/l
*	-	✓Potassium (Dissolved)	mg/l
	-	✓ Phosphates(Ortho)	mg/l
	-	✓Selenium[1] (Dissolved)	mg/l
*	-	✓Sodium (Dissolved)	mg/l
*	-	✓ Sulfate	mg/l
	-	✓Zinc (Dissolved)	mg/l
*	-	✓Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Temperature	°C

		LABORATORY MEASUREMENTS		
*	-	Total Dissolved Solids		mg/l
*	-	Total Hardness ($CaCO_3$)		mg/l
*	-	Total Alkalinity		mg/l
	-	Acidity		mg/l
	-	Aluminum (Dissolved)		mg/l
	-	Arsenic (Dissolved)		mg/l
	-	Boron (Dissolved)[1]		mg/l
*	-	Carbonate		mg/l
*	-	Bicarbonate		mg/l
	-	Cadmium (Dissolved)		mg/l
*	-	Calcium (Dissolved)		mg/l
*	-	Chloride	mg/l	
	-	Copper (Dissolved)		mg/l
*	-	Iron (Dissolved)		mg/l
*	-	Iron (Total)		mg/l
	-	Lead (Dissolved)	mg/l	
*	-	Magnesium (Dissolved)		mg/l
*	-	Manganese (Dissolved)		mg/l
*	-	Manganese (Total)		mg/l
	-	Molybdenum (Dissolved)		mg/l
	-	Ammonia		mg/l
	-	Nitrates		mg/l
	-	Nitrites		mg/l
*	-	Potassium (Dissolved)		mg/l
	-	Phosphate (Ortho)		mg/l
	-	Selenium[1] (Dissolved)		mg/l
*	-	Sodium (Dissolved)		mg/l
*	-	Sulfate		mg/l
	-	Zinc (Dissolved)	mg/l	
*	-	Cations		meq/l
*	-	Anions		meq/l

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 73504

Preservation Check Sheet

			Sample Set Extension and pH														
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

October 12, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L74133

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 9/28/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-01D
Field Sample ID: **Miller Outlet**
Collected: 9/27/2006 8:30:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Iron	mg/L	10/12/2006 8:03:42 AM	6010B	0.050	**1.3**	[1]
Manganese	mg/L	10/12/2006 8:03:42 AM	6010B	0.0050	**0.062**	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-02D
Field Sample ID: **RES-1**
Collected: 9/27/2006 8:45:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	10/12/2006 8:19:35 AM	6010B	0.050	**2.0**
Manganese	mg/L	10/12/2006 8:19:35 AM	6010B	0.0050	**1.5**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-03D
Field Sample ID: **Sulfer Spring**
Collected: 9/27/2006 9:00:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	10/12/2006 8:43:14 AM	6010B	0.050	**0.52**
Manganese	mg/L	10/12/2006 8:43:14 AM	6010B	0.0050	**0.037**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-04D
Field Sample ID: **Mud Creek**
Collected: 9/27/2006 9:15:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	10/12/2006 8:47:10 AM	6010B	0.050	**0.31**
Manganese	mg/L	10/12/2006 8:47:10 AM	6010B	0.0050	**0.030**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-05D
Field Sample ID: **Angle Spring**
Collected: 9/27/2006 10:00:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	10/12/2006 8:51:12 AM	6010B	0.050	**< 0.050**
Manganese	mg/L	10/12/2006 8:51:12 AM	6010B	0.0050	< 0.0050

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-06D
Field Sample ID: **CR-06-03-ABV**
Collected: 9/27/2006 11:00:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	10/12/2006 8:55:10 AM	6010B	0.050	**4.0**
Manganese	mg/L	10/12/2006 8:55:10 AM	6010B	0.0050	**0.054**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L74133-01E
Field Sample ID: **Miller Outlet**
Collected: 9/27/2006 8:30:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	10/11/2006 7:01:59 AM	6010B	0.10	< 0.10
Arsenic	mg/L	10/5/2006 11:05:15 AM	6020	0.0050	< 0.0050
Boron	mg/L	10/11/2006 7:01:59 AM	6010B	0.50	< 0.50
Cadmium	mg/L	10/5/2006 11:05:15 AM	6020	0.0040	< 0.0040
Calcium	mg/L	10/11/2006 7:01:59 AM	6010B	10	**84**
Copper	mg/L	10/5/2006 11:05:15 AM	6020	0.0040	< 0.0040
Iron	mg/L	10/11/2006 7:01:59 AM	6010B	0.050	< 0.050
Lead	mg/L	10/5/2006 11:05:15 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	10/11/2006 7:01:59 AM	6010B	10	**18**
Manganese	mg/L	10/5/2006 11:05:15 AM	6020	0.0050	**0.0072**
Molybdenum	mg/L	10/11/2006 7:01:59 AM	6010B	0.10	< 0.10
Potassium	mg/L	10/11/2006 7:01:59 AM	6010B	1.0	**1.8**
Selenium	mg/L	10/5/2006 11:05:15 AM	6020	0.0050	< 0.0050
Sodium	mg/L	10/11/2006 7:01:59 AM	6010B	1.0	**11**
Zinc	mg/L	10/5/2006 11:05:15 AM	6020	0.010	**0.020**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-02E
Field Sample ID: **RES-1**
Collected: 9/27/2006 8:45:00 AM
Received: 9/28/2006

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	10/11/2006 7:05:55 AM	6010B	0.10	< 0.10
Arsenic	mg/L	10/5/2006 11:10:38 AM	6020	0.0050	< 0.0050
Boron	mg/L	10/11/2006 7:05:55 AM	6010B	0.50	< 0.50
Cadmium	mg/L	10/5/2006 11:10:38 AM	6020	0.0040	< 0.0040
Calcium	mg/L	10/11/2006 7:05:55 AM	6010B	10	**52**
Copper	mg/L	10/5/2006 11:10:38 AM	6020	0.0040	< 0.0040
Iron	mg/L	10/11/2006 7:05:55 AM	6010B	0.050	< 0.050
Lead	mg/L	10/5/2006 11:10:38 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	10/11/2006 7:05:55 AM	6010B	10	**28**
Manganese	mg/L	10/5/2006 11:10:38 AM	6020	0.0050	**0.85**
Molybdenum	mg/L	10/11/2006 7:05:55 AM	6010B	0.10	< 0.10
Potassium	mg/L	10/11/2006 7:05:55 AM	6010B	1.0	**3.2**
Selenium	mg/L	10/5/2006 11:10:38 AM	6020	0.0050	< 0.0050
Sodium	mg/L	10/11/2006 7:05:55 AM	6010B	10	**22**
Zinc	mg/L	10/5/2006 11:10:38 AM	6020	0.010	< 0.010

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-03E
Field Sample ID: **Sulfer Spring**
Collected: 9/27/2006 9:00:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	10/11/2006 7:09:48 AM	6010B	0.10	< 0.10
Arsenic	mg/L	10/5/2006 11:16:01 AM	6020	0.0050	< 0.0050
Boron	mg/L	10/11/2006 7:09:48 AM	6010B	0.50	< 0.50
Cadmium	mg/L	10/5/2006 11:16:01 AM	6020	0.0040	< 0.0040
Calcium	mg/L	10/11/2006 7:09:48 AM	6010B	10	**94**
Copper	mg/L	10/5/2006 11:16:01 AM	6020	0.0040	< 0.0040
Iron	mg/L	10/11/2006 7:09:48 AM	6010B	0.050	< 0.050
Lead	mg/L	10/5/2006 11:16:01 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	10/11/2006 7:09:48 AM	6010B	10	**37**
Manganese	mg/L	10/5/2006 11:16:01 AM	6020	0.0050	**0.038**
Molybdenum	mg/L	10/11/2006 7:09:48 AM	6010B	0.10	< 0.10
Potassium	mg/L	10/11/2006 7:09:48 AM	6010B	1.0	**4.2**
Selenium	mg/L	10/5/2006 11:16:01 AM	6020	0.0050	< 0.0050
Sodium	mg/L	10/11/2006 7:09:48 AM	6010B	10	**12**
Zinc	mg/L	10/5/2006 11:16:01 AM	6020	0.010	< 0.010

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-04E
Field Sample ID: **Mud Creek**
Collected: 9/27/2006 9:15:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	10/11/2006 7:17:38 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	10/5/2006 11:21:22 AM	6020	0.0050	< 0.0050	
Boron	mg/L	10/11/2006 7:17:38 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	10/5/2006 11:21:22 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	10/11/2006 7:17:38 AM	6010B	10	**86**	2
Copper	mg/L	10/5/2006 11:21:22 AM	6020	0.0040	< 0.0040	
Iron	mg/L	10/11/2006 7:17:38 AM	6010B	0.050	< 0.050	
Lead	mg/L	10/5/2006 11:21:22 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	10/11/2006 7:17:38 AM	6010B	10	**49**	2
Manganese	mg/L	10/5/2006 11:21:22 AM	6020	0.0050	**0.019**	
Molybdenum	mg/L	10/11/2006 7:17:38 AM	6010B	0.10	< 0.10	
Potassium	mg/L	10/11/2006 7:17:38 AM	6010B	1.0	**8.0**	1
Selenium	mg/L	10/5/2006 11:21:22 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	10/11/2006 7:17:38 AM	6010B	10	**38**	2
Zinc	mg/L	10/5/2006 11:21:22 AM	6020	0.010	< 0.010	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
[2] *Analyte concentration is too high for accurate spike recovery.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-05E
Field Sample ID: **Angle Spring**
Collected: 9/27/2006 10:00:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	10/11/2006 7:33:51 AM	6010B	0.10	< 0.10
Arsenic	mg/L	10/5/2006 11:48:21 AM	6020	0.0050	< 0.0050
Boron	mg/L	10/11/2006 7:33:51 AM	6010B	0.50	< 0.50
Cadmium	mg/L	10/5/2006 11:48:21 AM	6020	0.0040	< 0.0040
Calcium	mg/L	10/11/2006 7:33:51 AM	6010B	10	**100**
Copper	mg/L	10/5/2006 11:48:21 AM	6020	0.0040	< 0.0040
Iron	mg/L	10/11/2006 7:33:51 AM	6010B	0.050	< 0.050
Lead	mg/L	10/5/2006 11:48:21 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	10/11/2006 7:33:51 AM	6010B	10	**19**
Manganese	mg/L	10/5/2006 11:48:21 AM	6020	0.0050	< 0.0050
Molybdenum	mg/L	10/11/2006 7:33:51 AM	6010B	0.10	< 0.10
Potassium	mg/L	10/11/2006 7:33:51 AM	6010B	1.0	**1.5**
Selenium	mg/L	10/5/2006 11:48:21 AM	6020	0.0050	< 0.0050
Sodium	mg/L	10/11/2006 7:33:51 AM	6010B	1.0	**10**
Zinc	mg/L	10/5/2006 11:48:21 AM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-06E
Field Sample ID: **CR-06-03-ABV**
Collected: 9/27/2006 11:00:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	10/11/2006 7:37:46 AM	6010B	0.10	< 0.10
Arsenic	mg/L	10/5/2006 11:53:46 AM	6020	0.0050	**0.047**
Boron	mg/L	10/11/2006 7:37:46 AM	6010B	0.50	< 0.50
Cadmium	mg/L	10/5/2006 11:53:46 AM	6020	0.0040	< 0.0040
Calcium	mg/L	10/11/2006 7:37:46 AM	6010B	10	**120**
Copper	mg/L	10/5/2006 11:53:46 AM	6020	0.0040	< 0.0040
Iron	mg/L	10/11/2006 7:37:46 AM	6010B	0.050	**0.070**
Lead	mg/L	10/5/2006 11:53:46 AM	6020	0.0050	< 0.0050
Magnesium	mg/L	10/11/2006 7:37:46 AM	6010B	10	**31**
Manganese	mg/L	10/5/2006 11:53:46 AM	6020	0.0050	**0.022**
Molybdenum	mg/L	10/11/2006 7:37:46 AM	6010B	0.10	**< 0.10**
Potassium	mg/L	10/11/2006 7:37:46 AM	6010B	1.0	**1.6**
Selenium	mg/L	10/5/2006 11:53:46 AM	6020	0.0050	< 0.0050
Sodium	mg/L	10/11/2006 7:37:46 AM	6010B	10	**12**
Zinc	mg/L	10/5/2006 11:53:46 AM	6020	0.010	**0.097**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-01
Field Sample ID: **Miller Outlet**
Collected: 9/27/2006 8:30:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	9/29/2006 8:00:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**240**	
Ammonia (as N)	mg/L	9/29/2006 3:12:00 PM	350.1	0.050	< 0.050	1
Bicarbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**240**	
Carbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	10	< 10	
Chloride	mg/L	10/2/2006 7:07:50 PM	300.0	2.0	**9.5**	
Hardness (as CaCO3)	mg/L	10/11/2006	2340B	10	**280**	
Nitrate (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	**0.19**	
Nitrite (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	< 0.010	
Oil & Grease	mg/L	9/28/2006 1:45:00 PM	EPA 1664	3.0	**4.5**	
pH @ 25° C	pH Units	9/28/2006 11:30:00 AM	150.1	0	**8.44**	H
Phosphate, ortho (as P)	mg/L	9/28/2006 12:45:00 PM	365.1	0.050	< 0.050	
Settable Solids	ml/L	9/28/2006 11:30:00 AM	160.5	0.10	**0.10**	
Sulfate	mg/L	10/2/2006 7:07:50 PM	300.0	10	**22**	
TDS	mg/L	9/28/2006 2:00:00 PM	160.1	10	**240**	
TSS	mg/L	9/28/2006 3:30:00 PM	160.2	3.0	**39**	

H - Sample was received outside of holding time.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-02
Field Sample ID: **RES-1**
Collected: 9/27/2006 8:45:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	9/29/2006 8:00:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**180**	
Ammonia (as N)	mg/L	9/29/2006 3:12:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**180**	
Carbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	10	< 10	
Chloride	mg/L	10/2/2006 7:41:07 PM	300.0	10	**28**	
Hardness (as CaCO3)	mg/L	10/11/2006	2340B	10	**240**	
Nitrate (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	< 0.010	
Nitrite (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	< 0.010	
Oil & Grease	mg/L	9/28/2006 1:45:00 PM	EPA 1664	3.0	**5.1**	
pH @ 25° C	pH Units	9/28/2006 11:30:00 AM	150.1	0	**8.12**	**H**
Phosphate, ortho (as P)	mg/L	9/28/2006 12:45:00 PM	365.1	0.050	< 0.050	
Settable Solids	ml/L	9/28/2006 11:30:00 AM	160.5	0.10	**0.10**	
Sulfate	mg/L	10/2/2006 7:41:07 PM	300.0	10	**58**	
TDS	mg/L	9/28/2006 2:00:00 PM	160.1	10	**320**	
TSS	mg/L	9/28/2006 3:30:00 PM	160.2	3.0	**51**	

H - Sample was received outside of holding time.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-03
Field Sample ID: **Sulfer Spring**
Collected: 9/27/2006 9:00:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	9/29/2006 8:00:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**350**	
Ammonia (as N)	mg/L	9/29/2006 3:12:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**350**	
Carbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	10	< 10	
Chloride	mg/L	10/2/2006 8:47:40 PM	300.0	1.0	**6.2**	
Hardness (as CaCO3)	mg/L	10/11/2006	2340B	10	**390**	
Nitrate (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	< 0.010	
Nitrite (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	< 0.010	
Oil & Grease	mg/L	9/28/2006 1:45:00 PM	EPA 1664	3.0	**4.1**	
pH @ 25° C	pH Units	9/28/2006 11:30:00 AM	150.1	0	**7.47**	**H**
Phosphate, ortho (as P)	mg/L	9/28/2006 12:45:00 PM	365.1	0.050	< 0.050	
Settable Solids	ml/L	9/28/2006 11:30:00 AM	160.5	0.10	< 0.10	
Sulfate	mg/L	10/2/2006 8:47:40 PM	300.0	10	**46**	
TDS	mg/L	9/28/2006 2:00:00 PM	160.1	10	**340**	
TSS	mg/L	9/28/2006 3:30:00 PM	160.2	3.0	**4.0**	

H - Sample was received outside of holding time.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-04
Field Sample ID: **Mud Creek**
Collected: 9/27/2006 9:15:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	9/29/2006 8:00:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**250**	
Ammonia (as N)	mg/L	9/29/2006 3:12:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**230**	
Carbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**< 20**	
Chloride	mg/L	10/2/2006 9:54:14 PM	300.0	10	**15**	
Hardness (as CaCO3)	mg/L	10/11/2006	2340B	10	**420**	
Nitrate (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	**0.28**	
Nitrite (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	< 0.010	
Oil & Grease	mg/L	9/28/2006 1:45:00 PM	EPA 1664	3.0	**4.3**	
pH @ 25° C	pH Units	9/28/2006 11:30:00 AM	150.1	0	**8.50**	H
Phosphate, ortho (as P)	mg/L	9/28/2006 12:45:00 PM	365.1	0.050	< 0.050	
Settable Solids	ml/L	9/28/2006 11:30:00 AM	160.5	0.10	**0.10**	
Sulfate	mg/L	10/2/2006 9:54:14 PM	300.0	50	**170**	
TDS	mg/L	9/28/2006 2:00:00 PM	160.1	10	**490**	
TSS	mg/L	9/28/2006 3:30:00 PM	160.2	3.0	**11**	

H - Sample was received outside of holding time.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-05
Field Sample ID: **Angle Spring**
Collected: 9/27/2006 10:00:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	9/29/2006 8:00:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**290**	
Ammonia (as N)	mg/L	9/29/2006 3:12:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**290**	
Carbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	10	< 10	
Chloride	mg/L	10/2/2006 10:27:31 PM	300.0	10	**21**	
Hardness (as CaCO3)	mg/L	10/11/2006	2340B	10	**340**	
Nitrate (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	**0.98**	
Nitrite (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	< 0.010	
Oil & Grease	mg/L	9/28/2006 1:45:00 PM	EPA 1664	3.0	**4.9**	
pH @ 25° C	pH Units	9/28/2006 11:30:00 AM	150.1	0	**7.71**	**H**
Phosphate, ortho (as P)	mg/L	9/28/2006 12:45:00 PM	365.1	0.050	< 0.050	
Settable Solids	ml/L	9/28/2006 11:30:00 AM	160.5	0.10	< 0.10	
Sulfate	mg/L	10/2/2006 10:27:31 PM	300.0	10	**16**	
TDS	mg/L	9/28/2006 2:00:00 PM	160.1	10	**300**	
TSS	mg/L	9/28/2006 3:30:00 PM	160.2	3.0	< 3.0	

H - Sample was received outside of holding time.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-06
Field Sample ID: **CR-06-03-ABV**
Collected: 9/27/2006 11:00:00 AM
Received: 9/28/2006

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	9/29/2006 8:00:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**370**	
Ammonia (as N)	mg/L	9/29/2006 3:12:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	20	**370**	
Carbonate (As CaCO3)	mg/L	9/28/2006 12:00:00 PM	2320B	10	< 10	
Chloride	mg/L	10/3/2006 12:07:21 AM	300.0	10	**17**	
Hardness (as CaCO3)	mg/L	10/11/2006	2340B	10	**440**	
Nitrate (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	< 0.010	
Nitrite (as N)	mg/L	9/28/2006 1:53:00 PM	353.2	0.010	< 0.010	
pH @ 25° C	pH Units	9/28/2006 11:30:00 AM	150.1	0	**7.24**	**H**
Phosphate, ortho (as P)	mg/L	9/28/2006 12:45:00 PM	365.1	0.050	< 0.050	
Sulfate	mg/L	10/3/2006 12:07:21 AM	300.0	10	**36**	
TDS	mg/L	9/28/2006 2:00:00 PM	160.1	10	**420**	

H - Sample was received outside of holding time.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-30875	Arsenic	mg/L	6020	0.2106	0.2	0	105	80-120				10/5/2006
LCS-30875	Cadmium	mg/L	6020	0.1970	0.2	0	98.5	80-120				10/5/2006
LCS-30875	Copper	mg/L	6020	0.1920	0.2	0	96.0	80-120				10/5/2006
LCS-30875	Lead	mg/L	6020	0.2012	0.2	0	101	80-120				10/5/2006
LCS-30875	Manganese	mg/L	6020	0.2036	0.2	0	102	80-120				10/5/2006
LCS-30875	Selenium	mg/L	6020	0.2026	0.2	0	101	80-120				10/5/2006
LCS-30875	Zinc	mg/L	6020	0.9885	1	0	98.8	80-120				10/5/2006
LCS-30876	Iron	mg/L	6010B	1.144	1	0	114	75-125				10/12/2006
LCS-30876	Manganese	mg/L	6010B	0.2067	0.2	0	103	75-125				10/12/2006
LCS-30875	Aluminum	mg/L	6010B	1.114	1	0	111	75-125				10/11/2006
LCS-30875	Boron	mg/L	6010B	1.038	1	0	104	75-125				10/11/2006
LCS-30875	Calcium	mg/L	6010B	10.51	10	0	105	75-125				10/11/2006
LCS-30875	Iron	mg/L	6010B	1.025	1	0	102	75-125				10/11/2006
LCS-30875	Magnesium	mg/L	6010B	10.10	10	0	101	75-125				10/11/2006
LCS-30875	Molybdenum	mg/L	6010B	0.2161	0.2	0	108	75-125				10/11/2006
LCS-30875	Potassium	mg/L	6010B	9.702	10	0	97.0	75-125				10/11/2006
LCS-30875	Sodium	mg/L	6010B	10.14	10	0	101	75-125				10/11/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-30875	Arsenic	mg/L	6020	< 0.0050				-				10/5/2006
MB-30875	Cadmium	mg/L	6020	< 0.0040				-				10/5/2006
MB-30875	Copper	mg/L	6020	< 0.0040				-				10/5/2006
MB-30875	Lead	mg/L	6020	< 0.0050				-				10/5/2006
MB-30875	Manganese	mg/L	6020	< 0.0050				-				10/5/2006
MB-30875	Selenium	mg/L	6020	< 0.0050				-				10/5/2006
MB-30875	Zinc	mg/L	6020	< 0.010				-				10/5/2006
MB-30876	Iron	mg/L	6010B	< 0.050				-				10/12/2006
MB-30876	Manganese	mg/L	6010B	< 0.0050				-				10/12/2006
MB-30875	Aluminum	mg/L	6010B	< 0.10				-				10/11/2006
MB-30875	Boron	mg/L	6010B	< 0.50				-				10/11/2006
MB-30875	Calcium	mg/L	6010B	< 1.0				-				10/11/2006
MB-30875	Iron	mg/L	6010B	< 0.050				-				10/11/2006
MB-30875	Magnesium	mg/L	6010B	< 1.0				-				10/11/2006
MB-30875	Molybdenum	mg/L	6010B	< 0.10				-				10/11/2006
MB-30875	Potassium	mg/L	6010B	< 1.0				-				10/11/2006
MB-30875	Sodium	mg/L	6010B	< 1.0				-				10/11/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74133-04EMS	Arsenic	mg/L	6020	0.2090	0.2	0	105	70-130				10/5/2006
L74133-04EMS	Cadmium	mg/L	6020	0.1994	0.2	0	99.7	70-130				10/5/2006
L74133-04EMS	Copper	mg/L	6020	0.1896	0.2	0	94.8	70-130				10/5/2006
L74133-04EMS	Lead	mg/L	6020	0.1971	0.2	0	98.6	70-130				10/5/2006
L74133-04EMS	Manganese	mg/L	6020	0.2188	0.2	0.01896	99.9	70-130				10/5/2006
L74133-04EMS	Selenium	mg/L	6020	0.1938	0.2	0	96.9	70-130				10/5/2006
L74133-04EMS	Zinc	mg/L	6020	0.9679	1	0	96.8	70-130				10/5/2006
L74133-01DMS	Iron	mg/L	6010B	2.526	1	1.274	125	75-125			[1]	10/12/2006
L74133-01DMS	Manganese	mg/L	6010B	0.2741	0.2	0.06246	106	75-125				10/12/2006
L74133-04EMS	Aluminum	mg/L	6010B	0.9683	1	0	96.8	75-125				10/11/2006
L74133-04EMS	Boron	mg/L	6010B	1.233	1	0	123	75-125				10/11/2006
L74133-04EMS	Calcium	mg/L	6010B	96.62	10	0	966	75-125			[2]	10/11/2006
L74133-04EMS	Iron	mg/L	6010B	1.118	1	0	112	75-125				10/11/2006
L74133-04EMS	Magnesium	mg/L	6010B	59.26	10	0	593	75-125			[2]	10/11/2006
L74133-04EMS	Molybdenum	mg/L	6010B	0.2122	0.2	0	106	75-125				10/11/2006
L74133-04EMS	Potassium	mg/L	6010B	19.38	10	0	194	75-125			[1]	10/11/2006
L74133-04EMS	Sodium	mg/L	6010B	47.83	10	0	478	75-125			[2]	10/11/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

[2] Analyte concentration is too high for accurate spike recovery.

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AMERICAN WEST ANALYTICAL LABORATORIES
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Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74133-04EMSD	Arsenic	mg/L	6020	0.2146	0.2	0	107	70-130	2.65	20		10/5/2006
L74133-04EMSD	Cadmium	mg/L	6020	0.2016	0.2	0	101	70-130	1.13	20		10/5/2006
L74133-04EMSD	Copper	mg/L	6020	0.1939	0.2	0	96.9	70-130	2.23	20		10/5/2006
L74133-04EMSD	Lead	mg/L	6020	0.2014	0.2	0	101	70-130	2.13	20		10/5/2006
L74133-04EMSD	Manganese	mg/L	6020	0.2242	0.2	0.01896	103	70-130	2.47	20		10/5/2006
L74133-04EMSD	Selenium	mg/L	6020	0.1983	0.2	0	99.2	70-130	2.29	20		10/5/2006
L74133-04EMSD	Zinc	mg/L	6020	0.9898	1	0	99.0	70-130	2.25	20		10/5/2006
L74133-01DMSD	Iron	mg/L	6010B	2.471	1	1.274	120	75-125	2.20	20		10/12/2006
L74133-01DMSD	Manganese	mg/L	6010B	0.2732	0.2	0.06246	105	75-125	0.329	20		10/12/2006
L74133-04EMSD	Aluminum	mg/L	6010B	0.9213	1	0	92.1	75-125	4.98	20		10/11/2006
L74133-04EMSD	Boron	mg/L	6010B	1.227	1	0	123	75-125	0.488	20		10/11/2006
L74133-04EMSD	Calcium	mg/L	6010B	95.75	10	0	958	75-125	0.905	20	2	10/11/2006
L74133-04EMSD	Iron	mg/L	6010B	1.129	1	0	113	75-125	0.974	20		10/11/2006
L74133-04EMSD	Magnesium	mg/L	6010B	58.21	10	0	582	75-125	1.79	20	2	10/11/2006
L74133-04EMSD	Molybdenum	mg/L	6010B	0.2204	0.2	0	110	75-125	3.76	20		10/11/2006
L74133-04EMSD	Potassium	mg/L	6010B	19.67	10	0	197	75-125	1.52	20	1	10/11/2006
L74133-04EMSD	Sodium	mg/L	6010B	47.58	10	0	476	75-125	0.524	20	2	10/11/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74133-01BDUP	pH @ 25° C	pH Units	150.1	8.450	0	8.44		-	0.118	5	H	9/28/2006
L74157-01BDUP	pH @ 25° C	pH Units	150.1	7.450	0	7.53		-	1.07	5		9/28/2006
L74159-08BDUP	pH @ 25° C	pH Units	150.1	7.060	0	7.13		-	0.987	5		9/28/2006
L74124-02BDUP	TDS	mg/L	160.1	25100	0	25500		-	1.58	20		9/28/2006
L74133-06ADUP	TDS	mg/L	160.1	424.0	0	424		-	0	20		9/28/2006
L74118-02ADUP	TSS	mg/L	160.2	< 3.0	0	6		-	0	20		9/28/2006
L74119-01BDUP	TSS	mg/L	160.2	218.0	0	213		-	2.32	20		9/28/2006
L74125-06BDUP	TSS	mg/L	160.2	30.00	0	27		-	10.5	20		9/28/2006
L74133-05ADUP	TSS	mg/L	160.2	< 3.0	0	0		-	0	20		9/28/2006

H - Sample was received outside of holding time.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R62147	Alkalinity,(As CaCO3)	mg/L	2320B	50740	50000	0	101	90-110				9/28/2006
LCS-R62249	Chloride	mg/L	300.0	4.972	5	0	99.4	90-110				10/2/2006
LCS-R62249	Sulfate	mg/L	300.0	5.200	5	0	104	90-110				10/2/2006
LCS-R62161	Acidity	mg/L	305.1	55.00	50	0	110	80-120				9/29/2006
LCS-30820	Ammonia (as N)	mg/L	350.1	0.9920	1	0	99.2	90-110				9/29/2006
LCS-62125	Nitrite (as N)	mg/L	353.2	0.9530	1	0	95.3	90-110				9/28/2006
LCS-62127	Nitrate (as N)	mg/L	353.2	0.9740	1	0	97.4	90-110				9/28/2006
LCS-R62139	Oil & Grease	mg/L	EPA 1664	38.50	40	0	96.2	79-114				9/28/2006
LCS-R62142	pH @ 25° C	pH Units	150.1	8.960	9	0	99.6	98-102				9/28/2006
LCS-62120	Phosphate, ortho (as P)	mg/L	365.1	0.9650	1	0	96.5	90-110				9/28/2006
LCS-R62210	TDS	mg/L	160.1	174.0	205	0	84.9	80-120				9/28/2006
LCS-R62166	TSS	mg/L	160.2	98.00	100	0	98.0	80-120				9/28/2006

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R62147	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				9/28/2006
MB-R62147	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				9/28/2006
MB-R62147	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				9/28/2006
MB-R62249	Chloride	mg/L	300.0	< 1.0				-				10/2/2006
MB-R62249	Sulfate	mg/L	300.0	< 1.0				-				10/2/2006
MB-R62161	Acidity	mg/L	305.1	< 15				-				9/29/2006
MB-30820	Ammonia (as N)	mg/L	350.1	< 0.050				-				9/29/2006
MB-62125	Nitrite (as N)	mg/L	353.2	< 0.010				-				9/28/2006
MB-62127	Nitrate (as N)	mg/L	353.2	< 0.010				-				9/28/2006
MB-R62139	Oil & Grease	mg/L	EPA 1664	< 3.0				-				9/28/2006
MB-62120	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				9/28/2006
MB-R62210	TDS	mg/L	160.1	< 10				-				9/28/2006
MB-R62166	TSS	mg/L	160.2	< 3.0				-				9/28/2006

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74133-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	341.0	100	237	104	80-120				9/28/2006
L74133-06BMS	Chloride	mg/L	300.0	65.46	50	17.27	96.4	90-110				10/3/2006
L74133-06BMS	Sulfate	mg/L	300.0	86.20	50	36.03	100	90-110				10/3/2006
L74133-01CMS	Ammonia (as N)	mg/L	350.1	0.9200	1	0	92.0	90-110				9/29/2006
L74117-02AMS	Ammonia (as N)	mg/L	350.1	154.2	2	147.6	329	90-110			2	9/29/2006
L74133-01BMS	Nitrite (as N)	mg/L	353.2	0.9310	1	0	93.1	90-110				9/28/2006
L74133-01BMS	Nitrate (as N)	mg/L	353.2	1.219	1	0.19	103	90-110				9/28/2006
L74133-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.9700	1	0.04	93.0	90-110				9/28/2006

[2] Analyte concentration is too high for accurate spike recovery.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: WC
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L74133-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	341.0	100	237	104	80-120	0	10		9/28/2006
L74133-06BMSD	Chloride	mg/L	300.0	65.19	50	17.27	95.8	90-110	0.418	20		10/3/2006
L74133-06BMSD	Sulfate	mg/L	300.0	85.10	50	36.03	98.2	90-110	1.28	20		10/3/2006
L74133-01CMSD	Ammonia (as N)	mg/L	350.1	0.8860	1	0	88.6	90-110	3.77	10	[1]	9/29/2006
L74117-02AMSD	Ammonia (as N)	mg/L	350.1	158.5	2	147.6	545	90-110	2.76	10	[2]	9/29/2006
L74133-01BMSD	Nitrite (as N)	mg/L	353.2	0.9460	1	0	94.6	90-110	1.60	10		9/28/2006
L74133-01BMSD	Nitrate (as N)	mg/L	353.2	1.154	1	0.19	96.4	90-110	5.48	10		9/28/2006
L74133-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.9930	1	0.04	95.3	90-110	2.34	10		9/28/2006

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R62139	Oil & Grease	mg/L	EPA 1664	37.30	40	0	93.3	79-114				9/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R62139	Oil & Grease	mg/L	EPA 1664	38.30	40	0	95.8	79-114	2.65	18		9/28/2006

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American West Analytical Labs

WORK ORDER Summary

28-Sep-06

Work Order L74133

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ / Footnote report, pH received outside of hold. Filter and preserve for dismetals

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L74133-01A	Miller Outlet	9/27/2006 8:30:00 AM	9/28/2006	10/12/2006	Aqueous	SS	ww - tss/tds/ss	1
				10/12/2006		TDS-W	ww - tss/tds/ss	1
				10/12/2006		TSS-W	ww - tss/tds/ss	1
L74133-01B				10/12/2006		2320B-ALK-W	sept 28 - wc	1
				10/12/2006		300.0-W	sept 28 - wc	1
				10/12/2006		ACIDITY-W	sept 28 - wc	1
				10/12/2006		NO2-W	sept 28 - wc	1
				10/12/2006		NO3-W	sept 28 - wc	1
				10/12/2006		PH-W	sept 28 - wc	1
				10/12/2006		PO4-O	sept 28 - wc	1
L74133-01C				10/12/2006		NH3-W	sept 28 - nh3	1
				10/12/2006		NH3-W-PREP	sept 28 - nh3	1
L74133-01D				10/12/2006		3005A-ICPMS	sept 28 - met	1
				10/12/2006		ICP-W	sept 28 - met	1
L74133-01E				10/12/2006	Aqueous-Dissolved	3005A-Diss	sept 28 - dis met	1
				10/12/2006		6020-W-DISS	sept 28 - dis met	1
				10/12/2006		HARD	sept 28 - dis met	1
				10/12/2006		ICP-W-DIS	sept 28 - dis met	1
L74133-01F				10/12/2006	Aqueous	OGB-W	ogb	1
L74133-02A	RES-1	9/27/2006 8:45:00 AM		10/12/2006		SS	ww - tss/tds/ss	1
				10/12/2006		TDS-W	ww - tss/tds/ss	1
				10/12/2006		TSS-W	ww - tss/tds/ss	1
L74133-02B				10/12/2006		2320B-ALK-W	sept 28 - wc	1
				10/12/2006		300.0-W	sept 28 - wc	1
				10/12/2006		ACIDITY-W	sept 28 - wc	1
				10/12/2006		NO2-W	sept 28 - wc	1
				10/12/2006		NO3-W	sept 28 - wc	1

WORK ORDER Summary

28-Sep-06

Work Order L74133

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ / Footnote report, pH received outside of hold. Filter and preserve for dismetals

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L74133-02B	RES-I	9/27/2006 8:45:00 AM	9/28/2006	10/12/2006	Aqueous	PH-W	sept 28 - wc	1
				10/12/2006		PO4-O	sept 28 - wc	1
L74133-02C				10/12/2006		NH3-W	sept 28 - nh3	1
				10/12/2006		NH3-W-PREP	sept 28 - nh3	1
L74133-02D				10/12/2006		3005A-ICPMS	sept 28 - met	1
				10/12/2006		ICP-W	sept 28 - met	1
L74133-02E				10/12/2006	Aqueous-Dissolved	3005A-Diss	sept 28 - dis met	1
				10/12/2006		6020-W-DISS	sept 28 - dis met	1
				10/12/2006		HARD	sept 28 - dis met	1
				10/12/2006		ICP-W-DIS	sept 28 - dis met	1
L74133-02F				10/12/2006	Aqueous	OGB-W	ogb	1
L74133-03A	Sulfer Spring	9/27/2006 9:00:00 AM		10/12/2006		SS	ww - tss/tds/ss	1
				10/12/2006		TDS-W	ww - tss/tds/ss	1
				10/12/2006		TSS-W	ww - tss/tds/ss	1
L74133-03B				10/12/2006		2320B-ALK-W	sept 28 - wc	1
				10/12/2006		300.0-W	sept 28 - wc	1
				10/12/2006		ACIDITY-W	sept 28 - wc	1
				10/12/2006		NO2-W	sept 28 - wc	1
				10/12/2006		NO3-W	sept 28 - wc	1
				10/12/2006		PH-W	sept 28 - wc	1
				10/12/2006		PO4-O	sept 28 - wc	1
L74133-03C				10/12/2006		NH3-W	sept 28 - nh3	1
				10/12/2006		NH3-W-PREP	sept 28 - nh3	1
L74133-03D				10/12/2006		3005A-ICPMS	sept 28 - met	1
				10/12/2006		ICP-W	sept 28 - met	1
L74133-03E				10/12/2006	Aqueous-Dissolved	3005A-Diss	sept 28 - dis met	1
				10/12/2006		6020-W-DISS	sept 28 - dis met	1
				10/12/2006		HARD	sept 28 - dis met	1

WORK ORDER Summary

28-Sep-06

Work Order L74133

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ / Footnote report, pH received outside of hold. Filter and preserve for dismetals

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L74133-03E	Sulfer Spring	9/27/2006 9:00:00 AM	9/28/2006	10/12/2006	Aqueous-Dissolved	ICP-W-DIS	sept 28 - dis met	1
L74133-03F				10/12/2006	Aqueous	OGB-W	ogb	1
L74133-04A	Mud Creek	9/27/2006 9:15:00 AM		10/12/2006		SS	ww - tss/tds/ss	1
				10/12/2006		TDS-W	ww - tss/tds/ss	1
				10/12/2006		TSS-W	ww - tss/tds/ss	1
L74133-04B				10/12/2006		2320B-ALK-W	sept 28 - wc	1
				10/12/2006		300.0-W	sept 28 - wc	1
				10/12/2006		ACIDITY-W	sept 28 - wc	1
				10/12/2006		NO2-W	sept 28 - wc	1
				10/12/2006		NO3-W	sept 28 - wc	1
				10/12/2006		PH-W	sept 28 - wc	1
				10/12/2006		PO4-O	sept 28 - wc	1
L74133-04C				10/12/2006		NH3-W	sept 28 - nh3	1
				10/12/2006		NH3-W-PREP	sept 28 - nh3	1
L74133-04D				10/12/2006		3005A-ICPMS	sept 28 - met	1
				10/12/2006		ICP-W	sept 28 - met	1
L74133-04E				10/12/2006	Aqueous-Dissolved	3005A-Diss	sept 28 - dis met	1
				10/12/2006		6020-W-DISS	sept 28 - dis met	1
				10/12/2006		HARD	sept 28 - dis met	1
				10/12/2006		ICP-W-DIS	sept 28 - dis met	1
L74133-04F				10/12/2006	Aqueous	OGB-W	ogb	1
L74133-05A	Angle Spring	9/27/2006 10:00:00 AM		10/12/2006		SS	ww - tss/tds/ss	1
				10/12/2006		TDS-W	ww - tss/tds/ss	1
				10/12/2006		TSS-W	ww - tss/tds/ss	1
L74133-05B				10/12/2006		2320B-ALK-W	sept 28 - wc	1
				10/12/2006		300.0-W	sept 28 - wc	1
				10/12/2006		ACIDITY-W	sept 28 - wc	1
				10/12/2006		NO2-W	sept 28 - wc	1

WORK ORDER Summary

28-Sep-06

Work Order L74133

Client ID: WHI100 **QC Level:** QC 2+

Project: Scofield Baseline **Location:**

Comments: QCLevel: QC 2+ / Footnote report, pH received outside of hold. Filter and preserve for dismetals

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L74133-05B	Angle Spring	9/27/2006 10:00:00 AM	9/28/2006	10/12/2006	Aqueous	NO3-W	sept 28 - wc	1
				10/12/2006		PH-W	sept 28 - wc	1
				10/12/2006		PO4-O	sept 28 - wc	1
L74133-05C				10/12/2006		NH3-W	sept 28 - nh3	1
				10/12/2006		NH3-W-PREP	sept 28 - nh3	1
L74133-05D				10/12/2006		3005A-ICPMS	sept 28 - met	1
				10/12/2006		ICP-W	sept 28 - met	1
L74133-05E				10/12/2006	Aqueous-Dissolved	3005A-Diss	sept 28 - dis met	1
				10/12/2006		6020-W-DISS	sept 28 - dis met	1
				10/12/2006		HARD	sept 28 - dis met	1
				10/12/2006		ICP-W-DIS	sept 28 - dis met	1
L74133-05F				10/12/2006	Aqueous	OGB-W	ogb	1
L74133-06A	CR-06-03-ABV	9/27/2006 11:00:00 AM		10/12/2006		TDS-W	ww - tds	1
L74133-06B				10/12/2006		2320B-ALK-W	sept 28 wc	1
				10/12/2006		300.0-W	sept 28 wc	1
				10/12/2006		ACIDITY-W	sept 28 wc	1
				10/12/2006		NO2-W	sept 28 wc	1
				10/12/2006		NO3-W	sept 28 wc	1
				10/12/2006		PH-W	sept 28 wc	1
				10/12/2006		PO4-O	sept 28 wc	1
L74133-06C				10/12/2006		NH3-W	sept 28 - nh3	1
				10/12/2006		NH3-W-PREP	sept 28 - nh3	1
L74133-06D				10/12/2006		3005A-ICPMS	sept 28 - met	1
				10/12/2006		ICP-W	sept 28 - met	1
L74133-06E				10/12/2006	Aqueous-Dissolved	3005A-Diss	sept 28 - dis met	1
				10/12/2006		6020-W-DISS	sept 28 - dis met	1
				10/12/2006		HARD	sept 28 - dis met	1
				10/12/2006		ICP-W-DIS	sept 28 - dis met	1

Client CARBON RESOURCES / ROCK LOGIC

Address PO BOX 544

CEDAREDGE CO 81413

City State Zip

Phone 435 851-9044 Fax

Contact BRAD LINDSAY

E-mail LINDSAY.BRAD@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 74133

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 3	TABLE 4	pH								COMMENTS
MILLER OUTLET	9-27-06 / 8:30	W	6	✓		✓								
~~SC~~ RES-1	/ 8:45	|	6	✓		✓								
SULFER SPRING	/ 9:00	|	6	✓		✓								
MUD CREEK	/ 9:15	|	6	✓		✓								
ANGLE SPRING	/ 10:00	|	6	✓		✓								
CR-06-03-ABV	/ 11:00	|	5		✓	✓								

Please indicate tests needed below

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 16:30	PRINT NAME UPS
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date 9-28-06	Received By: Signature
PRINT NAME	Time 1005	PRINT NAME Elena Hayward

Special Instructions:

PLEASE FILTER FOR DISOLVED METALS

LABORATORY USE ONLY

SAMPLES WERE:

1 (Shipped) or hand delivered
Notes: UPS

2 Ambient or (Chilled)
Notes:

3 Temperature 1.5°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
Y (N)
Notes:
pH

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Temperature	°C

		LABORATORY MEASUREMENTS		
*	-	Total Dissolved Solids		mg/l
*	-	Total Hardness ($CaCO_3$)		mg/l
*	-	Total Alkalinity		mg/l
	-	Acidity		mg/l
	-	Aluminum (Dissolved)		mg/l
	-	Arsenic (Dissolved)		mg/l
	-	Boron (Dissolved)[1]		mg/l
*	-	Carbonate		mg/l
*	-	Bicarbonate		mg/l
	-	Cadmium (Dissolved)		mg/l
*	-	Calcium (Dissolved)		mg/l
*	-	Chloride	mg/l	
	-	Copper (Dissolved)		mg/l
*	-	Iron (Dissolved)		mg/l
*	-	Iron (Total)		mg/l
	-	Lead (Dissolved)	mg/l	
*	-	Magnesium (Dissolved)		mg/l
*	-	Manganese (Dissolved)		mg/l
*	-	Manganese (Total)		mg/l
	-	Molybdenum (Dissolved)		mg/l
	-	Ammonia		mg/l
	-	Nitrates		mg/l
	-	Nitrites		mg/l
*	-	Potassium (Dissolved)		mg/l
	-	Phosphate (Ortho)		mg/l
	-	Selenium[1] (Dissolved)		mg/l
*	-	Sodium (Dissolved)		mg/l
*	-	Sulfate		mg/l
	-	Zinc (Dissolved)	mg/l	
*	-	Cations		meq/l
*	-	Anions		meq/l

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 24133

Preservation Check Sheet

			Sample Set Extension and pH															
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓																
COD[1]	pH <2 H_2SO_4																	
Cyanide	PH >12 NaOH																	
Metals	pH <2 HNO_3	✓																
NO_2 & NO_3[1]	pH <2 H_2SO_4																	
Nutrients[1]	pH <2 H_2SO_4																	
O & G	pH <2 HCL	✓																
Phenols[2]	pH <2 H_2SO_4																	
Sulfide	pH > 9NaOH, Zn Acetate																	
TKN[1]	pH <2 H_2SO_4																	
TOC	pH <2 H_3PO_4																	
TOX[2]	pH <2 H_2SO_4																	
T PO_4[1]	pH <2 H_2SO_4																	

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

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Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

November 30, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX

RE: Scofield Baseline

Lab Set ID: L81026

Dear Brad Lindsay:

American West Analytical Labs received 5 samples on 11/14/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-01E
Field Sample ID: **Mud Creek**
Collected: 11/12/2007 1:15:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/27/2007 4:18:00 PM	6010B	0.050	**0.24**
Manganese	mg/L	11/27/2007 4:18:00 PM	6010B	0.0050	**0.022**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L81026-02E
Field Sample ID: **Sulfur Spring**
Collected: 11/12/2007 2:50:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/27/2007 4:34:00 PM	6010B	0.050	< 0.050
Manganese	mg/L	11/27/2007 4:34:00 PM	6010B	0.0050	**0.028**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L81026-03E
Field Sample ID: **RES-1**
Collected: 11/12/2007 3:30:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/27/2007 4:38:00 PM	6010B	0.050	**0.77**
Manganese	mg/L	11/27/2007 4:38:00 PM	6010B	0.0050	**0.11**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-04E
Field Sample ID: **Miller Outlet**
Collected: 11/12/2007 12:30:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/27/2007 4:42:00 PM	6010B	0.050	**0.64**
Manganese	mg/L	11/27/2007 4:42:00 PM	6010B	0.0050	**0.031**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-05E
Field Sample ID: **Aspen Spring**
Collected: 11/12/2007 5:30:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/27/2007 4:46:00 PM	6010B	0.050	**5.2**
Manganese	mg/L	11/27/2007 4:46:00 PM	6010B	0.0050	**0.90**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-01F
Field Sample ID: **Mud Creek**
Collected: 11/12/2007 1:15:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	11/27/2007 2:29:00 PM	6010B	0.10	< 0.10	1
Arsenic	mg/L	11/16/2007 5:13:37 PM	6020	0.00060	< 0.00060	
Boron	mg/L	11/27/2007 2:29:00 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/16/2007 5:13:37 PM	6020	0.00018	< 0.00018	
Calcium	mg/L	11/27/2007 1:51:00 PM	6010B	10	**62**	#
Copper	mg/L	11/16/2007 5:13:37 PM	6020	0.00080	**0.0020**	
Iron	mg/L	11/27/2007 2:29:00 PM	6010B	0.050	< 0.050	
Lead	mg/L	11/16/2007 5:13:37 PM	6020	0.00010	**0.00025**	
Magnesium	mg/L	11/27/2007 2:29:00 PM	6010B	1.0	**40**	
Manganese	mg/L	11/16/2007 5:13:37 PM	6020	0.0012	**0.011**	
Molybdenum	mg/L	11/27/2007 2:29:00 PM	6010B	0.10	< 0.10	
Potassium	mg/L	11/27/2007 2:29:00 PM	6010B	1.0	**5.2**	
Selenium	mg/L	11/16/2007 5:13:37 PM	6020	0.00080	< 0.00080	
Sodium	mg/L	11/27/2007 1:51:00 PM	6010B	10	**31**	#
Zinc	mg/L	11/16/2007 5:13:37 PM	6020	0.0054	**0.0055**	

 # The reporting limits were raised due to high analyte concentration.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-02F
Field Sample ID: **Sulfur Spring**
Collected: 11/12/2007 2:50:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	11/27/2007 2:45:00 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	11/16/2007 5:56:24 PM	6020	0.00060	< 0.00060	
Boron	mg/L	11/27/2007 2:45:00 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/16/2007 5:56:24 PM	6020	0.00018	< 0.00018	
Calcium	mg/L	11/27/2007 2:03:00 PM	6010B	10	**86**	#
Copper	mg/L	11/16/2007 5:56:24 PM	6020	0.00080	**0.0012**	
Iron	mg/L	11/27/2007 2:45:00 PM	6010B	0.050	< 0.050	
Lead	mg/L	11/16/2007 5:56:24 PM	6020	0.00010	< 0.00010	
Magnesium	mg/L	11/27/2007 2:45:00 PM	6010B	1.0	**36**	
Manganese	mg/L	11/16/2007 5:56:24 PM	6020	0.0012	**0.028**	
Molybdenum	mg/L	11/27/2007 2:45:00 PM	6010B	0.10	< 0.10	
Potassium	mg/L	11/27/2007 2:45:00 PM	6010B	1.0	**4.4**	
Selenium	mg/L	11/16/2007 5:56:24 PM	6020	0.00080	< 0.00080	
Sodium	mg/L	11/27/2007 2:45:00 PM	6010B	1.0	**8.8**	
Zinc	mg/L	11/16/2007 5:56:24 PM	6020	0.0054	**0.0064**	

 # The reporting limits were raised due to high analyte concentration.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-03F
Field Sample ID: **RES-1**
Collected: 11/12/2007 3:30:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	11/27/2007 2:49:00 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	11/16/2007 6:01:49 PM	6020	0.00060	< 0.00060	
Boron	mg/L	11/27/2007 2:49:00 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/16/2007 6:01:49 PM	6020	0.00018	< 0.00018	
Calcium	mg/L	11/27/2007 2:07:00 PM	6010B	10	**63**	#
Copper	mg/L	11/16/2007 6:01:49 PM	6020	0.00080	**0.0018**	
Iron	mg/L	11/27/2007 2:49:00 PM	6010B	0.050	< 0.050	
Lead	mg/L	11/16/2007 6:01:49 PM	6020	0.00010	< 0.00010	
Magnesium	mg/L	11/27/2007 2:49:00 PM	6010B	1.0	**38**	
Manganese	mg/L	11/16/2007 6:01:49 PM	6020	0.0012	**0.052**	
Molybdenum	mg/L	11/27/2007 2:49:00 PM	6010B	0.10	< 0.10	
Potassium	mg/L	11/27/2007 2:49:00 PM	6010B	1.0	**6.4**	
Selenium	mg/L	11/16/2007 6:01:49 PM	6020	0.00080	< 0.00080	
Sodium	mg/L	11/27/2007 2:07:00 PM	6010B	10	**32**	#
Zinc	mg/L	11/16/2007 6:01:49 PM	6020	0.0054	< 0.0054	

 # The reporting limits were raised due to high analyte concentration.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-04F
Field Sample ID: **Miller Outlet**
Collected: 11/12/2007 12:30:00 PM
Received: 11/14/2007

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	11/27/2007 2:53:00 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	11/16/2007 6:07:15 PM	6020	0.00060	< 0.00060	
Boron	mg/L	11/27/2007 2:53:00 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/16/2007 6:07:15 PM	6020	0.00018	< 0.00018	
Calcium	mg/L	11/27/2007 2:11:00 PM	6010B	10	**74**	#
Copper	mg/L	11/16/2007 6:07:15 PM	6020	0.00080	**0.0012**	
Iron	mg/L	11/27/2007 2:53:00 PM	6010B	0.050	< 0.050	
Lead	mg/L	11/16/2007 6:07:15 PM	6020	0.00010	< 0.00010	
Magnesium	mg/L	11/27/2007 2:53:00 PM	6010B	1.0	**17**	
Manganese	mg/L	11/16/2007 6:07:15 PM	6020	0.0012	**0.0070**	
Molybdenum	mg/L	11/27/2007 2:53:00 PM	6010B	0.10	< 0.10	
Potassium	mg/L	11/27/2007 2:53:00 PM	6010B	1.0	**1.7**	
Selenium	mg/L	11/16/2007 6:07:15 PM	6020	0.00080	< 0.00080	
Sodium	mg/L	11/27/2007 2:53:00 PM	6010B	1.0	**6.3**	
Zinc	mg/L	11/16/2007 6:07:15 PM	6020	0.0054	< 0.0054	

 # The reporting limits were raised due to high analyte concentration.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-05F
Field Sample ID: **Aspen Spring**
Collected: 11/12/2007 5:30:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	11/27/2007 2:57:00 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	11/16/2007 6:12:40 PM	6020	0.00060	**0.0016**	
Boron	mg/L	11/27/2007 2:57:00 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	11/16/2007 6:12:40 PM	6020	0.00018	< 0.00018	
Calcium	mg/L	11/27/2007 2:15:00 PM	6010B	10	**64**	#
Copper	mg/L	11/16/2007 6:12:40 PM	6020	0.00080	**0.0020**	
Iron	mg/L	11/27/2007 2:57:00 PM	6010B	0.050	**1.5**	
Lead	mg/L	11/16/2007 6:12:40 PM	6020	0.00010	< 0.00010	
Magnesium	mg/L	11/27/2007 2:57:00 PM	6010B	1.0	**13**	
Manganese	mg/L	11/16/2007 6:12:40 PM	6020	0.0012	**0.75**	
Molybdenum	mg/L	11/27/2007 2:57:00 PM	6010B	0.10	< 0.10	
Potassium	mg/L	11/27/2007 2:57:00 PM	6010B	1.0	**15**	
Selenium	mg/L	11/16/2007 6:12:40 PM	6020	0.00080	< 0.00080	
Sodium	mg/L	11/27/2007 2:57:00 PM	6010B	1.0	**27**	
Zinc	mg/L	11/16/2007 6:12:40 PM	6020	0.0054	< 0.0054	

 # The reporting limits were raised due to high analyte concentration.

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-01
Field Sample ID: **Mud Creek**
Collected: 11/12/2007 1:15:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	11/15/2007 7:30:00 AM	2310B	15	< 15	
Alkalinity,(AsCaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**230**	
Ammonia (as N)	mg/L	11/15/2007 6:50:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**230**	
Carbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	< 20	
Chloride	mg/L	11/21/2007 12:13:50 AM	300.0	5.0	**6.9**	
Hardness (as CaCO3)	mg/L	11/27/2007	2340B	10	**320**	
Nitrate (as N)	mg/L	11/14/2007 11:16:00 AM	353.2	0.010	**0.16**	[1]
Nitrite (as N)	mg/L	11/14/2007 11:16:00 AM	353.2	0.010	< 0.010	[1@]
Oil & Grease	mg/L	11/18/2007 1:15:00 PM	1664A	3.0	< 3.0	
Phosphate, ortho (as P)	mg/L	11/14/2007 1:31:00 PM	365.1	0.050	< 0.050	[1H]
SettleableSolids	ml/L	11/14/2007 11:30:00 AM	2540F	0.10	< 0.10	
Sulfate	mg/L	11/21/2007 12:13:50 AM	300.0	5.0	**64**	
TDS	mg/L	11/14/2007 3:15:00 PM	160.1	20	**450**	
TSS	mg/L	11/14/2007 4:30:00 PM	2540D	3.0	**12**	

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
@ High RPD due to suspected matrix interference.
H -Inadequate time given to run within hold time.
[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-02
Field Sample ID: **SulfurSpring**
Collected: 11/12/2007 2:50:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/15/2007 7:30:00 AM	2310B	15	< 15
Alkalinity,(AsCaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**340**
Ammonia (as N)	mg/L	11/15/2007 6:55:00 PM	350.1	0.050	**0.085**
Bicarbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**340**
Carbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/21/2007 12:47:06 AM	300.0	5.0	**6.0**
Hardness (as CaCO3)	mg/L	11/27/2007	2340B	10	**360**
Nitrate (as N)	mg/L	11/14/2007 2:02:00 PM	353.2	0.010	< 0.010 [1]
Nitrite (as N)	mg/L	11/14/2007 2:02:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/18/2007 1:15:00 PM	1664A	3.0	**4.2**
Phosphate, ortho (as P)	mg/L	11/14/2007 1:31:00 PM	365.1	0.050	< 0.050
SettleableSolids	ml/L	11/14/2007 11:30:00 AM	2540F	0.10	< 0.10
Sulfate	mg/L	11/21/2007 12:47:06 AM	300.0	5.0	**43**
TDS	mg/L	11/14/2007 3:15:00 PM	160.1	20	**440**
TSS	mg/L	11/14/2007 4:30:00 PM	2540D	3.0	< 3.0

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-03
Field Sample ID: **RES-1**
Collected: 11/12/2007 3:30:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/15/2007 7:30:00 AM	2310B	15	< 15
Alkalinity,(AsCaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**220**
Ammonia (as N)	mg/L	11/15/2007 6:55:00 PM	350.1	0.050	**0.055**
Bicarbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/21/2007 2:26:59 AM	300.0	5.0	**19**
Hardness (as CaCO3)	mg/L	11/27/2007	2340B	10	**310**
Nitrate (as N)	mg/L	11/14/2007 2:02:00 PM	353.2	0.010	**0.011**
Nitrite (as N)	mg/L	11/14/2007 2:02:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/18/2007 1:15:00 PM	1664A	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	11/14/2007 1:31:00 PM	365.1	0.050	< 0.050
SettleableSolids	ml/L	11/14/2007 11:30:00 AM	2540F	0.10	< 0.10
Sulfate	mg/L	11/21/2007 2:26:59 AM	300.0	5.0	**120**
TDS	mg/L	11/14/2007 3:15:00 PM	160.1	20	**470**
TSS	mg/L	11/14/2007 4:30:00 PM	2540D	3.0	**18**

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
ProjectID: ScofieldBaseline

Contact: BradLindsay

Lab SampleID: L81026-04
Field SampleID: **Miller Outlet**
Collected: 11/12/2007 12:30:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	11/15/2007 7:30:00 AM	2310B	15	< 15	
Alkalinity,(AsCaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**240**	
Ammonia (as N)	mg/L	11/15/2007 6:56:00 PM	350.1	0.050	**0.054**	
Bicarbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**240**	
Carbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	10	< 10	
Chloride	mg/L	11/21/2007 3:00:16 AM	300.0	5.0	**9.7**	
Hardness (as CaCO3)	mg/L	11/27/2007	2340B	10	**250**	
Nitrate (as N)	mg/L	11/14/2007 11:16:00 AM	353.2	0.010	**0.078**	
Nitrite (as N)	mg/L	11/14/2007 11:16:00 AM	353.2	0.010	< 0.010	
Oil & Grease	mg/L	11/18/2007 1:15:00 PM	1664A	3.0	**3.2**	
Phosphate, ortho (as P)	mg/L	11/14/2007 1:31:00 PM	365.1	0.050	< 0.050	**H**
SettleableSolids	ml/L	11/14/2007 11:30:00 AM	2540F	0.10	< 0.10	
Sulfate	mg/L	11/21/2007 3:00:16 AM	300.0	5.0	**25**	
TDS	mg/L	11/14/2007 3:15:00 PM	160.1	20	**320**	
TSS	mg/L	11/14/2007 4:30:00 PM	2540D	3.0	**26**	

H -Inadequate time given to run within hold time.

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-05
Field Sample ID: **AspenSpring**
Collected: 11/12/2007 5:30:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	11/15/2007 7:30:00 AM	2310B	15	< 15
Alkalinity,(AsCaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**220**
Ammonia (as N)	mg/L	11/15/2007 6:57:00 PM	350.1	0.050	**0.093**
Bicarbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/21/2007 3:33:33 AM	300.0	10	**26**
Hardness (as CaCO3)	mg/L	11/27/2007	2340B	10	**210**
Nitrate (as N)	mg/L	11/14/2007 2:02:00 PM	353.2	0.010	**0.36**
Nitrite (as N)	mg/L	11/14/2007 2:02:00 PM	353.2	0.010	**0.012**
Oil & Grease	mg/L	11/21/2007 12:20:00 PM	1664A	3.0	**5.1**
Phosphate, ortho (as P)	mg/L	11/14/2007 1:31:00 PM	365.1	0.050	< 0.050
SettleableSolids	ml/L	11/14/2007 11:30:00 AM	2540F	0.10	< 0.10
Sulfate	mg/L	11/27/2007 10:23:59 AM	300.0	1.0	**1.7**
TDS	mg/L	11/14/2007 3:15:00 PM	160.1	20	**340**
TSS	mg/L	11/14/2007 4:30:00 PM	2540D	3.0	**27**

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-01
Field Sample ID: **Mud Creek**
Collected: 11/12/2007 1:15:00 PM
Received: 11/14/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

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Laboratory Director

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	11/15/2007 7:30:00 AM	2310B	15	< 15	
Alkalinity,(AsCaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**230**	
Ammonia (as N)	mg/L	11/15/2007 6:50:00 PM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	**230**	
Carbonate (As CaCO3)	mg/L	11/15/2007 7:00:00 AM	2320B	20	< 20	
Chloride	mg/L	11/21/2007 12:13:50 AM	300.0	5.0	**6.9**	
Hardness (as CaCO3)	mg/L	11/27/2007	2340B	10	**320**	
Nitrate (as N)	mg/L	11/14/2007 11:16:00 AM	353.2	0.010	**0.16**	[1]
Nitrite (as N)	mg/L	11/14/2007 11:16:00 AM	353.2	0.010	< 0.010	[1]@
Oil & Grease	mg/L	11/18/2007 1:15:00 PM	1664A	3.0	< 3.0	
Phosphate, ortho (as P)	mg/L	11/14/2007 1:31:00 PM	365.1	0.050	< 0.050	[1]H
SettleableSolids	ml/L	11/14/2007 11:30:00 AM	2540F	0.10	< 0.10	
Sulfate	mg/L	11/21/2007 12:13:50 AM	300.0	5.0	**64**	
TDS	mg/L	11/14/2007 3:15:00 PM	160.1	20	**450**	
TSS	mg/L	11/14/2007 4:30:00 PM	2540D	3.0	**12**	

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
@ High RPD due to suspected matrix interference.
H -Inadequate time given to run within hold time.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-37696	Arsenic	mg/L	6020	0.2083	0.2	0	104	85-115				11/16/2007
LCS-37696	Cadmium	mg/L	6020	0.2000	0.2	0	100	85-115				11/16/2007
LCS-37696	Copper	mg/L	6020	0.1981	0.2	0	99.1	85-115				11/16/2007
LCS-37696	Lead	mg/L	6020	0.2044	0.2	0	102	85-115				11/16/2007
LCS-37696	Manganese	mg/L	6020	0.2000	0.2	0	100	85-115				11/16/2007
LCS-37696	Selenium	mg/L	6020	0.2084	0.2	0	104	85-115				11/16/2007
LCS-37696	Zinc	mg/L	6020	1.006	1	0	101	85-115				11/16/2007
LCS-37697	Iron	mg/L	6010B	1.085	1	0	109	75-125				11/27/2007
LCS-37697	Manganese	mg/L	6010B	0.1993	0.2	0	99.6	75-125				11/27/2007
LCS-37696	Aluminum	mg/L	6010B	0.9348	1	0	93.5	75-125				11/27/2007
LCS-37696	Boron	mg/L	6010B	1.083	1	0	108	75-125				11/27/2007
LCS-37696	Calcium	mg/L	6010B	10.23	10	0.03474	102	75-125				11/27/2007
LCS-37696	Iron	mg/L	6010B	1.047	1	0	105	75-125				11/27/2007
LCS-37696	Magnesium	mg/L	6010B	10.21	10	0	102	75-125				11/27/2007
LCS-37696	Molybdenum	mg/L	6010B	0.1974	0.2	0	98.7	75-125				11/27/2007
LCS-37696	Potassium	mg/L	6010B	9.966	10	0	99.7	75-125				11/27/2007
LCS-37696	Sodium	mg/L	6010B	10.12	10	0	101	75-125				11/27/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-37696	Arsenic	mg/L	6020	< 0.00060				-				11/16/2007
MB-37696	Cadmium	mg/L	6020	< 0.00018				-				11/16/2007
MB-37696	Copper	mg/L	6020	< 0.00080				-				11/16/2007
MB-37696	Lead	mg/L	6020	< 0.00010				-				11/16/2007
MB-37696	Manganese	mg/L	6020	< 0.0012				-				11/16/2007
MB-37696	Selenium	mg/L	6020	< 0.00080				-				11/16/2007
MB-37696	Zinc	mg/L	6020	< 0.0054				-				11/16/2007
MB-37697	Iron	mg/L	6010B	< 0.050				-				11/27/2007
MB-37697	Manganese	mg/L	6010B	< 0.0050				-				11/27/2007
MB-37696	Aluminum	mg/L	6010B	< 0.10				-				11/27/2007
MB-37696	Boron	mg/L	6010B	< 0.50				-				11/27/2007
MB-37696	Calcium	mg/L	6010B	< 1.0				-				11/27/2007
MB-37696	Iron	mg/L	6010B	< 0.050				-				11/27/2007
MB-37696	Magnesium	mg/L	6010B	< 1.0				-				11/27/2007
MB-37696	Molybdenum	mg/L	6010B	< 0.040				-				11/27/2007
MB-37696	Potassium	mg/L	6010B	< 1.0				-				11/27/2007
MB-37696	Sodium	mg/L	6010B	< 1.0				-				11/27/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L81026-01FMS	Arsenic	mg/L	6020	0.2108	0.2	0.000166	105	70-130				11/16/2007
L81026-01FMS	Cadmium	mg/L	6020	0.2047	0.2	0	102	70-130				11/16/2007
L81026-01FMS	Copper	mg/L	6020	0.1930	0.2	0.002013	95.5	70-130				11/16/2007
L81026-01FMS	Lead	mg/L	6020	0.2047	0.2	0.000254	102	70-130				11/16/2007
L81026-01FMS	Manganese	mg/L	6020	0.2107	0.2	0.01064	100	70-130				11/16/2007
L81026-01FMS	Selenium	mg/L	6020	0.2108	0.2	0.000601	105	70-130				11/16/2007
L81026-01FMS	Zinc	mg/L	6020	1.030	1	0.005545	102	70-130				11/16/2007
L81026-01EMS	Iron	mg/L	6010B	1.285	1	0.2436	104	75-125				11/27/2007
L81026-01EMS	Manganese	mg/L	6010B	0.2206	0.2	0.02174	99.4	75-125				11/27/2007
L81041-01HMS	Iron	mg/L	6010B	9.012	1	8.061	95.1	75-125				11/27/2007
L81026-01FMS	Calcium	mg/L	6010B	70.39	10	62.11	82.8	75-125				11/27/2007
L81026-01FMS	Sodium	mg/L	6010B	39.21	10	30.65	85.7	75-125				11/27/2007
L81026-01FMS	Aluminum	mg/L	6010B	0.6358	1	0	63.6	75-125			I	11/27/2007
L81026-01FMS	Boron	mg/L	6010B	1.333	1	0.3591	97.3	75-125				11/27/2007
L81026-01FMS	Iron	mg/L	6010B	1.108	1	0.01834	109	75-125				11/27/2007
L81026-01FMS	Magnesium	mg/L	6010B	48.19	10	40.1	80.9	75-125				11/27/2007
L81026-01FMS	Molybdenum	mg/L	6010B	0.2070	0.2	0	104	75-125				11/27/2007
L81026-01FMS	Potassium	mg/L	6010B	16.58	10	5.175	114	75-125				11/27/2007

I Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L81026-01FMSD	Arsenic	mg/L	6020	0.2070	0.2	0.000166	103	70-130	1.83	20		11/16/2007
L81026-01FMSD	Cadmium	mg/L	6020	0.2020	0.2	0	101	70-130	1.32	20		11/16/2007
L81026-01FMSD	Copper	mg/L	6020	0.1918	0.2	0.002013	94.9	70-130	0.588	20		11/16/2007
L81026-01FMSD	Lead	mg/L	6020	0.2017	0.2	0.000254	101	70-130	1.49	20		11/16/2007
L81026-01FMSD	Manganese	mg/L	6020	0.2085	0.2	0.01064	98.9	70-130	1.02	20		11/16/2007
L81026-01FMSD	Selenium	mg/L	6020	0.2052	0.2	0.000601	102	70-130	2.69	20		11/16/2007
L81026-01FMSD	Zinc	mg/L	6020	1.009	1	0.005545	100	70-130	2.03	20		11/16/2007
L81026-01EMSD	Iron	mg/L	6010B	1.287	1	0.2436	104	75-125	0.134	20		11/27/2007
L81026-01EMSD	Manganese	mg/L	6010B	0.2219	0.2	0.02174	100	75-125	0.604	20		11/27/2007
L81041-01HMSD	Iron	mg/L	6010B	9.104	1	8.061	104	75-125	1.01	20		11/27/2007
L81026-01FMSD	Calcium	mg/L	6010B	69.84	10	62.11	77.3	75-125	0.781	20		11/27/2007
L81026-01FMSD	Sodium	mg/L	6010B	38.71	10	30.65	80.7	75-125	1.28	20		11/27/2007
L81026-01FMSD	Aluminum	mg/L	6010B	0.6472	1	0	64.7	75-125	1.78	20	[1]	11/27/2007
L81026-01FMSD	Boron	mg/L	6010B	1.322	1	0.3591	96.3	75-125	0.766	20		11/27/2007
L81026-01FMSD	Iron	mg/L	6010B	1.068	1	0.01834	105	75-125	3.66	20		11/27/2007
L81026-01FMSD	Magnesium	mg/L	6010B	47.93	10	40.1	78.3	75-125	0.541	20		11/27/2007
L81026-01FMSD	Molybdenum	mg/L	6010B	0.2011	0.2	0	101	75-125	2.88	20		11/27/2007
L81026-01FMSD	Potassium	mg/L	6010B	16.46	10	5.175	113	75-125	0.712	20		11/27/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L80984-03BDUP	TDS	mg/L	160.1	9800	0	9400		-	4.17	20		11/14/2007
L81013-06DDUP	TDS	mg/L	160.1	512.0	0	500		-	2.37	20		11/14/2007
L81026-05ADUP	TDS	mg/L	160.1	348.0	0	340		-	2.33	20		11/14/2007
L81006-02ADUP	TSS	mg/L	2540D	6.000	0	8		-	28.6	20	*	11/14/2007
L81025-02ADUP	TSS	mg/L	2540D	24.00	0	23		-	4.26	20		11/14/2007
L81026-05ADUP	TSS	mg/L	2540D	28.00	0	27		-	3.64	20		11/14/2007

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R76468	Alkalinity,(As CaCO3)	mg/L	2320B	50120	50000	0	100	90-110				11/15/2007
LCS-R76720	Chloride	mg/L	300.0	5.103	5	0.008	102	90-110				11/20/2007
LCS-R76720	Sulfate	mg/L	300.0	5.234	5	0	105	90-110				11/20/2007
LCS-R76878	Chloride	mg/L	300.0	4.641	5	0.008	92.7	90-110				11/26/2007
LCS-R76878	Sulfate	mg/L	300.0	4.691	5	0	93.8	90-110				11/26/2007
LCS-R76469	Acidity	mg/L	2310B	55.00	50	0	110	80-120				11/15/2007
LCS-37688	Ammonia (as N)	mg/L	350.1	0.9850	1	0	98.5	90-110				11/15/2007
LCS-R76422	Nitrite (as N)	mg/L	353.2	0.9000	1	0	90.0	90-110				11/14/2007
LCS-R76440	Nitrite (as N)	mg/L	353.2	0.9430	1	0	94.3	90-110				11/14/2007
LCS-R76421	Nitrate (as N)	mg/L	353.2	0.9840	1	0	98.4	90-110				11/14/2007
LCS-R76441	Nitrate (as N)	mg/L	353.2	1.023	1	0	102	90-110				11/14/2007
LCS-R76635	Oil & Grease	mg/L	1664A	40.30	40	0	101	79-114				11/18/2007
LCS-R76760	Oil & Grease	mg/L	1664A	40.30	40	0	101	79-114				11/21/2007
LCS-R76434	Phosphate, ortho (as P)	mg/L	365.1	0.9060	1	0	90.6	90-110				11/14/2007
LCS-R76498	TDS	mg/L	160.1	218.0	205	0	106	80-120				11/14/2007
LCS-R76479	TSS	mg/L	2540D	95.00	100	0	95.0	80-120				11/14/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R76468	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				11/15/2007
MB-R76468	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				11/15/2007
MB-R76468	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				11/15/2007
MB-R76720	Chloride	mg/L	300.0	< 1.0				-				11/20/2007
MB-R76720	Sulfate	mg/L	300.0	< 1.0				-				11/20/2007
MB-R76878	Chloride	mg/L	300.0	< 1.0				-				11/26/2007
MB-R76878	Sulfate	mg/L	300.0	< 1.0				-				11/26/2007
MB-R76469	Acidity	mg/L	2310B	< 15				-				11/15/2007
MB-37688	Ammonia (as N)	mg/L	350.1	< 0.050				-				11/15/2007
MB-R76422	Nitrite (as N)	mg/L	353.2	< 0.010				-				11/14/2007
MB-R76440	Nitrite (as N)	mg/L	353.2	< 0.010				-				11/14/2007
MB-R76421	Nitrate (as N)	mg/L	353.2	< 0.010				-				11/14/2007
MB-R76441	Nitrate (as N)	mg/L	353.2	< 0.010				-				11/14/2007
MB-R76635	Oil & Grease	mg/L	1664A	< 3.0				-				11/18/2007
MB-R76760	Oil & Grease	mg/L	1664A	< 3.0				-				11/21/2007
MB-R76434	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				11/14/2007
MB-R76498	TDS	mg/L	160.1	< 10				-				11/14/2007
MB-R76479	TSS	mg/L	2540D	< 3.0				-				11/14/2007

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L81026-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	329.0	100	229	100	80-120				11/15/2007
L81013-03CMS	Chloride	mg/L	300.0	46.68	25	22.19	98.0	90-110				11/20/2007
L81026-02BMS	Chloride	mg/L	300.0	54.03	50	6.006	96.1	90-110				11/21/2007
L81026-02BMS	Sulfate	mg/L	300.0	92.79	50	42.63	100	90-110				11/21/2007
L81074-01CMS	Chloride	mg/L	300.0	203.5	100	107.8	95.6	90-110				11/26/2007
L81074-01CMS	Sulfate	mg/L	300.0	158.4	100	58.74	99.7	90-110				11/26/2007
L81105-01CMS	Chloride	mg/L	300.0	1026	500	539.3	97.3	90-110				11/27/2007
L81105-01CMS	Sulfate	mg/L	300.0	509.2	500	16.71	98.5	90-110				11/27/2007
L81026-01BMS	Acidity	mg/L	2310B	52.00	50	0	104	80-120				11/15/2007
L80787-01FMS	Ammonia (as N)	mg/L	350.1	2.118	2	0.304	90.7	90-110				11/15/2007
L81026-01CMS	Ammonia (as N)	mg/L	350.1	0.9630	1	0.032	93.1	90-110				11/15/2007
L81026-01BMS	Nitrite (as N)	mg/L	353.2	1.002	1	0	100	90-110				11/14/2007
L81026-02BMS	Nitrite (as N)	mg/L	353.2	0.9930	1	0	99.3	90-110				11/14/2007
L81026-01BMS	Nitrate (as N)	mg/L	353.2	1.309	1	0.164	114	90-110			[1]	11/14/2007
L81026-02BMS	Nitrate (as N)	mg/L	353.2	1.137	1	0	114	90-110			[1]	11/14/2007
L81026-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.8330	1	0.01	82.3	90-110			[1]H	11/14/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

H - Inadequate time given to run within hold time.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L81026-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	326.0	100	229	97.0	80-120	0.916	10		11/15/2007
L81013-03CMSD	Chloride	mg/L	300.0	46.35	25	22.19	96.7	90-110	0.705	20		11/20/2007
L81026-02BMSD	Chloride	mg/L	300.0	52.91	50	6.006	93.8	90-110	2.10	20		11/21/2007
L81026-02BMSD	Sulfate	mg/L	300.0	90.37	50	42.63	95.5	90-110	2.64	20		11/21/2007
L81074-01CMSD	Chloride	mg/L	300.0	199.1	100	107.8	91.3	90-110	2.16	20		11/26/2007
L81074-01CMSD	Sulfate	mg/L	300.0	155.6	100	58.74	96.8	90-110	1.81	20		11/26/2007
L81105-01CMSD	Chloride	mg/L	300.0	1019	500	539.3	95.9	90-110	0.702	20		11/27/2007
L81105-01CMSD	Sulfate	mg/L	300.0	506.8	500	16.71	98.0	90-110	0.481	20		11/27/2007
L81026-01BMSD	Acidity	mg/L	2310B	50.00	50	0	100	80-120	3.92	20		11/15/2007
L80787-01FMSD	Ammonia (as N)	mg/L	350.1	2.226	2	0.304	96.1	90-110	4.97	10		11/15/2007
L81026-01CMSD	Ammonia (as N)	mg/L	350.1	0.9730	1	0.032	94.1	90-110	1.03	10		11/15/2007
L81026-01BMSD	Nitrite (as N)	mg/L	353.2	1.110	1	0	111	90-110	10.2	10	[1]@	11/14/2007
L81026-02BMSD	Nitrite (as N)	mg/L	353.2	0.9780	1	0	97.8	90-110	1.52	10		11/14/2007
L81026-01BMSD	Nitrate (as N)	mg/L	353.2	1.402	1	0.164	124	90-110	6.86	10	[1]	11/14/2007
L81026-02BMSD	Nitrate (as N)	mg/L	353.2	1.105	1	0	110	90-110	2.85	10	[1]	11/14/2007
L81026-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.8130	1	0.01	80.3	90-110	2.43	10	[1]H	11/14/2007

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

H - Inadequate time given to run within hold time.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R76635	Oil & Grease	mg/L	1664A	38.80	40	0	97.0	79-114				11/18/2007
QCS-R76760	Oil & Grease	mg/L	1664A	37.90	40	0	94.8	79-114				11/21/2007

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R76635	Oil & Grease	mg/L	1664A	38.70	40	0	96.8	79-114	0.258	18		11/18/2007
QCSD-R76760	Oil & Grease	mg/L	1664A	37.30	40	0	93.3	79-114	1.60	18		11/21/2007

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

American West Analytical Labs

WORK ORDER Summary

14-Nov-07

Work Order L81026

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:**

Contact: Brad Lindsay

Comments: QCLevel: 2+.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L81026-01A	Mud Creek	11/12/2007 1:15:00 PM	11/14/2007	11/30/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				11/30/2007		TDS-W	ww - tss/tds/ss	1
				11/30/2007		TSS-W-2540D	ww - tss/tds/ss	1
L81026-01B				11/30/2007		2320B-ALK-W	nov 14 - wc	1
				11/30/2007		300.0-W	nov 14 - wc	1
				11/30/2007		ACIDITY-W-2310B	nov 14 - wc	1
				11/30/2007		NO2-W	nov 14 - wc	1
				11/30/2007		NO3-W	nov 14 - wc	1
				11/30/2007		PO4-O	nov 14 - wc	1
L81026-01C				11/30/2007		NH3-W	nov 14 - nh3	1
				11/30/2007		NH3-W-PREP	nov 14 - nh3	1
L81026-01D				11/30/2007		OGB-W	ogb	1
L81026-01E				11/30/2007		3005A-ICPMS	nov 14 - met	1
				11/30/2007		ICP-W	nov 14 - met	1
L81026-01F				11/30/2007	Aqueous-Dissolved	3005A-Diss	nov 14 - dis met	1
				11/30/2007		6020-W-DISS	nov 14 - dis met	1
				11/30/2007		HARD	nov 14 - dis met	1
				11/30/2007		ICP-W-DIS	nov 14 - dis met	1
L81026-02A	Sulfur Spring	11/12/2007 2:50:00 PM		11/30/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				11/30/2007		TDS-W	ww - tss/tds/ss	1
				11/30/2007		TSS-W-2540D	ww - tss/tds/ss	1
L81026-02B				11/30/2007		2320B-ALK-W	nov 14 - wc	1
				11/30/2007		300.0-W	nov 14 - wc	1
				11/30/2007		ACIDITY-W-2310B	nov 14 - wc	1
				11/30/2007		NO2-W	nov 14 - wc	1
				11/30/2007		NO3-W	nov 14 - wc	1
				11/30/2007		PO4-O	nov 14 - wc	1

WORK ORDER Summary

14-Nov-07

Work Order L81026

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L81026-02C	Sulfur Spring	11/12/2007 2:50:00 PM	11/14/2007	11/30/2007	Aqueous	NH3-W	nov 14 - nh3	1
				11/30/2007		NH3-W-PREP	nov 14 - nh3	1
L81026-02D				11/30/2007		OGB-W	ogb	1
L81026-02E				11/30/2007		3005A-ICPMS	nov 14 - met	1
				11/30/2007		ICP-W	nov 14 - met	1
L81026-02F				11/30/2007	Aqueous-Dissolved	3005A-Diss	nov 14 - dis met	1
				11/30/2007		6020-W-DISS	nov 14 - dis met	1
				11/30/2007		HARD	nov 14 - dis met	1
				11/30/2007		ICP-W-DIS	nov 14 - dis met	1
L81026-03A	RES-1	11/12/2007 3:30:00 PM		11/30/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				11/30/2007		TDS-W	ww - tss/tds/ss	1
				11/30/2007		TSS-W-2540D	ww - tss/tds/ss	1
L81026-03B				11/30/2007		2320B-ALK-W	nov 14 - wc	1
				11/30/2007		300.0-W	nov 14 - wc	1
				11/30/2007		ACIDITY-W-2310B	nov 14 - wc	1
				11/30/2007		NO2-W	nov 14 - wc	1
				11/30/2007		NO3-W	nov 14 - wc	1
				11/30/2007		PO4-O	nov 14 - wc	1
L81026-03C				11/30/2007		NH3-W	nov 14 - nh3	1
				11/30/2007		NH3-W-PREP	nov 14 - nh3	1
L81026-03D				11/30/2007		OGB-W	ogb	1
L81026-03E				11/30/2007		3005A-ICPMS	nov 14 - met	1
				11/30/2007		ICP-W	nov 14 - met	1
L81026-03F				11/30/2007	Aqueous-Dissolved	3005A-Diss	nov 14 - dis met	1
				11/30/2007		6020-W-DISS	nov 14 - dis met	1
				11/30/2007		HARD	nov 14 - dis met	1
				11/30/2007		ICP-W-DIS	nov 14 - dis met	1
L81026-04A	Miller Outlet	11/12/2007 12:30:00 PM		11/30/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1

WORK ORDER Summary

14-Nov-07

Work Order L81026

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L81026-04A	Miller Outlet	11/12/2007 12:30:00 PM	11/14/2007	11/30/2007	Aqueous	TDS-W	ww - tss/tds/ss	1
				11/30/2007		TSS-W-2540D	ww - tss/tds/ss	1
L81026-04B				11/30/2007		2320B-ALK-W	nov 14 - wc	1
				11/30/2007		300.0-W	nov 14 - wc	1
				11/30/2007		ACIDITY-W-2310B	nov 14 - wc	1
				11/30/2007		NO2-W	nov 14 - wc	1
				11/30/2007		NO3-W	nov 14 - wc	1
				11/30/2007		PO4-O	nov 14 - wc	1
L81026-04C				11/30/2007		NH3-W	nov 14 - nh3	1
				11/30/2007		NH3-W-PREP	nov 14 - nh3	1
L81026-04D				11/30/2007		OGB-W	ogb	1
L81026-04E				11/30/2007		3005A-ICPMS	nov 14 - met	1
				11/30/2007		ICP-W	nov 14 - met	1
L81026-04F				11/30/2007	Aqueous-Dissolved	3005A-Diss	nov 14 - dis met	1
				11/30/2007		6020-W-DISS	nov 14 - dis met	1
				11/30/2007		HARD	nov 14 - dis met	1
				11/30/2007		ICP-W-DIS	nov 14 - dis met	1
L81026-05A	Aspen Spring	11/12/2007 5:30:00 PM		11/30/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				11/30/2007		TDS-W	ww - tss/tds/ss	1
				11/30/2007		TSS-W-2540D	ww - tss/tds/ss	1
L81026-05B				11/30/2007		2320B-ALK-W	nov 14 - wc	1
				11/30/2007		300.0-W	nov 14 - wc	1
				11/30/2007		ACIDITY-W-2310B	nov 14 - wc	1
				11/30/2007		NO2-W	nov 14 - wc	1
				11/30/2007		NO3-W	nov 14 - wc	1
				11/30/2007		PO4-O	nov 14 - wc	1
L81026-05C				11/30/2007		NH3-W	nov 14 - nh3	1
				11/30/2007		NH3-W-PREP	nov 14 - nh3	1

WORK ORDER Summary

14-Nov-07

Work Order L81026

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L81026-05D	Aspen Spring	11/12/2007 5:30:00 PM	11/14/2007	11/30/2007	Aqueous	OGB-W	ogb	1
L81026-05E				11/30/2007		3005A-ICPMS	nov 14 - met	1
				11/30/2007		ICP-W	nov 14 - met	1
L81026-05F				11/30/2007	Aqueous-Dissolved	3005A-Diss	nov 14 - dis met	1
				11/30/2007		6020-W-DISS	nov 14 - dis met	1
				11/30/2007		HARD	nov 14 - dis met	1
				11/30/2007		ICP-W-DIS	nov 14 - dis met	1

Client CARBON RESOURCES C/O ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.# —

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 81026

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 3											QC LEVEL / COMMENTS
MUD CREEK	11-12-07 / 13:15	W	6	X											
SULFUR SPRING	11-12-07 / 14:50	W	6	X											
RES-1	11-12-07 / 15:30	W	6	X											
MILLER OUTLET	11-12-07 / 12:30	W	6	X											
ASPEN SPRING	11-12-07 / 17:30	W	6	X											

QC LEVEL: 1 2 2+ 3 3+ 4

COMMENTS

Relinquished By: *Signature*	Date 11-13-07	Received By: *Signature*	
PRINT NAME BRAD LINDSAY	Time 3:00	PRINT NAME UPS	
Relinquished By: *Signature* UPS	Date 11/14/07	Received By: *Signature*	
PRINT NAME	Time 10:45	PRINT NAME REBEKAH WINKLER	
Relinquished By: *Signature*	Date	Received By: *Signature*	
PRINT NAME	Time	PRINT NAME	
Relinquished By: *Signature*	Date	Received By: *Signature*	
PRINT NAME	Time	PRINT NAME	

Special Instructions:

~~FIELD FILTER METALS~~ 11/14/07

Per Brad Lindsay, please filter for metals in lab.
-ew 11/14/07

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered 11/14/07
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 1.5°C

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
Y (N) NA

2 Unbroken on Outer Package
Y N (NA)

3 Present on Sample
(Y) N NA

4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 81026

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓														
COD	pH <2 H_2SO_4															
Cyanide	PH >12 NaOH															
Metals	pH <2 HNO_3	✓														
NO_2 & NO_3	pH <2 H_2SO_4															
Nutrients	pH <2 H_2SO_4															
O & G	pH <2 HCL	✓														
Phenols	pH <2 H_2SO_4															
Sulfide	pH > 9NaOH, Zn Acetate															
TKN	pH <2 H_2SO_4															
TOC	pH <2 H_3PO_4															
TOX	pH <2 H_2SO_4															
T PO_4	pH <2 H_2SO_4															
TPH	pH <2 HCL															

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

February 12, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX

RE: Scofield Baseline

Lab Set ID: L76053

Dear Brad Lindsay:

American West Analytical Labs received 3 samples on 2/2/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76053-01E
Field Sample ID: **Mud Creek**
Collected: 1/31/2007 4:30:00 PM
Received: 2/2/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/7/2007 1:13:19 PM	6010B	0.050	**0.43**
Manganese	mg/L	2/7/2007 1:13:19 PM	6010B	0.0050	**0.030**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76053-02E
Field Sample ID: **Sulfur Spring**
Collected: 1/31/2007 4:45:00 PM
Received: 2/2/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/7/2007 1:29:09 PM	6010B	0.050	< 0.050
Manganese	mg/L	2/7/2007 1:29:09 PM	6010B	0.0050	**0.027**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76053-03E
Field Sample ID: **Miller Outlet**
Collected: 1/31/2007 5:15:00 PM
Received: 2/2/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/7/2007 1:33:05 PM	6010B	0.050	**3.6**
Manganese	mg/L	2/7/2007 1:33:05 PM	6010B	0.0050	**0.17**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76053-01F
Field Sample ID: **Mud Creek**
Collected: 1/31/2007 4:30:00 PM
Received: 2/2/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	2/12/2007 9:31:37 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	2/5/2007 2:37:51 PM	6020	0.0050	< 0.0050	
Boron	mg/L	2/12/2007 9:31:37 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	2/5/2007 2:37:51 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	2/12/2007 9:00:58 AM	6010B	10	**72**	*
Copper	mg/L	2/5/2007 2:37:51 PM	6020	0.0040	< 0.0040	
Iron	mg/L	2/12/2007 9:31:37 AM	6010B	0.050	< 0.050	
Lead	mg/L	2/5/2007 2:37:51 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	2/12/2007 9:31:37 AM	6010B	1.0	**41**	
Manganese	mg/L	2/5/2007 2:37:51 PM	6020	0.0050	**0.013**	
Molybdenum	mg/L	2/12/2007 9:31:37 AM	6010B	0.10	< 0.10	
Potassium	mg/L	2/12/2007 9:31:37 AM	6010B	1.0	**7.1**	
Selenium	mg/L	2/5/2007 2:37:51 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	2/12/2007 9:31:37 AM	6010B	1.0	**28**	
Zinc	mg/L	2/5/2007 2:37:51 PM	6020	0.010	< 0.010	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76053-02F
Field Sample ID: **Sulfur Spring**
Collected: 1/31/2007 4:45:00 PM
Received: 2/2/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	2/12/2007 9:47:34 AM	6010B	0.10	< 0.10
Arsenic	mg/L	2/5/2007 3:15:34 PM	6020	0.0050	< 0.0050
Boron	mg/L	2/12/2007 9:47:34 AM	6010B	0.50	< 0.50
Cadmium	mg/L	2/5/2007 3:15:34 PM	6020	0.0040	< 0.0040
Calcium	mg/L	2/12/2007 9:12:42 AM	6010B	10	**89** *
Copper	mg/L	2/5/2007 3:15:34 PM	6020	0.0040	< 0.0040
Iron	mg/L	2/12/2007 9:47:34 AM	6010B	0.050	< 0.050
Lead	mg/L	2/5/2007 3:15:34 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	2/12/2007 9:47:34 AM	6010B	1.0	**37**
Manganese	mg/L	2/5/2007 3:15:34 PM	6020	0.0050	**0.025**
Molybdenum	mg/L	2/12/2007 9:47:34 AM	6010B	0.10	< 0.10
Potassium	mg/L	2/12/2007 9:47:34 AM	6010B	1.0	**5.1**
Selenium	mg/L	2/5/2007 3:15:34 PM	6020	0.0050	< 0.0050
Sodium	mg/L	2/12/2007 9:47:34 AM	6010B	1.0	**8.8**
Zinc	mg/L	2/5/2007 3:15:34 PM	6020	0.010	**0.010**

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76053-03F
Field Sample ID: **Miller Outlet**
Collected: 1/31/2007 5:15:00 PM
Received: 2/2/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	2/12/2007 9:51:38 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	2/5/2007 3:20:57 PM	6020	0.0050	< 0.0050	
Boron	mg/L	2/12/2007 9:51:38 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	2/5/2007 3:20:57 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	2/12/2007 9:16:38 AM	6010B	10	**90**	*
Copper	mg/L	2/5/2007 3:20:57 PM	6020	0.0040	< 0.0040	
Iron	mg/L	2/12/2007 9:51:38 AM	6010B	0.050	< 0.050	
Lead	mg/L	2/5/2007 3:20:57 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	2/12/2007 9:51:38 AM	6010B	1.0	**17**	
Manganese	mg/L	2/5/2007 3:20:57 PM	6020	0.0050	**0.023**	
Molybdenum	mg/L	2/12/2007 9:51:38 AM	6010B	0.10	< 0.10	
Potassium	mg/L	2/12/2007 9:51:38 AM	6010B	1.0	**1.9**	
Selenium	mg/L	2/5/2007 3:20:57 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	2/12/2007 9:51:38 AM	6010B	1.0	**6.3**	
Zinc	mg/L	2/5/2007 3:20:57 PM	6020	0.010	**0.027**	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
ProjectID: ScofieldBaseline

Contact: BradLindsay

Lab Sample ID: L76053-01
Field Sample ID: **Mud Creek**
Collected: 1/31/2007 4:30:00 PM
Received: 2/2/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	2/5/2007 7:30:00 AM	305.1	15	< 15	
Alkalinity,(AsCaCO3)	mg/L	2/5/2007 7:00:00 AM	2320B	20	**240**	
Ammonia (as N)	mg/L	2/5/2007 8:45:00 AM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	2/5/2007 7:00:00 AM	2320B	20	**240**	
Carbonate (As CaCO3)	mg/L	2/5/2007 7:00:00 AM	2320B	20	< 20	
Chloride	mg/L	2/2/2007 3:56:46 PM	300.0	5.0	**15**	
Hardness (as CaCO3)	mg/L	2/12/2007	2340B	10	**350**	
Nitrate (as N)	mg/L	2/2/2007 3:14:00 PM	353.2	0.010	**0.27**	[1] @
Nitrite (as N)	mg/L	2/2/2007 3:14:00 PM	353.2	0.010	< 0.010	
Oil & Grease	mg/L	2/9/2007 1:10:00 PM	EPA1664	3.0	**3.4**	
Phosphate, ortho (as P)	mg/L	2/2/2007 11:39:00 AM	365.1	0.050	< 0.050	[1]
SettableSolids	ml/L	2/2/2007 11:00:00 AM	160.5	0.10	**0.15**	
Sulfate	mg/L	2/2/2007 3:56:46 PM	300.0	50	**120**	
TDS	mg/L	2/2/2007 2:00:00 PM	160.1	20	**420**	
TSS	mg/L	2/2/2007 3:30:00 PM	160.2	3.0	**30**	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
@ High RPD due to suspected matrix interference.

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L76053-02
Field Sample ID: **SulfurSpring**
Collected: 1/31/2007 4:45:00 PM
Received: 2/2/2007

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	2/5/2007 7:30:00 AM	305.1	15	< 15
Alkalinity,(AsCaCO3)	mg/L	2/5/2007 7:00:00 AM	2320B	20	**340**
Ammonia (as N)	mg/L	2/5/2007 8:45:00 AM	350.1	0.050	**0.097**
Bicarbonate (As CaCO3)	mg/L	2/5/2007 7:00:00 AM	2320B	20	**340**
Carbonate (As CaCO3)	mg/L	2/5/2007 7:00:00 AM	2320B	20	< 20
Chloride	mg/L	2/2/2007 3:56:46 PM	300.0	1.0	**6.4**
Hardness (as CaCO3)	mg/L	2/12/2007	2340B	10	**370**
Nitrate (as N)	mg/L	2/2/2007 3:14:00 PM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	2/2/2007 3:14:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	2/9/2007 1:10:00 PM	EPA1664	3.0	**3.8**
Phosphate, ortho (as P)	mg/L	2/2/2007 11:39:00 AM	365.1	0.050	< 0.050
SettableSolids	ml/L	2/2/2007 11:00:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	2/2/2007 3:56:46 PM	300.0	5.0	**41**
TDS	mg/L	2/2/2007 2:00:00 PM	160.1	20	**390**
TSS	mg/L	2/2/2007 3:30:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: CarbonResources
ProjectID: ScofieldBaseline

Contact: BradLindsay

Lab Sample ID: L76053-03
Field Sample ID: **Miller Outlet**
Collected: 1/31/2007 5:15:00 PM
Received: 2/2/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	2/5/2007 7:30:00 AM	305.1	15	< 15
Alkalinity,(AsCaCO3)	mg/L	2/5/2007 7:00:00 AM	2320B	20	**280**
Ammonia (as N)	mg/L	2/5/2007 8:45:00 AM	350.1	0.050	**0.055**
Bicarbonate (As CaCO3)	mg/L	2/5/2007 7:00:00 AM	2320B	20	**260**
Carbonate (As CaCO3)	mg/L	2/5/2007 7:00:00 AM	2320B	20	**< 20**
Chloride	mg/L	2/2/2007 3:56:46 PM	300.0	2.0	**9.6**
Hardness (as CaCO3)	mg/L	2/12/2007	2340B	10	**290**
Nitrate (as N)	mg/L	2/2/2007 3:14:00 PM	353.2	0.010	**0.92**
Nitrite (as N)	mg/L	2/2/2007 3:14:00 PM	353.2	0.010	**0.010**
Oil & Grease	mg/L	2/9/2007 1:10:00 PM	EPA1664	3.0	**3.5**
Phosphate, ortho (as P)	mg/L	2/2/2007 11:39:00 AM	365.1	0.050	< 0.050
SettableSolids	ml/L	2/2/2007 11:00:00 AM	160.5	0.10	**0.30**
Sulfate	mg/L	2/2/2007 3:56:46 PM	300.0	5.0	**21** [1]
TDS	mg/L	2/2/2007 2:00:00 PM	160.1	20	**310**
TSS	mg/L	2/2/2007 3:30:00 PM	160.2	3.0	**200**

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-32823	Arsenic	mg/L	6020	0.2224	0.2	0	111	85-115				2/5/2007
LCS-32823	Cadmium	mg/L	6020	0.2095	0.2	0	105	85-115				2/5/2007
LCS-32823	Copper	mg/L	6020	0.1945	0.2	0	97.3	85-115				2/5/2007
LCS-32823	Lead	mg/L	6020	0.2221	0.2	0	111	85-115				2/5/2007
LCS-32823	Manganese	mg/L	6020	0.2030	0.2	0	101	85-115				2/5/2007
LCS-32823	Selenium	mg/L	6020	0.2122	0.2	0	106	85-115				2/5/2007
LCS-32823	Zinc	mg/L	6020	1.012	1	0.00316	101	85-115				2/5/2007
LCS-32802	Iron	mg/L	6010B	1.086	1	0	109	75-125				2/7/2007
LCS-32802	Manganese	mg/L	6010B	0.2058	0.2	0	103	75-125				2/7/2007
LCS-32823	Aluminum	mg/L	6010B	1.041	1	0	104	75-125				2/12/2007
LCS-32823	Boron	mg/L	6010B	1.080	1	0	108	75-125				2/12/2007
LCS-32823	Calcium	mg/L	6010B	10.70	10	0	107	75-125				2/12/2007
LCS-32823	Iron	mg/L	6010B	1.082	1	0	108	75-125				2/12/2007
LCS-32823	Magnesium	mg/L	6010B	10.65	10	0	107	75-125				2/12/2007
LCS-32823	Molybdenum	mg/L	6010B	0.2089	0.2	0	104	75-125				2/12/2007
LCS-32823	Potassium	mg/L	6010B	10.49	10	0	105	75-125				2/12/2007
LCS-32823	Sodium	mg/L	6010B	10.58	10	0	106	75-125				2/12/2007

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-32823	Arsenic	mg/L	6020	< 0.0050				-				2/5/2007
MB-32823	Cadmium	mg/L	6020	< 0.0040				-				2/5/2007
MB-32823	Copper	mg/L	6020	< 0.0040				-				2/5/2007
MB-32823	Lead	mg/L	6020	< 0.0050				-				2/5/2007
MB-32823	Manganese	mg/L	6020	< 0.0050				-				2/5/2007
MB-32823	Selenium	mg/L	6020	< 0.0050				-				2/5/2007
MB-32823	Zinc	mg/L	6020	< 0.010				-				2/5/2007
MB-32802	Iron	mg/L	6010B	< 0.050				-				2/7/2007
MB-32802	Manganese	mg/L	6010B	< 0.0050				-				2/7/2007
MB-32823	Aluminum	mg/L	6010B	< 0.10				-				2/12/2007
MB-32823	Boron	mg/L	6010B	< 0.50				-				2/12/2007
MB-32823	Calcium	mg/L	6010B	< 1.0				-				2/12/2007
MB-32823	Iron	mg/L	6010B	< 0.050				-				2/12/2007
MB-32823	Magnesium	mg/L	6010B	< 1.0				-				2/12/2007
MB-32823	Molybdenum	mg/L	6010B	< 0.040				-				2/12/2007
MB-32823	Potassium	mg/L	6010B	< 1.0				-				2/12/2007
MB-32823	Sodium	mg/L	6010B	< 1.0				-				2/12/2007

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76053-01FMS	Arsenic	mg/L	6020	0.2382	0.2	0	119	70-130				2/5/2007
L76053-01FMS	Cadmium	mg/L	6020	0.2194	0.2	0	110	70-130				2/5/2007
L76053-01FMS	Copper	mg/L	6020	0.2035	0.2	0	102	70-130				2/5/2007
L76053-01FMS	Lead	mg/L	6020	0.2303	0.2	0	115	70-130				2/5/2007
L76053-01FMS	Manganese	mg/L	6020	0.2292	0.2	0.01303	108	70-130				2/5/2007
L76053-01FMS	Selenium	mg/L	6020	0.2257	0.2	0.003947	111	70-130				2/5/2007
L76053-01FMS	Zinc	mg/L	6020	1.043	1	0.008995	103	70-130				2/5/2007
L76053-01EMS	Iron	mg/L	6010B	1.501	1	0.4257	108	75-125				2/7/2007
L76053-01EMS	Manganese	mg/L	6010B	0.2344	0.2	0.03027	102	75-125				2/7/2007
L76053-01FMS	Calcium	mg/L	6010B	83.14	10	71.97	112	75-125				2/12/2007
L76053-01FMS	Aluminum	mg/L	6010B	1.096	1	0	110	75-125				2/12/2007
L76053-01FMS	Boron	mg/L	6010B	1.233	1	0.1304	110	75-125				2/12/2007
L76053-01FMS	Iron	mg/L	6010B	1.098	1	0	110	75-125				2/12/2007
L76053-01FMS	Magnesium	mg/L	6010B	51.93	10	41.39	105	75-125				2/12/2007
L76053-01FMS	Molybdenum	mg/L	6010B	0.2061	0.2	0	103	75-125				2/12/2007
L76053-01FMS	Potassium	mg/L	6010B	18.82	10	7.146	117	75-125				2/12/2007
L76053-01FMS	Sodium	mg/L	6010B	38.41	10	28.07	103	75-125				2/12/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76053-01FMSD	Arsenic	mg/L	6020	0.2415	0.2	0	121	70-130	1.37	20		2/5/2007
L76053-01FMSD	Cadmium	mg/L	6020	0.2326	0.2	0	116	70-130	5.82	20		2/5/2007
L76053-01FMSD	Copper	mg/L	6020	0.2220	0.2	0	111	70-130	8.71	20		2/5/2007
L76053-01FMSD	Lead	mg/L	6020	0.2418	0.2	0	121	70-130	4.89	20		2/5/2007
L76053-01FMSD	Manganese	mg/L	6020	0.2407	0.2	0.01303	114	70-130	4.89	20		2/5/2007
L76053-01FMSD	Selenium	mg/L	6020	0.2243	0.2	0.003947	110	70-130	0.640	20		2/5/2007
L76053-01FMSD	Zinc	mg/L	6020	1.115	1	0.008995	111	70-130	6.60	20		2/5/2007
L76053-01EMSD	Iron	mg/L	6010B	1.513	1	0.4257	109	75-125	0.841	20		2/7/2007
L76053-01EMSD	Manganese	mg/L	6010B	0.2292	0.2	0.03027	99.5	75-125	2.24	20		2/7/2007
L76053-01FMSD	Calcium	mg/L	6010B	83.29	10	71.97	113	75-125	0.177	20		2/12/2007
L76053-01FMSD	Aluminum	mg/L	6010B	1.026	1	0	103	75-125	6.56	20		2/12/2007
L76053-01FMSD	Boron	mg/L	6010B	1.250	1	0.1304	112	75-125	1.33	20		2/12/2007
L76053-01FMSD	Iron	mg/L	6010B	1.140	1	0	114	75-125	3.68	20		2/12/2007
L76053-01FMSD	Magnesium	mg/L	6010B	52.10	10	41.39	107	75-125	0.326	20		2/12/2007
L76053-01FMSD	Molybdenum	mg/L	6010B	0.2091	0.2	0	105	75-125	1.43	20		2/12/2007
L76053-01FMSD	Potassium	mg/L	6010B	18.84	10	7.146	117	75-125	0.0948	20		2/12/2007
L76053-01FMSD	Sodium	mg/L	6010B	38.62	10	28.07	106	75-125	0.542	20		2/12/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L75998-01BDUP	TDS	mg/L	160.1	14240	0	14280		-	0.281	20		2/2/2007
L76053-03ADUP	TDS	mg/L	160.1	304.0	0	312		-	2.60	20		2/2/2007
L76053-01ADUP	TSS	mg/L	160.2	31.00	0	30		-	3.28	20		2/2/2007

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Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: WC
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R66046	Alkalinity,(As CaCO3)	mg/L	2320B	51600	50000	0	103	90-110				2/5/2007
LCS-R66050	Chloride	mg/L	300.0	5.007	5	0	100	90-110				2/2/2007
LCS-R66050	Sulfate	mg/L	300.0	5.396	5	0	108	90-110				2/2/2007
LCS-R66048	Acidity	mg/L	305.1	50.00	50	0	100	80-120				2/5/2007
LCS-32794	Ammonia (as N)	mg/L	350.1	0.9770	1	0	97.7	90-110				2/5/2007
LCS-66027	Nitrite (as N)	mg/L	353.2	1.035	1	0	104	90-110				2/2/2007
LCS-66028	Nitrate (as N)	mg/L	353.2	1.000	1	0	100	90-110				2/2/2007
LCS-R66256	Oil & Grease	mg/L	EPA 1664	39.10	40	0	97.8	79-114				2/9/2007
LCS-66010	Phosphate, ortho (as P)	mg/L	365.1	1.002	1	0	100	90-110				2/2/2007
LCS-R66091	TDS	mg/L	160.1	186.0	205	0	90.7	80-120				2/2/2007
LCS-R66052	TSS	mg/L	160.2	99.00	100	0	99.0	80-120				2/2/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R66046	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				2/5/2007
MB-R66046	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				2/5/2007
MB-R66046	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				2/5/2007
MB-R66050	Chloride	mg/L	300.0	< 1.0				-				2/2/2007
MB-R66050	Sulfate	mg/L	300.0	< 1.0				-				2/2/2007
MB-R66048	Acidity	mg/L	305.1	< 15				-				2/5/2007
MB-32794	Ammonia (as N)	mg/L	350.1	< 0.050				-				2/5/2007
MB-66027	Nitrite (as N)	mg/L	353.2	< 0.010				-				2/2/2007
MB-66028	Nitrate (as N)	mg/L	353.2	< 0.010				-				2/2/2007
MB-R66256	Oil & Grease	mg/L	EPA 1664	< 3.0				-				2/9/2007
MB-66010	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				2/2/2007
MB-R66091	TDS	mg/L	160.1	< 10				-				2/2/2007
MB-R66052	TSS	mg/L	160.2	< 3.0				-				2/2/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76053-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	342.0	100	239	103	80-120				2/5/2007
L76053-01BMS	Chloride	mg/L	300.0	39.95	25	14.96	100	90-110				2/2/2007
L76053-01BMS	Sulfate	mg/L	300.0	399.3	250	123.5	110	90-110				2/2/2007
L76053-01BMS	Acidity	mg/L	305.1	48.00	50	0	96.0	80-120				2/5/2007
L76053-01CMS	Ammonia (as N)	mg/L	350.1	0.9840	1	0	98.4	90-110				2/5/2007
L76053-01BMS	Nitrite (as N)	mg/L	353.2	1.085	1	0	108	90-110				2/2/2007
L76053-01BMS	Nitrate (as N)	mg/L	353.2	1.473	1	0.266	121	90-110			I	2/2/2007
L76053-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.165	1	0.008	116	90-110			I	2/2/2007

I Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: WC
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76053-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	344.0	100	239	105	80-120	0.583	10		2/5/2007
L76053-01BMSD	Chloride	mg/L	300.0	39.99	25	14.96	100	90-110	0.113	20		2/2/2007
L76053-01BMSD	Sulfate	mg/L	300.0	425.2	250	123.5	121	90-110	6.27	20	'	2/2/2007
L76053-01BMSD	Acidity	mg/L	305.1	50.00	50	0	100	80-120	4.08	20		2/5/2007
L76053-01CMSD	Ammonia (as N)	mg/L	350.1	1.000	1	0	100	90-110	1.61	10		2/5/2007
L76053-01BMSD	Nitrite (as N)	mg/L	353.2	1.039	1	0	104	90-110	4.33	10		2/2/2007
L76053-01BMSD	Nitrate (as N)	mg/L	353.2	1.295	1	0.266	103	90-110	12.9	10	@	2/2/2007
L76053-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.122	1	0.008	111	90-110	3.76	10	'	2/2/2007

@ High RPD due to suspected matrix interference.

' Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R66256	Oil & Grease	mg/L	EPA 1664	39.20	40	0	98.0	79-114				2/9/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R66256	Oil & Grease	mg/L	EPA 1664	39.50	40	0	98.8	79-114	0.762	18		2/9/2007

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American West Analytical Labs

WORK ORDER Summary

02-Feb-07

Work Order L76053

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+ HOF-DB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L76053-01A	Mud Creek	1/31/2007 4:30:00 PM	2/2/2007	2/16/2007	Aqueous	SS	ww - tss/tds/ss	1
				2/16/2007		TDS-W	ww - tss/tds/ss	1
				2/16/2007		TSS-W	ww - tss/tds/ss	1
L76053-01B				2/16/2007		2320B-ALK-W	feb 2 - wc	1
				2/16/2007		300.0-W	feb 2 - wc	1
				2/16/2007		ACIDITY-W	feb 2 - wc	1
				2/16/2007		NO2-W	feb 2 - wc	1
				2/16/2007		NO3-W	feb 2 - wc	1
				2/16/2007		PO4-O	feb 2 - wc	1
L76053-01C				2/16/2007		NH3-W	feb 2 - nh3	1
				2/16/2007		NH3-W-PREP	feb 2 - nh3	1
L76053-01D				2/16/2007		OGB-W	ogb	1
L76053-01E				2/16/2007		3005A-ICPMS	feb 2 - met	1
				2/16/2007		ICP-W	feb 2 - met	1
L76053-01F				2/16/2007	Aqueous-Dissolved	3005A-Diss	feb 2 - met	1
				2/16/2007		6020-W-DISS	feb 2 - met	1
				2/16/2007		HARD	feb 2 - met	1
				2/16/2007		ICP-W-DIS	feb 2 - met	1
L76053-02A	Sulfur Spring	1/31/2007 4:45:00 PM		2/16/2007	Aqueous	SS	ww - tss/tds/ss	1
				2/16/2007		TDS-W	ww - tss/tds/ss	1
				2/16/2007		TSS-W	ww - tss/tds/ss	1
L76053-02B				2/16/2007		2320B-ALK-W	feb 2 - wc	1
				2/16/2007		300.0-W	feb 2 - wc	1
				2/16/2007		ACIDITY-W	feb 2 - wc	1
				2/16/2007		NO2-W	feb 2 - wc	1
				2/16/2007		NO3-W	feb 2 - wc	1
				2/16/2007		PO4-O	feb 2 - wc	1

WORK ORDER Summary

02-Feb-07

Work Order L76053

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L76053-02C	Sulfur Spring	1/31/2007 4:45:00 PM	2/2/2007	2/16/2007	Aqueous	NH3-W	feb 2 - nh3	1
				2/16/2007		NH3-W-PREP	feb 2 - nh3	1
L76053-02D				2/16/2007		OGB-W	ogb	1
L76053-02E				2/16/2007		3005A-ICPMS	feb 2 - met	1
				2/16/2007		ICP-W	feb 2 - met	1
L76053-02F				2/16/2007	Aqueous-Dissolved	3005A-Diss	feb 2 - met	1
				2/16/2007		6020-W-DISS	feb 2 - met	1
				2/16/2007		HARD	feb 2 - met	1
				2/16/2007		ICP-W-DIS	feb 2 - met	1
L76053-03A	Miller Outlet	1/31/2007 5:15:00 PM		2/16/2007	Aqueous	SS	ww - tss/tds/ss	1
				2/16/2007		TDS-W	ww - tss/tds/ss	1
				2/16/2007		TSS-W	ww - tss/tds/ss	1
L76053-03B				2/16/2007		2320B-ALK-W	feb 2 - wc	1
				2/16/2007		300.0-W	feb 2 - wc	1
				2/16/2007		ACIDITY-W	feb 2 - wc	1
				2/16/2007		NO2-W	feb 2 - wc	1
				2/16/2007		NO3-W	feb 2 - wc	1
				2/16/2007		PO4-O	feb 2 - wc	1
L76053-03C				2/16/2007		NH3-W	feb 2 - nh3	1
				2/16/2007		NH3-W-PREP	feb 2 - nh3	1
L76053-03D				2/16/2007		OGB-W	ogb	1
L76053-03E				2/16/2007		3005A-ICPMS	feb 2 - met	1
				2/16/2007		ICP-W	feb 2 - met	1
L76053-03F				2/16/2007	Aqueous-Dissolved	3005A-Diss	feb 2 - met	1
				2/16/2007		6020-W-DISS	feb 2 - met	1
				2/16/2007		HARD	feb 2 - met	1
				2/16/2007		ICP-W-DIS	feb 2 - met	1

Client ROCK LOGIC

Address PO BOX 544

CEDAREDGE CO 81413
City State Zip

Phone (435) 851-9044 Fax (970) 856-3400

Contact BRAD LINDSAY

E-mail rocklogicconsulting@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 76053

Page _____ of _____

Turn Around Time (Circle One)

1 day	2 day	3 day	4 day	5 day	~~Standard~~
QC	1	2	2+	3	3+	4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE M										COMMENTS
MUD CREEK	1-31-07 16:30	W	6	✓										
SULFUR SPRING	16:45	W	6	✓										
MILLER OUTLET	17:15	W	6	✓										

Please indicate tests needed below

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 18:00	PRINT NAME UPS
Relinquished By: Signature UPS	Date 2/2/07	Received By: Signature
PRINT NAME	Time 10:25	PRINT NAME DEBBIE WINKLER
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

PLEASE FILTER

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered DB
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 2°

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 76053

Preservation Check Sheet

			Sample Set Extension and pH														
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

February 28, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L76314

Dear Brad Lindsay:

American West Analytical Labs received 3 samples on 2/20/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76314-01E
Field Sample ID: **Mud Creek**
Collected: 2/19/2007 11:30:00 AM
Received: 2/20/2007

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/23/2007 12:35:55 PM	6010B	0.050	**0.29**
Manganese	mg/L	2/23/2007 12:35:55 PM	6010B	0.0050	**0.026**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76314-02E
Field Sample ID: **Sulfur Spring**
Collected: 2/19/2007 12:00:00 PM
Received: 2/20/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/23/2007 12:51:42 PM	6010B	0.050	< 0.050
Manganese	mg/L	2/23/2007 12:51:42 PM	6010B	0.0050	**0.027**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-03E
Field Sample ID: **Miller Outlet**
Collected: 2/19/2007 12:30:00 PM
Received: 2/20/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	2/23/2007 12:55:41 PM	6010B	0.050	**4.3**
Manganese	mg/L	2/23/2007 12:55:41 PM	6010B	0.0050	**0.23**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-01F
Field Sample ID: **Mud Creek**
Collected: 2/19/2007 11:30:00 AM
Received: 2/20/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	2/26/2007 11:15:43 AM	6010B	0.10	< 0.10
Arsenic	mg/L	2/22/2007 5:50:38 PM	6020	0.0050	< 0.0050
Boron	mg/L	2/26/2007 11:15:43 AM	6010B	0.50	< 0.50
Cadmium	mg/L	2/22/2007 5:50:38 PM	6020	0.0040	< 0.0040
Calcium	mg/L	2/26/2007 10:30:11 AM	6010B	10	77 *
Copper	mg/L	2/22/2007 5:50:38 PM	6020	0.0040	< 0.0040
Iron	mg/L	2/26/2007 11:15:43 AM	6010B	0.050	< 0.050
Lead	mg/L	2/22/2007 5:50:38 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	2/26/2007 11:15:43 AM	6010B	1.0	**40**
Manganese	mg/L	2/22/2007 5:50:38 PM	6020	0.0050	< 0.0050
Molybdenum	mg/L	2/26/2007 11:15:43 AM	6010B	0.10	< 0.10
Potassium	mg/L	2/26/2007 11:15:43 AM	6010B	1.0	**6.9**
Selenium	mg/L	2/22/2007 5:50:38 PM	6020	0.0050	< 0.0050
Sodium	mg/L	2/26/2007 11:15:43 AM	6010B	1.0	**38**
Zinc	mg/L	2/22/2007 5:50:38 PM	6020	0.010	**0.015**

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-02F
Field Sample ID: **Sulfur Spring**
Collected: 2/19/2007 12:00:00 PM
Received: 2/20/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	2/26/2007 10:56:48 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	2/22/2007 6:17:36 PM	6020	0.0050	< 0.0050	
Boron	mg/L	2/26/2007 10:56:48 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	2/22/2007 6:17:36 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	2/26/2007 10:41:54 AM	6010B	10	**94**	*
Copper	mg/L	2/22/2007 6:17:36 PM	6020	0.0040	< 0.0040	
Iron	mg/L	2/26/2007 10:56:48 AM	6010B	0.050	< 0.050	
Lead	mg/L	2/22/2007 6:17:36 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	2/26/2007 10:56:48 AM	6010B	1.0	**36**	
Manganese	mg/L	2/22/2007 6:17:36 PM	6020	0.0050	< 0.0050	
Molybdenum	mg/L	2/26/2007 10:56:48 AM	6010B	0.10	< 0.10	
Potassium	mg/L	2/26/2007 10:56:48 AM	6010B	1.0	**4.9**	
Selenium	mg/L	2/22/2007 6:17:36 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	2/26/2007 10:56:48 AM	6010B	1.0	**8.0**	
Zinc	mg/L	2/22/2007 6:17:36 PM	6020	0.010	< 0.010	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-03F
Field Sample ID: **Miller Outlet**
Collected: 2/19/2007 12:30:00 PM
Received: 2/20/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	2/26/2007 11:00:44 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	2/22/2007 6:22:59 PM	6020	0.0050	< 0.0050	
Boron	mg/L	2/26/2007 11:00:44 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	2/22/2007 6:22:59 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	2/26/2007 10:45:48 AM	6010B	10	**94**	*
Copper	mg/L	2/22/2007 6:22:59 PM	6020	0.0040	< 0.0040	
Iron	mg/L	2/26/2007 11:00:44 AM	6010B	0.050	< 0.050	
Lead	mg/L	2/22/2007 6:22:59 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	2/26/2007 11:00:44 AM	6010B	1.0	**17**	
Manganese	mg/L	2/22/2007 6:22:59 PM	6020	0.0050	< 0.0050	
Molybdenum	mg/L	2/26/2007 11:00:44 AM	6010B	0.10	< 0.10	
Potassium	mg/L	2/26/2007 11:00:44 AM	6010B	1.0	**1.7**	
Selenium	mg/L	2/22/2007 6:22:59 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	2/26/2007 11:00:44 AM	6010B	1.0	**5.5**	
Zinc	mg/L	2/22/2007 6:22:59 PM	6020	0.010	**0.021**	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-01
Field Sample ID: **Mud Creek**
Collected: 2/19/2007 11:30:00 AM
Received: 2/20/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	2/21/2007 6:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	2/21/2007 6:10:00 AM	2320B	20	**240**
Ammonia (as N)	mg/L	2/22/2007 10:55:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	2/21/2007 6:10:00 AM	2320B	20	**240**
Carbonate (As CaCO3)	mg/L	2/21/2007 6:10:00 AM	2320B	10	< 10
Chloride	mg/L	2/21/2007 11:33:00 AM	300.0	5.0	**18**
Hardness (as CaCO3)	mg/L	2/26/2007 11:15:43 AM	2340B	10	**360**
Nitrate (as N)	mg/L	2/21/2007 7:36:00 AM	353.2	0.010	**0.30**
Nitrite (as N)	mg/L	2/21/2007 7:36:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	2/27/2007 12:50:00 PM	EPA 1664	3.0	**3.7**
Phosphate, ortho (as P)	mg/L	2/21/2007 9:57:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	2/21/2007 10:00:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	2/21/2007 11:33:00 AM	300.0	50	**150**
TDS	mg/L	2/22/2007 2:00:00 PM	160.1	10	**440**
TSS	mg/L	2/21/2007 3:15:00 PM	160.2	3.0	**14**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76314-02
Field Sample ID: **Sulfur Spring**
Collected: 2/19/2007 12:00:00 PM
Received: 2/20/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	2/21/2007 6:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	2/21/2007 6:10:00 AM	2320B	20	**290**
Ammonia (as N)	mg/L	2/22/2007 10:55:00 AM	350.1	0.050	**0.10**
Bicarbonate (As CaCO3)	mg/L	2/21/2007 6:10:00 AM	2320B	20	**290**
Carbonate (As CaCO3)	mg/L	2/21/2007 6:10:00 AM	2320B	10	< 10
Chloride	mg/L	2/21/2007 1:46:00 PM	300.0	1.0	**6.6**
Hardness (as CaCO3)	mg/L	2/26/2007 10:56:48 AM	2340B	10	**380**
Nitrate (as N)	mg/L	2/21/2007 7:36:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	2/21/2007 7:36:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	2/27/2007 12:50:00 PM	EPA 1664	3.0	**3.6**
Phosphate, ortho (as P)	mg/L	2/21/2007 9:57:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	2/21/2007 10:00:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	2/21/2007 1:46:00 PM	300.0	5.0	**42**
TDS	mg/L	2/22/2007 2:00:00 PM	160.1	10	**340**
TSS	mg/L	2/21/2007 3:15:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-03
Field Sample ID: **Miller Outlet**
Collected: 2/19/2007 12:30:00 PM
Received: 2/20/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	2/21/2007 6:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	2/21/2007 6:10:00 AM	2320B	20	**280**
Ammonia (as N)	mg/L	2/22/2007 10:55:00 AM	350.1	0.050	**0.068**
Bicarbonate (As CaCO3)	mg/L	2/21/2007 6:10:00 AM	2320B	20	**260**
Carbonate (As CaCO3)	mg/L	2/21/2007 6:10:00 AM	2320B	20	< 20
Chloride	mg/L	2/21/2007 3:59:00 PM	300.0	2.0	**10**
Hardness (as CaCO3)	mg/L	2/26/2007 11:00:44 AM	2340B	10	**300**
Nitrate (as N)	mg/L	2/21/2007 7:36:00 AM	353.2	0.010	**0.83**
Nitrite (as N)	mg/L	2/21/2007 7:36:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	2/27/2007 12:50:00 PM	EPA 1664	3.0	**4.3**
Phosphate, ortho (as P)	mg/L	2/21/2007 9:57:00 AM	365.1	0.050	< 0.050
Settable Solids	ml/L	2/21/2007 10:00:00 AM	160.5	0.10	**0.20**
Sulfate	mg/L	2/21/2007 3:59:00 PM	300.0	5.0	**23**
TDS	mg/L	2/22/2007 2:00:00 PM	160.1	10	**260**
TSS	mg/L	2/21/2007 3:15:00 PM	160.2	3.0	**100**

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-33102	Arsenic	mg/L	6020	0.2098	0.2	0	105	85-115				2/22/2007
LCS-33102	Cadmium	mg/L	6020	0.2121	0.2	0	106	85-115				2/22/2007
LCS-33102	Copper	mg/L	6020	0.2166	0.2	0	108	85-115				2/22/2007
LCS-33102	Lead	mg/L	6020	0.2114	0.2	0	106	85-115				2/22/2007
LCS-33102	Manganese	mg/L	6020	0.2209	0.2	0	110	85-115				2/22/2007
LCS-33102	Selenium	mg/L	6020	0.2040	0.2	0	102	85-115				2/22/2007
LCS-33102	Zinc	mg/L	6020	1.072	1	0.001447	107	85-115				2/22/2007
LCS-33103	Iron	mg/L	6010B	1.133	1	0	113	75-125				2/23/2007
LCS-33103	Manganese	mg/L	6010B	0.2137	0.2	0	107	75-125				2/23/2007
LCS-33102	Aluminum	mg/L	6010B	1.057	1	0	106	75-125				2/26/2007
LCS-33102	Boron	mg/L	6010B	1.028	1	0	103	75-125				2/26/2007
LCS-33102	Calcium	mg/L	6010B	10.60	10	0	106	75-125				2/26/2007
LCS-33102	Iron	mg/L	6010B	1.068	1	0	107	75-125				2/26/2007
LCS-33102	Magnesium	mg/L	6010B	10.39	10	0	104	75-125				2/26/2007
LCS-33102	Molybdenum	mg/L	6010B	0.2107	0.2	0	105	75-125				2/26/2007
LCS-33102	Potassium	mg/L	6010B	10.31	10	0	103	75-125				2/26/2007
LCS-33102	Sodium	mg/L	6010B	9.121	10	0	91.2	75-125				2/26/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-33102	Arsenic	mg/L	6020	< 0.0050				-				2/22/2007
MB-33102	Cadmium	mg/L	6020	< 0.0040				-				2/22/2007
MB-33102	Copper	mg/L	6020	< 0.0040				-				2/22/2007
MB-33102	Lead	mg/L	6020	< 0.0050				-				2/22/2007
MB-33102	Manganese	mg/L	6020	< 0.0050				-				2/22/2007
MB-33102	Selenium	mg/L	6020	< 0.0050				-				2/22/2007
MB-33102	Zinc	mg/L	6020	< 0.010				-				2/22/2007
MB-33103	Iron	mg/L	6010B	< 0.050				-				2/23/2007
MB-33103	Manganese	mg/L	6010B	< 0.0050				-				2/23/2007
MB-33102	Aluminum	mg/L	6010B	< 0.10				-				2/26/2007
MB-33102	Boron	mg/L	6010B	< 0.50				-				2/26/2007
MB-33102	Calcium	mg/L	6010B	< 1.0				-				2/26/2007
MB-33102	Iron	mg/L	6010B	< 0.050				-				2/26/2007
MB-33102	Magnesium	mg/L	6010B	< 1.0				-				2/26/2007
MB-33102	Molybdenum	mg/L	6010B	< 0.040				-				2/26/2007
MB-33102	Potassium	mg/L	6010B	< 1.0				-				2/26/2007
MB-33102	Sodium	mg/L	6010B	< 1.0				-				2/26/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76314-01FMS	Arsenic	mg/L	6020	0.2173	0.2	0	109	70-130				2/22/2007
L76314-01FMS	Cadmium	mg/L	6020	0.2158	0.2	0	108	70-130				2/22/2007
L76314-01FMS	Copper	mg/L	6020	0.2253	0.2	0	113	70-130				2/22/2007
L76314-01FMS	Lead	mg/L	6020	0.2160	0.2	0	108	70-130				2/22/2007
L76314-01FMS	Manganese	mg/L	6020	0.2236	0.2	0	112	70-130				2/22/2007
L76314-01FMS	Selenium	mg/L	6020	0.2064	0.2	0	103	70-130				2/22/2007
L76314-01FMS	Zinc	mg/L	6020	1.053	1	0.01497	104	70-130				2/22/2007
L76314-01EMS	Iron	mg/L	6010B	1.397	1	0.2871	111	75-125				2/23/2007
L76314-01EMS	Manganese	mg/L	6010B	0.2377	0.2	0.02577	106	75-125				2/23/2007
L76314-01FMS	Calcium	mg/L	6010B	87.73	10	76.8	109	75-125				2/26/2007
L76314-01FMS	Aluminum	mg/L	6010B	1.113	1	0.04423	107	75-125				2/26/2007
L76314-01FMS	Boron	mg/L	6010B	1.203	1	0.0893	111	75-125				2/26/2007
L76314-01FMS	Iron	mg/L	6010B	1.071	1	0.01937	105	75-125				2/26/2007
L76314-01FMS	Magnesium	mg/L	6010B	52.21	10	40.49	117	75-125				2/26/2007
L76314-01FMS	Molybdenum	mg/L	6010B	0.2088	0.2	0	104	75-125				2/26/2007
L76314-01FMS	Potassium	mg/L	6010B	17.78	10	6.879	109	75-125				2/26/2007
L76314-01FMS	Sodium	mg/L	6010B	49.71	10	37.52	122	75-125				2/26/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76314-01FMSD	Arsenic	mg/L	6020	0.2225	0.2	0	111	70-130	2.39	20		2/22/2007
L76314-01FMSD	Cadmium	mg/L	6020	0.2192	0.2	0	110	70-130	1.55	20		2/22/2007
L76314-01FMSD	Copper	mg/L	6020	0.2264	0.2	0	113	70-130	0.499	20		2/22/2007
L76314-01FMSD	Lead	mg/L	6020	0.2247	0.2	0	112	70-130	3.97	20		2/22/2007
L76314-01FMSD	Manganese	mg/L	6020	0.2293	0.2	0	115	70-130	2.54	20		2/22/2007
L76314-01FMSD	Selenium	mg/L	6020	0.2061	0.2	0	103	70-130	0.143	20		2/22/2007
L76314-01FMSD	Zinc	mg/L	6020	1.118	1	0.01497	110	70-130	5.94	20		2/22/2007
L76314-01EMSD	Iron	mg/L	6010B	1.356	1	0.2871	107	75-125	2.94	20		2/23/2007
L76314-01EMSD	Manganese	mg/L	6010B	0.2305	0.2	0.02577	102	75-125	3.08	20		2/23/2007
L76314-01FMSD	Calcium	mg/L	6010B	86.34	10	76.8	95.3	75-125	1.60	20		2/26/2007
L76314-01FMSD	Aluminum	mg/L	6010B	1.065	1	0.04423	102	75-125	4.41	20		2/26/2007
L76314-01FMSD	Boron	mg/L	6010B	1.211	1	0.0893	112	75-125	0.662	20		2/26/2007
L76314-01FMSD	Iron	mg/L	6010B	1.077	1	0.01937	106	75-125	0.570	20		2/26/2007
L76314-01FMSD	Magnesium	mg/L	6010B	50.51	10	40.49	100	75-125	3.31	20		2/26/2007
L76314-01FMSD	Molybdenum	mg/L	6010B	0.2141	0.2	0	107	75-125	2.54	20		2/26/2007
L76314-01FMSD	Potassium	mg/L	6010B	17.45	10	6.879	106	75-125	1.86	20		2/26/2007
L76314-01FMSD	Sodium	mg/L	6010B	48.16	10	37.52	106	75-125	3.18	20		2/26/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76309-01ADUP	TDS	mg/L	160.1	8960	0	8820		-	1.57	20		2/22/2007
L76314-03ADUP	TDS	mg/L	160.1	264.0	0	264		-	0	20		2/22/2007
L76351-01ADUP	TDS	mg/L	160.1	780.0	0	740		-	5.26	20		2/22/2007
L76309-01ADUP	TSS	mg/L	160.2	13.00	0	13		-	0	20		2/21/2007
L76314-01ADUP	TSS	mg/L	160.2	14.00	0	14		-	0	20		2/21/2007
L76329-02ADUP	TSS	mg/L	160.2	4.000	0	4		-	0	20		2/21/2007

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R66518	Alkalinity,(As CaCO3)	mg/L	2320B	51600	50000	0	103	90-110				2/21/2007
LCS-R66583	Chloride	mg/L	300.0	5.098	5	0	102	90-110				2/21/2007
LCS-R66583	Sulfate	mg/L	300.0	4.996	5	0	99.9	90-110				2/21/2007
LCS-R66519	Acidity	mg/L	305.1	50.00	50	0	100	80-120				2/21/2007
LCS-33093	Ammonia (as N)	mg/L	350.1	0.9430	1	0	94.3	90-110				2/22/2007
LCS-66524	Nitrite (as N)	mg/L	353.2	1.041	1	0	104	90-110				2/21/2007
LCS-66526	Nitrate (as N)	mg/L	353.2	1.042	1	0	104	90-110				2/21/2007
LCS-R66725	Oil & Grease	mg/L	EPA 1664	40.70	40	0	102	79-114				2/27/2007
LCS-66531	Phosphate, ortho (as P)	mg/L	365.1	1.000	1	0	100	90-110				2/21/2007
LCS-R66622	TDS	mg/L	160.1	202.0	205	0	98.5	80-120				2/22/2007
LCS-R66565	TSS	mg/L	160.2	95.00	100	0	95.0	80-120				2/21/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R66518	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				2/21/2007
MB-R66518	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				2/21/2007
MB-R66518	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				2/21/2007
MB-R66583	Chloride	mg/L	300.0	< 1.0				-				2/21/2007
MB-R66583	Sulfate	mg/L	300.0	< 1.0				-				2/21/2007
MB-R66519	Acidity	mg/L	305.1	< 15				-				2/21/2007
MB-33093	Ammonia (as N)	mg/L	350.1	< 0.050				-				2/22/2007
MB-66524	Nitrite (as N)	mg/L	353.2	< 0.010				-				2/21/2007
MB-66526	Nitrate (as N)	mg/L	353.2	< 0.010				-				2/21/2007
MB-R66725	Oil & Grease	mg/L	EPA 1664	< 3.0				-				2/27/2007
MB-66531	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				2/21/2007
MB-R66622	TDS	mg/L	160.1	< 10				-				2/22/2007
MB-R66565	TSS	mg/L	160.2	< 3.0				-				2/21/2007

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Salt Lake City, Utah 84115
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Kyle F. Gross
Laboratory Director

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76314-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	344.0	100	241	103	80-120				2/21/2007
L76314-01BMS	Chloride	mg/L	300.0	45.09	25	18.11	108	90-110				2/21/2007
L76314-01BMS	Sulfate	mg/L	300.0	395.6	250	150.2	98.2	90-110				2/21/2007
L76314-01BMS	Acidity	mg/L	305.1	48.00	50	0	96.0	80-120				2/21/2007
L76314-01CMS	Ammonia (as N)	mg/L	350.1	0.9430	1	0.034	90.9	90-110				2/22/2007
L76314-01BMS	Nitrite (as N)	mg/L	353.2	1.069	1	0	107	90-110				2/21/2007
L76314-01BMS	Nitrate (as N)	mg/L	353.2	1.397	1	0.298	110	90-110				2/21/2007
L76314-02BMS	Phosphate, ortho (as P)	mg/L	365.1	0.9600	1	0	96.0	90-110				2/21/2007

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463 West 3600 South
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Kyle F. Gross
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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76314-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	346.0	100	241	105	80-120	0.580	10		2/21/2007
L76314-01BMSD	Chloride	mg/L	300.0	44.70	25	18.11	106	90-110	0.864	20		2/21/2007
L76314-01BMSD	Sulfate	mg/L	300.0	392.2	250	150.2	96.8	90-110	0.857	20		2/21/2007
L76314-01BMSD	Acidity	mg/L	305.1	50.00	50	0	100	80-120	4.08	20		2/21/2007
L76314-01CMSD	Ammonia (as N)	mg/L	350.1	0.9540	1	0.034	92.0	90-110	1.16	10		2/22/2007
L76314-01BMSD	Nitrite (as N)	mg/L	353.2	1.012	1	0	101	90-110	5.48	10		2/21/2007
L76314-01BMSD	Nitrate (as N)	mg/L	353.2	1.377	1	0.298	108	90-110	1.44	10		2/21/2007
L76314-02BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.9800	1	0	98.0	90-110	2.06	10		2/21/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R66725	Oil & Grease	mg/L	EPA 1664	39.70	40	0	99.2	79-114				2/27/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R66725	Oil & Grease	mg/L	EPA 1664	40.00	40	0	100	79-114	0.753	18		2/27/2007

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American West Analytical Labs

WORK ORDER Summary

20-Feb-07

Work Order L76314

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+ HOK - DB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L76314-01A	Mud Creek	2/19/2007 11:30:00 AM	2/20/2007	3/6/2007	Aqueous	SS	ww - tss/tds/ss	1
				3/6/2007		TDS-W	ww - tss/tds/ss	1
				3/6/2007		TSS-W	ww - tss/tds/ss	1
L76314-01B				3/6/2007		2320B-ALK-W	feb 20 - wc	1
				3/6/2007		300.0-W	feb 20 - wc	1
				3/6/2007		ACIDITY-W	feb 20 - wc	1
				3/6/2007		NO2-W	feb 20 - wc	1
				3/6/2007		NO3-W	feb 20 - wc	1
				3/6/2007		PO4-O	feb 20 - wc	1
L76314-01C				3/6/2007		NH3-W	feb 20 - nh3	1
				3/6/2007		NH3-W-PREP	feb 20 - nh3	1
L76314-01D				3/6/2007		OGB-W	ogb	1
L76314-01E				3/6/2007		3005A-ICPMS	feb 20 - met	1
				3/6/2007		ICP-W	feb 20 - met	1
L76314-01F				3/6/2007	Aqueous-Dissolved	3005A-Diss	feb 20 - met	1
				3/6/2007		6020-W-DISS	feb 20 - met	1
				3/6/2007		HARD	feb 20 - met	1
				3/6/2007		ICP-W-DIS	feb 20 - met	1
L76314-02A	Sulfur Spring	2/19/2007 12:00:00 PM		3/6/2007	Aqueous	SS	ww - tss/tds/ss	1
				3/6/2007		TDS-W	ww - tss/tds/ss	1
				3/6/2007		TSS-W	ww - tss/tds/ss	1
L76314-02B				3/6/2007		2320B-ALK-W	feb 20 - wc	1
				3/6/2007		300.0-W	feb 20 - wc	1
				3/6/2007		ACIDITY-W	feb 20 - wc	1
				3/6/2007		NO2-W	feb 20 - wc	1
				3/6/2007		NO3-W	feb 20 - wc	1
				3/6/2007		PO4-O	feb 20 - wc	1

WORK ORDER Summary

20-Feb-07

Work Order L76314

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L76314-02C	Sulfur Spring	2/19/2007 12:00:00 PM	2/20/2007	3/6/2007	Aqueous	NH3-W	feb 20 - nh3	1
				3/6/2007		NH3-W-PREP	feb 20 - nh3	1
L76314-02D				3/6/2007		OGB-W	ogb	1
L76314-02E				3/6/2007		3005A-ICPMS	feb 20 - met	1
				3/6/2007		ICP-W	feb 20 - met	1
L76314-02F				3/6/2007	Aqueous-Dissolved	3005A-Diss	feb 20 - met	1
				3/6/2007		6020-W-DISS	feb 20 - met	1
				3/6/2007		HARD	feb 20 - met	1
				3/6/2007		ICP-W-DIS	feb 20 - met	1
L76314-03A	Miller Outlet	2/19/2007 12:30:00 PM		3/6/2007	Aqueous	SS	ww - tss/tds/ss	1
				3/6/2007		TDS-W	ww - tss/tds/ss	1
				3/6/2007		TSS-W	ww - tss/tds/ss	1
L76314-03B				3/6/2007		2320B-ALK-W	feb 20 - wc	1
				3/6/2007		300.0-W	feb 20 - wc	1
				3/6/2007		ACIDITY-W	feb 20 - wc	1
				3/6/2007		NO2-W	feb 20 - wc	1
				3/6/2007		NO3-W	feb 20 - wc	1
				3/6/2007		PO4-O	feb 20 - wc	1
L76314-03C				3/6/2007		NH3-W	feb 20 - nh3	1
				3/6/2007		NH3-W-PREP	feb 20 - nh3	1
L76314-03D				3/6/2007		OGB-W	ogb	1
L76314-03E				3/6/2007		3005A-ICPMS	feb 20 - met	1
				3/6/2007		ICP-W	feb 20 - met	1
L76314-03F				3/6/2007	Aqueous-Dissolved	3005A-Diss	feb 20 - met	1
				3/6/2007		6020-W-DISS	feb 20 - met	1
				3/6/2007		HARD	feb 20 - met	1
				3/6/2007		ICP-W-DIS	feb 20 - met	1

Client Carbon Resources / Rock Logic Consulting

Address PO Box 944

Cedaredge (City) CO (State) 81413 (Zip)

Phone 970·856·3400 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 716314

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Table
Mud Creek	2-19-07 / 11:30	W	6	3
Sulfur Spring	2-19-07 / 12:00	W	6	3
Miller outlet	2-19-07 / 12:30	W	6	3

QC LEVEL

1 2 2+ 3 3+ 4

COMMENTS

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature

4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:

5 Properly Preserved Y N
Notes:

6 Received Within Holding Times Y N
Notes:

COC Tape Was:

1 Present on Outer Package Y N NA

2 Unbroken on Outer Package Y N NA

3 Present on Sample Y N NA

4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME: BRAD LINDSAY	Time: 20:15	PRINT NAME: JEFFREY D. LINDSAY
Relinquished By: Signature	Date: 2/25/07	Received By: Signature
PRINT NAME: JEFFREY D. LINDSAY	Time: 17:19	PRINT NAME: REBEKAH WALKER
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

Please filter for dissolved metals

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 76314

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

April 12, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L76981

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 3/30/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-01E
Field Sample ID: **Mud Creek**
Collected: 3/29/2007 2:00:00 PM
Received: 3/30/2007

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Salt Lake City, Utah
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e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/9/2007 4:16:22 PM	6010B	0.050	**0.80**
Manganese	mg/L	4/9/2007 4:16:22 PM	6010B	0.0050	**0.068**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-02E
Field Sample ID: **Sulfur Spring**
Collected: 3/29/2007 2:30:00 PM
Received: 3/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

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Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/9/2007 4:24:40 PM	6010B	0.050	< 0.050
Manganese	mg/L	4/9/2007 4:24:40 PM	6010B	0.0050	**0.032**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-03E
Field Sample ID: **Res-1**
Collected: 3/29/2007 2:45:00 PM
Received: 3/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

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Salt Lake City, Utah
84115

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Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/9/2007 4:40:22 PM	6010B	0.050	**0.50**
Manganese	mg/L	4/9/2007 4:40:22 PM	6010B	0.0050	**0.17**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-04E
Field Sample ID: **Miller Outlet**
Collected: 3/29/2007 3:00:00 PM
Received: 3/30/2007

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Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
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Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/9/2007 4:44:19 PM	6010B	0.050	**5.8**
Manganese	mg/L	4/9/2007 4:44:19 PM	6010B	0.0050	**0.28**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-01F
Field Sample ID: **Mud Creek**
Collected: 3/29/2007 2:00:00 PM
Received: 3/30/2007

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	4/11/2007 3:45:43 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	4/6/2007 9:13:06 AM	6020	0.0050	< 0.0050	
Boron	mg/L	4/11/2007 3:45:43 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	4/6/2007 9:13:06 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	4/11/2007 3:06:53 PM	6010B	10	**69**	[2] *
Copper	mg/L	4/6/2007 9:13:06 AM	6020	0.0040	< 0.0040	
Iron	mg/L	4/11/2007 3:45:43 PM	6010B	0.050	< 0.050	
Lead	mg/L	4/6/2007 9:13:06 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	4/11/2007 3:45:43 PM	6010B	1.0	**35**	
Manganese	mg/L	4/6/2007 9:13:06 AM	6020	0.0050	**0.039**	
Molybdenum	mg/L	4/11/2007 3:45:43 PM	6010B	0.10	< 0.10	
Potassium	mg/L	4/11/2007 3:45:43 PM	6010B	1.0	**6.3**	
Selenium	mg/L	4/6/2007 9:13:06 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	4/11/2007 3:45:43 PM	6010B	1.0	**32**	
Zinc	mg/L	4/6/2007 9:13:06 AM	6020	0.010	< 0.010	

[2] *Analyte concentration is too high for accurate spike recovery.*

* *The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76981-02F
Field Sample ID: **Sulfur Spring**
Collected: 3/29/2007 2:30:00 PM
Received: 3/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	4/11/2007 4:01:34 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	4/6/2007 9:40:03 AM	6020	0.0050	< 0.0050	
Boron	mg/L	4/11/2007 4:01:34 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	4/6/2007 9:40:03 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	4/11/2007 3:18:37 PM	6010B	10	**90**	*
Copper	mg/L	4/6/2007 9:40:03 AM	6020	0.0040	< 0.0040	
Iron	mg/L	4/11/2007 4:01:34 PM	6010B	0.050	< 0.050	
Lead	mg/L	4/6/2007 9:40:03 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	4/11/2007 4:01:34 PM	6010B	1.0	**37**	
Manganese	mg/L	4/6/2007 9:40:03 AM	6020	0.0050	**0.031**	
Molybdenum	mg/L	4/11/2007 4:01:34 PM	6010B	0.10	< 0.10	
Potassium	mg/L	4/11/2007 4:01:34 PM	6010B	1.0	**5.9**	
Selenium	mg/L	4/6/2007 9:40:03 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	4/11/2007 4:01:34 PM	6010B	1.0	**8.8**	
Zinc	mg/L	4/6/2007 9:40:03 AM	6020	0.010	< 0.010	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-03F
Field Sample ID: **Res-1**
Collected: 3/29/2007 2:45:00 PM
Received: 3/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	4/11/2007 4:05:28 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	4/6/2007 9:57:15 AM	6020	0.0050	< 0.0050	
Boron	mg/L	4/11/2007 4:05:28 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	4/6/2007 9:57:15 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	4/11/2007 3:22:33 PM	6010B	10	**70**	*
Copper	mg/L	4/6/2007 9:57:15 AM	6020	0.0040	< 0.0040	
Iron	mg/L	4/11/2007 4:05:28 PM	6010B	0.050	< 0.050	
Lead	mg/L	4/6/2007 9:57:15 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	4/11/2007 4:05:28 PM	6010B	1.0	**20**	
Manganese	mg/L	4/6/2007 9:57:15 AM	6020	0.0050	**0.033**	
Molybdenum	mg/L	4/11/2007 4:05:28 PM	6010B	0.10	< 0.10	
Potassium	mg/L	4/11/2007 4:05:28 PM	6010B	1.0	**4.2**	
Selenium	mg/L	4/6/2007 9:57:15 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	4/11/2007 4:05:28 PM	6010B	1.0	**13**	
Zinc	mg/L	4/6/2007 9:57:15 AM	6020	0.010	< 0.010	

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-04F
Field Sample ID: **Miller Outlet**
Collected: 3/29/2007 3:00:00 PM
Received: 3/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	4/11/2007 4:09:27 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	4/6/2007 10:02:39 AM	6020	0.0050	< 0.0050	
Boron	mg/L	4/11/2007 4:09:27 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	4/6/2007 10:02:39 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	4/11/2007 3:26:28 PM	6010B	10	**93**	*
Copper	mg/L	4/6/2007 10:02:39 AM	6020	0.0040	< 0.0040	
Iron	mg/L	4/11/2007 4:09:27 PM	6010B	0.050	< 0.050	
Lead	mg/L	4/6/2007 10:02:39 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	4/11/2007 4:09:27 PM	6010B	1.0	**17**	
Manganese	mg/L	4/6/2007 10:02:39 AM	6020	0.0050	**0.040**	
Molybdenum	mg/L	4/11/2007 4:09:27 PM	6010B	0.10	< 0.10	
Potassium	mg/L	4/11/2007 4:09:27 PM	6010B	1.0	**2.8**	
Selenium	mg/L	4/6/2007 10:02:39 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	4/11/2007 4:09:27 PM	6010B	1.0	**14**	
Zinc	mg/L	4/6/2007 10:02:39 AM	6020	0.010	**0.012**	

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-01
Field Sample ID: **Mud Creek**
Collected: 3/29/2007 2:00:00 PM
Received: 3/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	4/2/2007 7:00:00 AM	305.1	15	< 15	
Alkalinity,(As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	20	**240**	
Ammonia (as N)	mg/L	4/2/2007 8:06:00 AM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	20	**240**	
Carbonate (As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	10	< 10	
Chloride	mg/L	3/31/2007 7:19:00 AM	300.0	20	**24**	
Hardness (as CaCO3)	mg/L	4/11/2007 3:45:43 PM	SM2340 B	10	**320**	
Nitrate (as N)	mg/L	3/30/2007 1:40:00 PM	353.2	0.010	**0.34**	
Nitrite (as N)	mg/L	3/30/2007 1:40:00 PM	353.2	0.010	< 0.010	[1]@
Oil & Grease	mg/L	3/30/2007 2:00:00 PM	EPA 1664A	3.0	< 3.0	
Phosphate, ortho (as P)	mg/L	3/30/2007 12:24:00 PM	365.1	0.050	**0.069**	
Settable Solids	ml/L	3/30/2007 11:00:00 AM	160.5	0.10	**0.10**	
Sulfate	mg/L	3/31/2007 7:19:00 AM	300.0	20	**120**	
TDS	mg/L	3/30/2007 2:30:00 PM	160.1	20	**380**	
TSS	mg/L	3/30/2007 4:45:00 PM	160.2	3.0	**36**	

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
@ High RPD due to suspected matrix interference.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-02
Field Sample ID: **Sulfur Spring**
Collected: 3/29/2007 2:30:00 PM
Received: 3/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	4/2/2007 7:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	20	**350**
Ammonia (as N)	mg/L	4/2/2007 8:06:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	20	**350**
Carbonate (As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	10	< 10
Chloride	mg/L	3/31/2007 7:52:00 AM	300.0	1.0	**6.5**
Hardness (as CaCO3)	mg/L	4/11/2007 4:01:34 PM	SM2340 B	10	**380**
Nitrate (as N)	mg/L	3/30/2007 1:40:00 PM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	3/30/2007 1:40:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	3/30/2007 2:00:00 PM	EPA 1664A	3.0	**3.1**
Phosphate, ortho (as P)	mg/L	3/30/2007 12:24:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	3/30/2007 11:00:00 AM	160.5	0.10	< 0.10
Sulfate	mg/L	3/31/2007 8:25:00 AM	300.0	5.0	**44**
TDS	mg/L	3/30/2007 2:30:00 PM	160.1	20	**340**
TSS	mg/L	3/30/2007 4:45:00 PM	160.2	3.0	**4.0**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-03
Field Sample ID: **Res-1**
Collected: 3/29/2007 2:45:00 PM
Received: 3/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	4/2/2007 7:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	20	**250**
Ammonia (as N)	mg/L	4/2/2007 8:06:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	20	**250**
Carbonate (As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	10	< 10
Chloride	mg/L	3/31/2007 8:59:00 AM	300.0	10	**20**
Hardness (as CaCO3)	mg/L	4/11/2007 4:05:28 PM	SM2340 B	10	**260**
Nitrate (as N)	mg/L	3/30/2007 1:40:00 PM	353.2	0.010	**0.017**
Nitrite (as N)	mg/L	3/30/2007 1:40:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	3/30/2007 2:00:00 PM	EPA 1664A	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	3/30/2007 12:24:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	3/30/2007 11:00:00 AM	160.5	0.10	**0.50**
Sulfate	mg/L	3/31/2007 10:39:00 AM	300.0	50	**97**
TDS	mg/L	3/30/2007 2:30:00 PM	160.1	20	**290**
TSS	mg/L	3/30/2007 4:45:00 PM	160.2	3.0	**27**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-04
Field Sample ID: **Miller Outlet**
Collected: 3/29/2007 3:00:00 PM
Received: 3/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	4/2/2007 7:00:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	20	**270**
Ammonia (as N)	mg/L	4/2/2007 8:06:00 AM	350.1	0.050	**0.056**
Bicarbonate (As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	20	**270**
Carbonate (As CaCO3)	mg/L	4/2/2007 7:30:00 AM	2320B	10	< 10
Chloride	mg/L	3/31/2007 1:26:00 PM	300.0	2.0	**11**
Hardness (as CaCO3)	mg/L	4/11/2007 4:09:27 PM	SM2340 B	10	**300**
Nitrate (as N)	mg/L	3/30/2007 1:40:00 PM	353.2	0.010	**0.43**
Nitrite (as N)	mg/L	3/30/2007 1:40:00 PM	353.2	0.010	**0.025**
Oil & Grease	mg/L	3/30/2007 2:00:00 PM	EPA 1664A	3.0	**3.7**
Phosphate, ortho (as P)	mg/L	3/30/2007 12:24:00 PM	365.1	0.050	< 0.050
Settable Solids	ml/L	3/30/2007 11:00:00 AM	160.5	0.10	**0.35**
Sulfate	mg/L	3/31/2007 1:59:00 PM	300.0	5.0	**34**
TDS	mg/L	3/30/2007 2:30:00 PM	160.1	20	**300**
TSS	mg/L	3/30/2007 4:45:00 PM	160.2	3.0	**340**

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-33816	Arsenic	mg/L	6020	0.2117	0.2	0	106	85-115				4/6/2007
LCS-33816	Cadmium	mg/L	6020	0.2055	0.2	0	103	85-115				4/6/2007
LCS-33816	Copper	mg/L	6020	0.2078	0.2	0	104	85-115				4/6/2007
LCS-33816	Lead	mg/L	6020	0.2074	0.2	0	104	85-115				4/6/2007
LCS-33816	Manganese	mg/L	6020	0.1980	0.2	0	99.0	85-115				4/6/2007
LCS-33816	Selenium	mg/L	6020	0.1999	0.2	0	99.9	85-115				4/6/2007
LCS-33816	Zinc	mg/L	6020	0.9828	1	0.004002	97.9	85-115				4/6/2007
LCS-33817	Iron	mg/L	6010B	1.117	1	0	112	75-125				4/9/2007
LCS-33817	Manganese	mg/L	6010B	0.2056	0.2	0	103	75-125				4/9/2007
LCS-33816	Aluminum	mg/L	6010B	0.9535	1	0	95.4	75-125				4/11/2007
LCS-33816	Boron	mg/L	6010B	0.9616	1	0	96.2	75-125				4/11/2007
LCS-33816	Calcium	mg/L	6010B	10.79	10	0	108	75-125				4/11/2007
LCS-33816	Iron	mg/L	6010B	1.047	1	0	105	75-125				4/11/2007
LCS-33816	Magnesium	mg/L	6010B	10.56	10	0	106	75-125				4/11/2007
LCS-33816	Molybdenum	mg/L	6010B	0.2023	0.2	0	101	75-125				4/11/2007
LCS-33816	Potassium	mg/L	6010B	10.01	10	0	100	75-125				4/11/2007
LCS-33816	Sodium	mg/L	6010B	9.244	10	0	92.4	75-125				4/11/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-33816	Arsenic	mg/L	6020	< 0.0050				-				4/6/2007
MB-33816	Cadmium	mg/L	6020	< 0.0040				-				4/6/2007
MB-33816	Copper	mg/L	6020	< 0.0040				-				4/6/2007
MB-33816	Lead	mg/L	6020	< 0.0050				-				4/6/2007
MB-33816	Manganese	mg/L	6020	< 0.0050				-				4/6/2007
MB-33816	Selenium	mg/L	6020	< 0.0050				-				4/6/2007
MB-33816	Zinc	mg/L	6020	< 0.010				-				4/6/2007
MB-33817	Iron	mg/L	6010B	< 0.050				-				4/9/2007
MB-33817	Manganese	mg/L	6010B	< 0.0050				-				4/9/2007
MB-33816	Aluminum	mg/L	6010B	< 0.10				-				4/11/2007
MB-33816	Boron	mg/L	6010B	< 0.50				-				4/11/2007
MB-33816	Calcium	mg/L	6010B	< 1.0				-				4/11/2007
MB-33816	Iron	mg/L	6010B	< 0.050				-				4/11/2007
MB-33816	Magnesium	mg/L	6010B	< 1.0				-				4/11/2007
MB-33816	Molybdenum	mg/L	6010B	< 0.040				-				4/11/2007
MB-33816	Potassium	mg/L	6010B	< 1.0				-				4/11/2007
MB-33816	Sodium	mg/L	6010B	< 1.0				-				4/11/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76981-01FMS	Arsenic	mg/L	6020	0.2188	0.2	0	109	70-130				4/6/2007
L76981-01FMS	Cadmium	mg/L	6020	0.2095	0.2	0	105	70-130				4/6/2007
L76981-01FMS	Copper	mg/L	6020	0.2039	0.2	0.00112	101	70-130				4/6/2007
L76981-01FMS	Lead	mg/L	6020	0.2124	0.2	0	106	70-130				4/6/2007
L76981-01FMS	Manganese	mg/L	6020	0.2396	0.2	0.0392	100	70-130				4/6/2007
L76981-01FMS	Selenium	mg/L	6020	0.2042	0.2	0	102	70-130				4/6/2007
L76981-01FMS	Zinc	mg/L	6020	1.021	1	0.009724	101	70-130				4/6/2007
L76985-23CMS	Arsenic	mg/L	6020	0.3456	0.2	0.1314	107	70-130				4/6/2007
L76985-23CMS	Cadmium	mg/L	6020	0.2068	0.2	0	103	70-130				4/6/2007
L76985-23CMS	Lead	mg/L	6020	0.2109	0.2	0	105	70-130				4/6/2007
L76985-23CMS	Selenium	mg/L	6020	0.2005	0.2	0	100	70-130				4/6/2007
L76981-02EMS	Iron	mg/L	6010B	1.147	1	0	115	75-125				4/9/2007
L76981-02EMS	Manganese	mg/L	6010B	0.2401	0.2	0.03217	104	75-125				4/9/2007
L76981-01FMS	Calcium	mg/L	6010B	82.03	10	69.18	129	75-125			2	4/11/2007
L76981-01FMS	Aluminum	mg/L	6010B	1.083	1	0	108	75-125				4/11/2007
L76981-01FMS	Boron	mg/L	6010B	1.184	1	0	118	75-125				4/11/2007
L76981-01FMS	Iron	mg/L	6010B	1.058	1	0	106	75-125				4/11/2007
L76981-01FMS	Magnesium	mg/L	6010B	44.06	10	35.47	85.9	75-125				4/11/2007
L76981-01FMS	Molybdenum	mg/L	6010B	0.2184	0.2	0.00451	107	75-125				4/11/2007
L76981-01FMS	Potassium	mg/L	6010B	17.19	10	6.336	109	75-125				4/11/2007
L76981-01FMS	Sodium	mg/L	6010B	41.48	10	32.42	90.6	75-125				4/11/2007

[2] Analyte concentration is too high for accurate spike recovery.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76981-01FMSD	Arsenic	mg/L	6020	0.2145	0.2	0	107	70-130	1.97	20		4/6/2007
L76981-01FMSD	Cadmium	mg/L	6020	0.2044	0.2	0	102	70-130	2.48	20		4/6/2007
L76981-01FMSD	Copper	mg/L	6020	0.2049	0.2	0.00112	102	70-130	0.473	20		4/6/2007
L76981-01FMSD	Lead	mg/L	6020	0.2083	0.2	0	104	70-130	1.92	20		4/6/2007
L76981-01FMSD	Manganese	mg/L	6020	0.2365	0.2	0.0392	98.7	70-130	1.29	20		4/6/2007
L76981-01FMSD	Selenium	mg/L	6020	0.1995	0.2	0	99.7	70-130	2.33	20		4/6/2007
L76981-01FMSD	Zinc	mg/L	6020	0.9979	1	0.009724	98.8	70-130	2.26	20		4/6/2007
L76985-23CMSD	Arsenic	mg/L	6020	0.3314	0.2	0.1314	100	70-130	4.18	20		4/6/2007
L76985-23CMSD	Cadmium	mg/L	6020	0.1970	0.2	0	98.5	70-130	4.85	20		4/6/2007
L76985-23CMSD	Lead	mg/L	6020	0.2020	0.2	0	101	70-130	4.30	20		4/6/2007
L76985-23CMSD	Selenium	mg/L	6020	0.1906	0.2	0	95.3	70-130	5.06	20		4/6/2007
L76981-02EMSD	Iron	mg/L	6010B	1.166	1	0	117	75-125	1.60	20		4/9/2007
L76981-02EMSD	Manganese	mg/L	6010B	0.2390	0.2	0.03217	103	75-125	0.493	20		4/9/2007
L76981-01FMSD	Calcium	mg/L	6010B	83.98	10	69.18	148	75-125	2.35	20	2	4/11/2007
L76981-01FMSD	Aluminum	mg/L	6010B	0.9270	1	0	92.7	75-125	15.6	20		4/11/2007
L76981-01FMSD	Boron	mg/L	6010B	1.023	1	0	102	75-125	14.6	20		4/11/2007
L76981-01FMSD	Iron	mg/L	6010B	1.053	1	0	105	75-125	0.459	20		4/11/2007
L76981-01FMSD	Magnesium	mg/L	6010B	45.40	10	35.47	99.3	75-125	3.00	20		4/11/2007
L76981-01FMSD	Molybdenum	mg/L	6010B	0.1934	0.2	0.00451	94.5	75-125	12.1	20		4/11/2007
L76981-01FMSD	Potassium	mg/L	6010B	17.79	10	6.336	115	75-125	3.43	20		4/11/2007
L76981-01FMSD	Sodium	mg/L	6010B	43.03	10	32.42	106	75-125	3.66	20		4/11/2007

[2] Analyte concentration is too high for accurate spike recovery.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76855-03BDUP	TDS	mg/L	160.1	< 10	0	0		-	0	20	#	3/30/2007
L76979-06ADUP	TDS	mg/L	160.1	78000	0	78300		-	0.384	20		3/30/2007
L76980-05ADUP	TDS	mg/L	160.1	3060	0	3070		-	0.326	20		3/30/2007
L76981-04ADUP	TDS	mg/L	160.1	328.0	0	296		-	10.3	20		3/30/2007
L76981-01ADUP	TSS	mg/L	160.2	37.00	0	36		-	2.74	20		3/30/2007

- Due to laboratory error reanalysis was performed out of hold time. Original analysis within HT result is <20 mg/L

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R67944	Alkalinity,(As CaCO3)	mg/L	2320B	50820	50000	0	102	90-110				4/2/2007
LCS-R67953	Chloride	mg/L	300.0	5.086	5	0	102	90-110				3/31/2007
LCS-R67953	Sulfate	mg/L	300.0	5.087	5	0	102	90-110				3/31/2007
LCS-R67943	Acidity	mg/L	305.1	55.00	50	0	110	80-120				4/2/2007
LCS-33787	Ammonia (as N)	mg/L	350.1	0.9270	1	0	92.7	90-110				4/2/2007
LCS-67915	Nitrite (as N)	mg/L	353.2	1.095	1	0	110	90-110				3/30/2007
LCS-67917	Nitrate (as N)	mg/L	353.2	1.073	1	0	107	90-110				3/30/2007
LCS-R67929	Oil & Grease	mg/L	EPA 1664A	41.80	40	0	104	79-114				3/30/2007
LCS-67908	Phosphate, ortho (as P)	mg/L	365.1	1.057	1	0	106	90-110				3/30/2007
LCS-R67978	TDS	mg/L	160.1	194.0	205	0	94.6	80-120				3/30/2007
LCS-R67947	TSS	mg/L	160.2	96.00	100	0	96.0	80-120				3/30/2007

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Kyle F. Gross
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Peggy McNicol
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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: WC

SampType: LCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCSD-R67978	TDS	mg/L	160.1	192.0	205	0	93.7	80-120	1.04	20		3/30/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R67944	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				4/2/2007
MB-R67944	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				4/2/2007
MB-R67944	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				4/2/2007
MB-R67953	Chloride	mg/L	300.0	< 1.0				-				3/31/2007
MB-R67953	Sulfate	mg/L	300.0	< 1.0				-				3/31/2007
MB-R67943	Acidity	mg/L	305.1	< 15				-				4/2/2007
MB-33787	Ammonia (as N)	mg/L	350.1	< 0.050				-				4/2/2007
MB-67915	Nitrite (as N)	mg/L	353.2	< 0.010				-				3/30/2007
MB-67917	Nitrate (as N)	mg/L	353.2	< 0.010				-				3/30/2007
MB-R67929	Oil & Grease	mg/L	EPA 1664A	< 3.0				-				3/30/2007
MB-67908	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				3/30/2007
MB-R67978	TDS	mg/L	160.1	< 10				-				3/30/2007
MB-R67947	TSS	mg/L	160.2	< 3.0				-				3/30/2007

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76981-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	347.0	100	244	103	80-120				4/2/2007
L76981-03BMS	Sulfate	mg/L	300.0	353.5	250	96.86	103	90-110				3/31/2007
L76981-03BMS	Chloride	mg/L	300.0	71.24	50	19.71	103	90-110				3/31/2007
L76981-01BMS	Acidity	mg/L	305.1	50.00	50	0	100	80-120				4/2/2007
L76981-02CMS	Ammonia (as N)	mg/L	350.1	1.003	1	0.015	98.8	90-110				4/2/2007
L76981-01BMS	Nitrite (as N)	mg/L	353.2	1.180	1	0	118	90-110			[1]	3/30/2007
L76981-01BMS	Nitrate (as N)	mg/L	353.2	1.403	1	0.335	107	90-110				3/30/2007
L76981-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.106	1	0.069	104	90-110				3/30/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L76981-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	347.0	100	244	103	80-120	0	10		4/2/2007
L76981-03BMSD	Chloride	mg/L	300.0	71.18	50	19.71	103	90-110	0.0843	20		3/31/2007
L76981-03BMSD	Sulfate	mg/L	300.0	353.7	250	96.86	103	90-110	0.0467	20		3/31/2007
L76981-01BMSD	Acidity	mg/L	305.1	48.00	50	0	96.0	80-120	4.08	20		4/2/2007
L76981-02CMSD	Ammonia (as N)	mg/L	350.1	1.039	1	0.015	102	90-110	3.53	10		4/2/2007
L76981-01BMSD	Nitrite (as N)	mg/L	353.2	1.063	1	0	106	90-110	10.4	10	@	3/30/2007
L76981-01BMSD	Nitrate (as N)	mg/L	353.2	1.374	1	0.335	104	90-110	2.09	10		3/30/2007
L76981-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.127	1	0.069	106	90-110	1.88	10		3/30/2007

@ High RPD due to suspected matrix interference.

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American West Analytical Labs

WORK ORDER Summary

30-Mar-07

Work Order L76981

Client ID: CAR300
Project: Scofield Baseline
Comments: QCLevel: 2+

QC Level: 2+
Location: Hand

Contact: Brad Lindsay

DB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L76981-01A	Mud Creek	3/29/2007 2:00:00 PM	3/30/2007	4/13/2007	Aqueous	SS	ww - tss/tds/ss	1
				4/13/2007		TDS-W	ww - tss/tds/ss	1
				4/13/2007		TSS-W	ww - tss/tds/ss	1
L76981-01B				4/13/2007		2320B-ALK-W	Mar. 30 - wc	1
				4/13/2007		300.0-W	Mar. 30 - wc	1
				4/13/2007		ACIDITY-W	Mar. 30 - wc	1
				4/13/2007		NO2-W	Mar. 30 - wc	1
				4/13/2007		NO3-W	Mar. 30 - wc	1
				4/13/2007		PO4-O	Mar. 30 - wc	1
L76981-01C				4/13/2007		NH3-W	Mar. 30 - nh3	1
				4/13/2007		NH3-W-PREP	Mar. 30 - nh3	1
L76981-01D				4/13/2007		OGB-W	ogb	1
L76981-01E				4/13/2007		3005A-ICPMS	Mar. 30 - met	1
				4/13/2007		ICP-W	Mar. 30 - met	1
L76981-01F				4/13/2007	Aqueous-Dissolved	3005A-Diss	Mar. 30 - dis met	1
				4/13/2007		6020-W-DISS	Mar. 30 - dis met	1
				4/13/2007		HARD	Mar. 30 - dis met	1
				4/13/2007		ICP-W-DIS	Mar. 30 - dis met	1
L76981-02A	Sulfur Spring	3/29/2007 2:30:00 PM		4/13/2007	Aqueous	SS	ww - tss/tds/ss	1
				4/13/2007		TDS-W	ww - tss/tds/ss	1
				4/13/2007		TSS-W	ww - tss/tds/ss	1
L76981-02B				4/13/2007		2320B-ALK-W	Mar. 30 - wc	1
				4/13/2007		300.0-W	Mar. 30 - wc	1
				4/13/2007		ACIDITY-W	Mar. 30 - wc	1
				4/13/2007		NO2-W	Mar. 30 - wc	1
				4/13/2007		NO3-W	Mar. 30 - wc	1
				4/13/2007		PO4-O	Mar. 30 - wc	1

WORK ORDER Summary

30-Mar-07

Work Order L76981

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L76981-02C	Sulfur Spring	3/29/2007 2:30:00 PM	3/30/2007	4/13/2007	Aqueous	NH3-W	Mar. 30 - nh3	1
				4/13/2007		NH3-W-PREP	Mar. 30 - nh3	1
				4/13/2007		OGB-W	ogb	1
L76981-02D				4/13/2007		3005A-ICPMS	Mar. 30 - met	1
L76981-02E				4/13/2007		ICP-W	Mar. 30 - met	1
				4/13/2007	Aqueous-Dissolved	3005A-Diss	Mar. 30 - dis met	1
L76981-02F				4/13/2007		6020-W-DISS	Mar. 30 - dis met	1
				4/13/2007		HARD	Mar. 30 - dis met	1
				4/13/2007		ICP-W-DIS	Mar. 30 - dis met	1
L76981-03A	Res-1	3/29/2007 2:45:00 PM		4/13/2007	Aqueous	SS	ww - tss/tds/ss	1
				4/13/2007		TDS-W	ww - tss/tds/ss	1
				4/13/2007		TSS-W	ww - tss/tds/ss	1
L76981-03B				4/13/2007		2320B-ALK-W	Mar. 30 - wc	1
				4/13/2007		300.0-W	Mar. 30 - wc	1
				4/13/2007		ACIDITY-W	Mar. 30 - wc	1
				4/13/2007		NO2-W	Mar. 30 - wc	1
				4/13/2007		NO3-W	Mar. 30 - wc	1
				4/13/2007		PO4-O	Mar. 30 - wc	1
				4/13/2007		NH3-W	Mar. 30 - nh3	1
L76981-03C				4/13/2007		NH3-W-PREP	Mar. 30 - nh3	1
				4/13/2007		OGB-W	ogb	1
L76981-03D				4/13/2007		3005A-ICPMS	Mar. 30 - met	1
L76981-03E				4/13/2007		ICP-W	Mar. 30 - met	1
				4/13/2007	Aqueous-Dissolved	3005A-Diss	Mar. 30 - dis met	1
L76981-03F				4/13/2007		6020-W-DISS	Mar. 30 - dis met	1
				4/13/2007		HARD	Mar. 30 - dis met	1
				4/13/2007		ICP-W-DIS	Mar. 30 - dis met	1
L76981-04A	Miller Outlet	3/29/2007 3:00:00 PM		4/13/2007	Aqueous	SS	ww - tss/tds/ss	1

WORK ORDER Summary

30-Mar-07

Work Order L76981

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L76981-04A	Miller Outlet	3/29/2007 3:00:00 PM	3/30/2007	4/13/2007	Aqueous	TDS-W	ww - tss/tds/ss	1
				4/13/2007		TSS-W	ww - tss/tds/ss	1
L76981-04B				4/13/2007		2320B-ALK-W	Mar. 30 - wc	1
				4/13/2007		300.0-W	Mar. 30 - wc	1
				4/13/2007		ACIDITY-W	Mar. 30 - wc	1
				4/13/2007		NO2-W	Mar. 30 - wc	1
				4/13/2007		NO3-W	Mar. 30 - wc	1
				4/13/2007		PO4-O	Mar. 30 - wc	1
L76981-04C				4/13/2007		NH3-W	Mar. 30 - nh3	1
				4/13/2007		NH3-W-PREP	Mar. 30 - nh3	1
L76981-04D				4/13/2007		OGB-W	ogb	1
L76981-04E				4/13/2007		3005A-ICPMS	Mar. 30 - met	1
				4/13/2007		ICP-W	Mar. 30 - met	1
L76981-04F				4/13/2007	Aqueous-Dissolved	3005A-Diss	Mar. 30 - dis met	1
				4/13/2007		6020-W-DISS	Mar. 30 - dis met	1
				4/13/2007		HARD	Mar. 30 - dis met	1
				4/13/2007		ICP-W-DIS	Mar. 30 - dis met	1

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE CO 81413

City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail rocklogicconsulting@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 76981

Page of

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 2	COMMENTS
MUD CREEK	3-29-07 / 14:00	W	6	✓	
SULFUR SPRING	3-29-07 / 14:30	W	6	✓	
RES-1	3-29-07 / 14:45	W	6	✓	
MILLER OUTLET	3-29-07 / 15:00	W	6	✓	

Please indicate tests needed below

Relinquished By: *Signature*	Date	Received By: *Signature*
BRAD LINDSAY	3-29-07	UPS
PRINT NAME BRAD LINDSAY	Time 17:00	PRINT NAME
Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME

Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME
Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME

Special Instructions:

PLEASE FILTER FOR DISOLVED SOLIDS

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature -1.5°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package (Y) N NA

2 Unbroken on Outer Package (Y) N NA

3 Present on Sample Y (N) NA

4 Unbroken on Sample Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

435-542-3255 Deanna Mecham Mar 30 07 09:50a p.1

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 76981

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

May 11, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L77519

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 4/27/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-01E
Field Sample ID: **Mud Creek**
Collected: 4/25/2007 4:45:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/9/2007 2:36:39 PM	6010B	0.050	**0.53**
Manganese	mg/L	5/9/2007 2:36:39 PM	6010B	0.0050	**0.043**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-02E
Field Sample ID: **Sulfur Spring**
Collected: 4/25/2007 5:00:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/9/2007 2:48:29 PM	6010B	0.050	< 0.050
Manganese	mg/L	5/9/2007 2:48:29 PM	6010B	0.0050	**0.029**

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-03E
Field Sample ID: **Res-1**
Collected: 4/25/2007 5:25:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/9/2007 2:52:23 PM	6010B	0.050	**4.6**
Manganese	mg/L	5/9/2007 2:52:23 PM	6010B	0.0050	**0.18**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-04E
Field Sample ID: **Miller Outlet**
Collected: 4/25/2007 5:45:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	5/9/2007 3:04:19 PM	6010B	0.050	**2.1**
Manganese	mg/L	5/9/2007 3:04:19 PM	6010B	0.0050	**0.092**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-01F
Field Sample ID: **Mud Creek**
Collected: 4/25/2007 4:45:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/9/2007 11:00:47 AM	6010B	0.10	< 0.10
Arsenic	mg/L	5/2/2007 3:31:37 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/9/2007 11:00:47 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/2/2007 3:31:37 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/9/2007 10:26:40 AM	6010B	10	**63** *
Copper	mg/L	5/2/2007 3:31:37 PM	6020	0.0040	< 0.0040
Iron	mg/L	5/9/2007 11:00:47 AM	6010B	0.050	< 0.050
Lead	mg/L	5/2/2007 3:31:37 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/9/2007 11:00:47 AM	6010B	1.0	**33**
Manganese	mg/L	5/2/2007 3:31:37 PM	6020	0.0050	**0.016**
Molybdenum	mg/L	5/9/2007 11:00:47 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/9/2007 11:00:47 AM	6010B	1.0	**5.3**
Selenium	mg/L	5/2/2007 3:31:37 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/9/2007 11:00:47 AM	6010B	1.0	**40**
Zinc	mg/L	5/2/2007 3:31:37 PM	6020	0.010	< 0.010

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-02F
Field Sample ID: **Sulfur Spring**
Collected: 4/25/2007 5:00:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/9/2007 11:16:20 AM	6010B	0.10	< 0.10
Arsenic	mg/L	5/2/2007 3:47:49 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/9/2007 11:16:20 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/2/2007 3:47:49 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/9/2007 10:38:21 AM	6010B	10	**90** *
Copper	mg/L	5/2/2007 3:47:49 PM	6020	0.0040	< 0.0040
Iron	mg/L	5/9/2007 11:16:20 AM	6010B	0.050	< 0.050
Lead	mg/L	5/2/2007 3:47:49 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/9/2007 11:16:20 AM	6010B	1.0	**36**
Manganese	mg/L	5/2/2007 3:47:49 PM	6020	0.0050	**0.031**
Molybdenum	mg/L	5/9/2007 11:16:20 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/9/2007 11:16:20 AM	6010B	1.0	**4.9**
Selenium	mg/L	5/2/2007 3:47:49 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/9/2007 11:16:20 AM	6010B	1.0	**8.5**
Zinc	mg/L	5/2/2007 3:47:49 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-03F
Field Sample ID: **Res-1**
Collected: 4/25/2007 5:25:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/9/2007 11:20:13 AM	6010B	0.10	< 0.10
Arsenic	mg/L	5/2/2007 4:22:59 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/9/2007 11:20:13 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/2/2007 4:22:59 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/9/2007 10:42:14 AM	6010B	10	**54** *
Copper	mg/L	5/2/2007 4:22:59 PM	6020	0.0040	< 0.0040
Iron	mg/L	5/9/2007 11:20:13 AM	6010B	0.050	< 0.050
Lead	mg/L	5/2/2007 4:22:59 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/9/2007 11:20:13 AM	6010B	1.0	**21**
Manganese	mg/L	5/2/2007 4:22:59 PM	6020	0.0050	**0.013**
Molybdenum	mg/L	5/9/2007 11:20:13 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/9/2007 11:20:13 AM	6010B	1.0	**2.8**
Selenium	mg/L	5/2/2007 4:22:59 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/9/2007 11:20:13 AM	6010B	1.0	**22**
Zinc	mg/L	5/2/2007 4:22:59 PM	6020	0.010	< 0.010

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-04F
Field Sample ID: **Miller Outlet**
Collected: 4/25/2007 5:45:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	5/9/2007 11:24:06 AM	6010B	0.10	< 0.10
Arsenic	mg/L	5/2/2007 4:28:15 PM	6020	0.0050	< 0.0050
Boron	mg/L	5/9/2007 11:24:06 AM	6010B	0.50	< 0.50
Cadmium	mg/L	5/2/2007 4:28:15 PM	6020	0.0040	< 0.0040
Calcium	mg/L	5/9/2007 10:46:07 AM	6010B	10	**83** *
Copper	mg/L	5/2/2007 4:28:15 PM	6020	0.0040	< 0.0040
Iron	mg/L	5/9/2007 11:24:06 AM	6010B	0.050	< 0.050
Lead	mg/L	5/2/2007 4:28:15 PM	6020	0.0050	< 0.0050
Magnesium	mg/L	5/9/2007 11:24:06 AM	6010B	1.0	**16**
Manganese	mg/L	5/2/2007 4:28:15 PM	6020	0.0050	**0.0090**
Molybdenum	mg/L	5/9/2007 11:24:06 AM	6010B	0.10	< 0.10
Potassium	mg/L	5/9/2007 11:24:06 AM	6010B	1.0	**2.0**
Selenium	mg/L	5/2/2007 4:28:15 PM	6020	0.0050	< 0.0050
Sodium	mg/L	5/9/2007 11:24:06 AM	6010B	1.0	**15**
Zinc	mg/L	5/2/2007 4:28:15 PM	6020	0.010	< 0.010

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-01
Field Sample ID: **Mud Creek**
Collected: 4/25/2007 4:45:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	4/30/2007 7:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	**220**
Ammonia (as N)	mg/L	5/2/2007 11:16:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	**210**
Carbonate (As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	< 20
Chloride	mg/L	4/29/2007 12:42:00 PM	300.0	5.0	**24**
Hardness (as CaCO3)	mg/L	5/9/2007 10:26:40 AM	SM2340 B	10	**300**
Nitrate (as N)	mg/L	4/27/2007 2:36:00 PM	353.2	0.010	**0.19**
Nitrite (as N)	mg/L	4/27/2007 2:36:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	5/3/2007 1:20:00 PM	EPA 1664A	3.0	**3.4**
Phosphate, ortho (as P)	mg/L	4/27/2007 1:28:00 PM	365.1	0.050	< 0.050
Settleable Solids	ml/L	4/27/2007 1:30:00 PM	160.5	0.10	**0.20**
Sulfate	mg/L	4/29/2007 1:15:00 PM	300.0	50	**120**
TDS	mg/L	4/30/2007 1:20:00 PM	160.1	20	**360**
TSS	mg/L	4/27/2007 3:00:00 PM	160.2	3.0	**30**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-02
Field Sample ID: **Sulfur Spring**
Collected: 4/25/2007 5:00:00 PM
Received: 4/27/2007

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
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Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	4/30/2007 7:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	**340**
Ammonia (as N)	mg/L	5/2/2007 11:16:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	**340**
Carbonate (As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	< 20
Chloride	mg/L	4/29/2007 1:48:00 PM	300.0	1.0	**6.6**
Hardness (as CaCO3)	mg/L	5/9/2007 10:38:21 AM	SM2340 B	10	**370**
Nitrate (as N)	mg/L	4/27/2007 2:36:00 PM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	4/27/2007 2:36:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	5/3/2007 1:20:00 PM	EPA 1664A	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	4/27/2007 1:28:00 PM	365.1	0.050	< 0.050
Settleable Solids	ml/L	4/27/2007 1:30:00 PM	160.5	0.10	< 0.10
Sulfate	mg/L	4/29/2007 2:22:00 PM	300.0	10	**45**
TDS	mg/L	4/30/2007 1:20:00 PM	160.1	20	**380**
TSS	mg/L	4/27/2007 3:00:00 PM	160.2	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-03
Field Sample ID: **Res-1**
Collected: 4/25/2007 5:25:00 PM
Received: 4/27/2007

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

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Laboratory Director

Peggy McNicol
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Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	4/30/2007 7:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	**180**
Ammonia (as N)	mg/L	5/2/2007 11:16:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	**180**
Carbonate (As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	< 20
Chloride	mg/L	4/29/2007 2:55:00 PM	300.0	5.0	**12**
Hardness (as CaCO3)	mg/L	5/9/2007 10:42:14 AM	SM2340 B	10	**220**
Nitrate (as N)	mg/L	4/27/2007 2:36:00 PM	353.2	0.010	**0.032**
Nitrite (as N)	mg/L	4/27/2007 2:36:00 PM	353.2	0.010	**0.039**
Oil & Grease	mg/L	5/3/2007 1:20:00 PM	EPA 1664A	3.0	**3.4**
Phosphate, ortho (as P)	mg/L	4/27/2007 1:28:00 PM	365.1	0.050	**0.092**
Settleable Solids	ml/L	4/27/2007 1:30:00 PM	160.5	0.10	**0.50**
Sulfate	mg/L	4/29/2007 3:28:00 PM	300.0	50	**60**
TDS	mg/L	4/30/2007 1:20:00 PM	160.1	20	**210**
TSS	mg/L	4/27/2007 3:00:00 PM	160.2	8.0	**200**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-04
Field Sample ID: **Miller Outlet**
Collected: 4/25/2007 5:45:00 PM
Received: 4/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	4/30/2007 7:30:00 AM	305.1	15	< 15
Alkalinity,(As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	**240**
Ammonia (as N)	mg/L	5/2/2007 11:16:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	4/30/2007 7:00:00 AM	2320B	20	< 20
Chloride	mg/L	4/29/2007 6:48:00 PM	300.0	10	**11**
Hardness (as CaCO3)	mg/L	5/9/2007 10:46:07 AM	SM2340 B	10	**280**
Nitrate (as N)	mg/L	4/27/2007 2:36:00 PM	353.2	0.010	**0.22**
Nitrite (as N)	mg/L	4/27/2007 2:36:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	5/3/2007 1:20:00 PM	EPA 1664A	3.0	**3.0**
Phosphate, ortho (as P)	mg/L	4/27/2007 1:28:00 PM	365.1	0.050	< 0.050
Settleable Solids	ml/L	4/27/2007 1:30:00 PM	160.5	0.10	**0.10**
Sulfate	mg/L	4/29/2007 6:48:00 PM	300.0	10	**30**
TDS	mg/L	4/30/2007 1:20:00 PM	160.1	20	**290**
TSS	mg/L	4/27/2007 3:00:00 PM	160.2	3.0	**72**

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-34351	Arsenic	mg/L	6020	0.2097	0.2	0	105	85-115				5/2/2007
LCS-34351	Cadmium	mg/L	6020	0.2154	0.2	0	108	85-115				5/2/2007
LCS-34351	Copper	mg/L	6020	0.2138	0.2	.0	107	85-115				5/2/2007
LCS-34351	Lead	mg/L	6020	0.2000	0.2	0	100	85-115				5/2/2007
LCS-34351	Manganese	mg/L	6020	0.2152	0.2	0	108	85-115				5/2/2007
LCS-34351	Selenium	mg/L	6020	0.2073	0.2	0	104	85-115				5/2/2007
LCS-34351	Zinc	mg/L	6020	1.064	1	0	106	85-115				5/2/2007
LCS-34452	Iron	mg/L	6010B	1.144	1	0	114	75-125				5/9/2007
LCS-34452	Manganese	mg/L	6010B	0.2081	0.2	0	104	75-125				5/9/2007
LCS-34351	Aluminum	mg/L	6010B	1.079	1	0	108	75-125				5/9/2007
LCS-34351	Boron	mg/L	6010B	1.077	1	0	108	75-125				5/9/2007
LCS-34351	Calcium	mg/L	6010B	10.96	10	0	110	75-125				5/9/2007
LCS-34351	Iron	mg/L	6010B	1.169	1	0	117	75-125				5/9/2007
LCS-34351	Magnesium	mg/L	6010B	10.93	10	0	109	75-125				5/9/2007
LCS-34351	Molybdenum	mg/L	6010B	0.2140	0.2	0	107	75-125				5/9/2007
LCS-34351	Potassium	mg/L	6010B	10.41	10	0	104	75-125				5/9/2007
LCS-34351	Sodium	mg/L	6010B	9.821	10	0	98.2	75-125				5/9/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-34351	Arsenic	mg/L	6020	< 0.0050				-				5/2/2007
MB-34351	Cadmium	mg/L	6020	< 0.0040				-				5/2/2007
MB-34351	Lead	mg/L	6020	< 0.0050				-				5/2/2007
MB-34351	Manganese	mg/L	6020	< 0.0050				-				5/2/2007
MB-34351	Selenium	mg/L	6020	< 0.0050				-				5/2/2007
MB-34351	Zinc	mg/L	6020	< 0.010				-				5/2/2007
MB-34351	Copper	mg/L	6020	< 0.0040				-				5/3/2007
MB-34452	Iron	mg/L	6010B	< 0.050				-				5/9/2007
MB-34452	Manganese	mg/L	6010B	< 0.0050				-				5/9/2007
MB-34351	Aluminum	mg/L	6010B	< 0.10				-				5/9/2007
MB-34351	Boron	mg/L	6010B	< 0.50				-				5/9/2007
MB-34351	Calcium	mg/L	6010B	< 1.0				-				5/9/2007
MB-34351	Iron	mg/L	6010B	< 0.050				-				5/9/2007
MB-34351	Magnesium	mg/L	6010B	< 1.0				-				5/9/2007
MB-34351	Molybdenum	mg/L	6010B	< 0.040				-				5/9/2007
MB-34351	Potassium	mg/L	6010B	< 1.0				-				5/9/2007
MB-34351	Sodium	mg/L	6010B	< 1.0				-				5/9/2007

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Salt Lake City, Utah 84115
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L77498-01IMS	Arsenic	mg/L	6020	0.2488	0.2	0.02794	110	70-130				5/2/2007
L77498-01IMS	Cadmium	mg/L	6020	0.2019	0.2	0	101	70-130				5/2/2007
L77498-01IMS	Copper	mg/L	6020	0.1623	0.2	0	81.1	70-130				5/2/2007
L77498-01IMS	Lead	mg/L	6020	0.1795	0.2	0	89.8	70-130				5/2/2007
L77498-01IMS	Manganese	mg/L	6020	0.5184	0.2	0.331	93.7	70-130				5/2/2007
L77498-01IMS	Selenium	mg/L	6020	0.2038	0.2	0.008529	97.6	70-130				5/2/2007
L77498-01IMS	Zinc	mg/L	6020	1.031	1	0.004515	103	70-130				5/2/2007
L77519-01FMS	Arsenic	mg/L	6020	0.2271	0.2	0	114	70-130				5/2/2007
L77519-01FMS	Cadmium	mg/L	6020	0.2169	0.2	0	108	70-130				5/2/2007
L77519-01FMS	Copper	mg/L	6020	0.2124	0.2	0	106	70-130				5/2/2007
L77519-01FMS	Lead	mg/L	6020	0.1980	0.2	0	99.0	70-130				5/2/2007
L77519-01FMS	Manganese	mg/L	6020	0.2341	0.2	0.01635	109	70-130				5/2/2007
L77519-01FMS	Selenium	mg/L	6020	0.2116	0.2	0	106	70-130				5/2/2007
L77519-01FMS	Zinc	mg/L	6020	1.063	1	0.006118	106	70-130				5/2/2007
L77498-01HMS	Iron	mg/L	6010B	1.698	1	0.669	103	75-125				5/9/2007
L77498-01HMS	Manganese	mg/L	6010B	0.5000	0.2	0.343	78.5	75-125				5/9/2007
L77519-01EMS	Iron	mg/L	6010B	1.641	1	0.529	111	75-125				5/9/2007
L77519-01EMS	Manganese	mg/L	6010B	0.2414	0.2	0.04303	99.2	75-125				5/9/2007
L77519-01FMS	Aluminum	mg/L	6010B	1.158	1	0.0461	111	75-125				5/9/2007
L77519-01FMS	Boron	mg/L	6010B	1.347	1	0.0958	125	75-125				5/9/2007
L77519-01FMS	Iron	mg/L	6010B	1.206	1	0.01265	119	75-125				5/9/2007
L77519-01FMS	Magnesium	mg/L	6010B	44.14	10	33.13	110	75-125				5/9/2007
L77519-01FMS	Molybdenum	mg/L	6010B	0.2239	0.2	0	112	75-125				5/9/2007
L77519-01FMS	Potassium	mg/L	6010B	16.04	10	5.279	108	75-125				5/9/2007
L77519-01FMS	Sodium	mg/L	6010B	50.27	10	39.56	107	75-125				5/9/2007
L77519-01FMS	Calcium	mg/L	6010B	75.21	10	63.39	118	75-125				5/9/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L77498-01IMSD	Arsenic	mg/L	6020	0.2590	0.2	0.02794	116	70-130	4.02	20		5/2/2007
L77498-01IMSD	Cadmium	mg/L	6020	0.2104	0.2	0	105	70-130	4.16	20		5/2/2007
L77498-01IMSD	Copper	mg/L	6020	0.1747	0.2	.0	87.3	70-130	7.35	20		5/2/2007
L77498-01IMSD	Lead	mg/L	6020	0.1896	0.2	0	94.8	70-130	5.46	20		5/2/2007
L77498-01IMSD	Manganese	mg/L	6020	0.5460	0.2	0.331	107	70-130	5.19	20		5/2/2007
L77498-01IMSD	Selenium	mg/L	6020	0.2240	0.2	0.008529	108	70-130	9.44	20		5/2/2007
L77498-01IMSD	Zinc	mg/L	6020	1.083	1	0.004515	108	70-130	4.90	20		5/2/2007
L77519-01FMSD	Arsenic	mg/L	6020	0.2163	0.2	0	108	70-130	4.85	20		5/2/2007
L77519-01FMSD	Cadmium	mg/L	6020	0.2088	0.2	0	104	70-130	3.77	20		5/2/2007
L77519-01FMSD	Copper	mg/L	6020	0.2091	0.2	0	105	70-130	1.57	20		5/2/2007
L77519-01FMSD	Lead	mg/L	6020	0.1941	0.2	0	97.1	70-130	1.95	20		5/2/2007
L77519-01FMSD	Manganese	mg/L	6020	0.2318	0.2	0.01635	108	70-130	0.951	20		5/2/2007
L77519-01FMSD	Selenium	mg/L	6020	0.2048	0.2	0	102	70-130	3.26	20		5/2/2007
L77519-01FMSD	Zinc	mg/L	6020	1.024	1	0.006118	102	70-130	3.75	20		5/2/2007
L77498-01HMSD	Iron	mg/L	6010B	1.685	1	0.669	102	75-125	0.813	20		5/9/2007
L77498-01HMSD	Manganese	mg/L	6010B	0.5232	0.2	0.343	90.1	75-125	4.52	20		5/9/2007
L77519-01EMSD	Iron	mg/L	6010B	1.608	1	0.529	108	75-125	2.02	20		5/9/2007
L77519-01EMSD	Manganese	mg/L	6010B	0.2428	0.2	0.04303	99.9	75-125	0.588	20		5/9/2007
L77519-01FMSD	Aluminum	mg/L	6010B	1.081	1	0.0461	103	75-125	6.95	20		5/9/2007
L77519-01FMSD	Boron	mg/L	6010B	1.247	1	0.0958	115	75-125	7.71	20		5/9/2007
L77519-01FMSD	Iron	mg/L	6010B	1.159	1	0.01265	115	75-125	4.00	20		5/9/2007
L77519-01FMSD	Magnesium	mg/L	6010B	43.33	10	33.13	102	75-125	1.84	20		5/9/2007
L77519-01FMSD	Molybdenum	mg/L	6010B	0.2084	0.2	0	104	75-125	7.16	20		5/9/2007
L77519-01FMSD	Potassium	mg/L	6010B	15.55	10	5.279	103	75-125	3.06	20		5/9/2007
L77519-01FMSD	Sodium	mg/L	6010B	49.43	10	39.56	98.7	75-125	1.67	20		5/9/2007
L77519-01FMSD	Calcium	mg/L	6010B	72.55	10	63.39	91.6	75-125	3.59	20		5/9/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L77498-01CDUP	TDS	mg/L	160.1	11800	0	11960		-	1.35	20		4/30/2007
L77519-01ADUP	TDS	mg/L	160.1	368.0	0	360		-	2.20	20		4/30/2007
L77519-04ADUP	TSS	mg/L	160.2	75.00	0	72		-	4.08	20		4/27/2007
L77522-01ADUP	TSS	mg/L	160.2	98.00	0	92		-	6.32	20		4/27/2007

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R69169	Alkalinity,(As CaCO3)	mg/L	2320B	52140	50000	0	104	90-110				4/30/2007
LCS-R69182	Chloride	mg/L	300.0	5.071	5	0	101	90-110				4/29/2007
LCS-R69182	Sulfate	mg/L	300.0	5.425	5	0	108	90-110				4/29/2007
LCS-R69170	Acidity	mg/L	305.1	50.00	50	0	100	80-120				4/30/2007
LCS-34369	Ammonia (as N)	mg/L	350.1	1.009	1	0	101	90-110				5/2/2007
LCS-69134	Nitrite (as N)	mg/L	353.2	0.9960	1	0	99.6	90-110				4/27/2007
LCS-69135	Nitrate (as N)	mg/L	353.2	1.007	1	0	101	90-110				4/27/2007
LCS-R69380	Oil & Grease	mg/L	EPA 1664A	41.20	40	0	103	79-114				5/3/2007
LCS-69129	Phosphate, ortho (as P)	mg/L	365.1	0.9850	1	0	98.5	90-110				4/27/2007
LCS-R69264	TDS	mg/L	160.1	184.0	205	0	89.8	80-120				4/30/2007
LCS-R69176	TSS	mg/L	160.2	97.00	100	0	97.0	80-120				4/27/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R69169	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				4/30/2007
MB-R69169	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				4/30/2007
MB-R69169	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				4/30/2007
MB-R69182	Chloride	mg/L	300.0	< 1.0				-				4/29/2007
MB-R69182	Sulfate	mg/L	300.0	< 1.0				-				4/29/2007
MB-R69170	Acidity	mg/L	305.1	< 15				-				4/30/2007
MB-34369	Ammonia (as N)	mg/L	350.1	< 0.050				-				5/2/2007
MB-69134	Nitrite (as N)	mg/L	353.2	< 0.010				-				4/27/2007
MB-69135	Nitrate (as N)	mg/L	353.2	< 0.010				-				4/27/2007
MB-R69380	Oil & Grease	mg/L	EPA 1664A	< 3.0				-				5/3/2007
MB-69129	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				4/27/2007
MB-R69264	TDS	mg/L	160.1	< 10				-				4/30/2007
MB-R69176	TSS	mg/L	160.2	< 3.0				-				4/27/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L77519-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	327.0	100	224	103	80-120				4/30/2007
L77477-03BMS	Chloride	mg/L	300.0	8787	5000	3426	107	90-110				4/29/2007
L77477-03BMS	Sulfate	mg/L	300.0	1477	1000	349.1	113	90-110			[1]	4/29/2007
L77519-04BMS	Chloride	mg/L	300.0	62.90	50	10.64	105	90-110				4/29/2007
L77519-04BMS	Sulfate	mg/L	300.0	84.59	50	30.39	108	90-110				4/29/2007
L77519-01BMS	Acidity	mg/L	305.1	48.00	50	0	96.0	80-120				4/30/2007
L77519-02CMS	Ammonia (as N)	mg/L	350.1	0.9460	1	0.023	92.3	90-110				5/2/2007
L77519-01BMS	Nitrite (as N)	mg/L	353.2	1.090	1	0	109	90-110				4/27/2007
L77498-01BMS	Nitrate (as N)	mg/L	353.2	1.395	1	0.373	102	90-110				4/27/2007
L77519-01BMS	Nitrate (as N)	mg/L	353.2	1.249	1	0.187	106	90-110				4/27/2007
L77519-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.043	1	0.016	103	90-110				4/27/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L77519-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	330.0	100	224	106	80-120	0.913	10		4/30/2007
L77477-03BMSD	Chloride	mg/L	300.0	8737	5000	3426	106	90-110	0.569	20		4/29/2007
L77477-03BMSD	Sulfate	mg/L	300.0	1428	1000	349.1	108	90-110	3.35	20		4/29/2007
L77519-04BMSD	Chloride	mg/L	300.0	62.85	50	10.64	104	90-110	0.0716	20		4/29/2007
L77519-04BMSD	Sulfate	mg/L	300.0	83.99	50	30.39	107	90-110	0.715	20		4/29/2007
L77519-01BMSD	Acidity	mg/L	305.1	50.00	50	0	100	80-120	4.08	20		4/30/2007
L77519-02CMSD	Ammonia (as N)	mg/L	350.1	0.9710	1	0.023	94.8	90-110	2.61	10		5/2/2007
L77519-01BMSD	Nitrite (as N)	mg/L	353.2	1.061	1	0	106	90-110	2.70	10		4/27/2007
L77498-01BMSD	Nitrate (as N)	mg/L	353.2	1.367	1	0.373	99.4	90-110	2.03	10		4/27/2007
L77519-01BMSD	Nitrate (as N)	mg/L	353.2	1.256	1	0.187	107	90-110	0.559	10		4/27/2007
L77519-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.005	1	0.016	98.9	90-110	3.71	10		4/27/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R69380	Oil & Grease	mg/L	EPA 1664A	37.80	40	0	94.5	79-114				5/3/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R69380	Oil & Grease	mg/L	EPA 1664A	39.00	40	0	97.5	79-114	3.12	18		5/3/2007

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American West Analytical Labs

WORK ORDER Summary

27-Apr-07

Work Order L77519

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L77519-01A	Mud Creek	4/25/2007 4:45:00 PM	4/27/2007	5/11/2007	Aqueous	SS	ww - tss/tds/ss	1
				5/11/2007		TDS-W	ww - tss/tds/ss	1
				5/11/2007		TSS-W	ww - tss/tds/ss	1
L77519-01B				5/11/2007		2320B-ALK-W	apr 27 - wc	1
				5/11/2007		300.0-W	apr 27 - wc	1
				5/11/2007		ACIDITY-W	apr 27 - wc	1
				5/11/2007		NO2-W	apr 27 - wc	1
				5/11/2007		NO3-W	apr 27 - wc	1
				5/11/2007		PO4-O	apr 27 - wc	1
L77519-01C				5/11/2007		NH3-W	apr 27 - nh3	1
				5/11/2007		NH3-W-PREP	apr 27 - nh3	1
L77519-01D				5/11/2007		OGB-W	ogb	1
L77519-01E				5/11/2007		3005A-ICPMS	apr 27 - met-total	1
				5/11/2007		ICP-W	apr 27 - met-total	1
L77519-01F				5/11/2007	Aqueous-Dissolved	3005A-Diss	apr 27 - dis met	1
				5/11/2007		6020-W-DISS	apr 27 - dis met	1
				5/11/2007		HARD	apr 27 - dis met	1
				5/11/2007		ICP-W-DIS	apr 27 - dis met	1
L77519-02A	Sulfur Spring	4/25/2007 5:00:00 PM		5/11/2007	Aqueous	SS	ww - tss/tds/ss	1
				5/11/2007		TDS-W	ww - tss/tds/ss	1
				5/11/2007		TSS-W	ww - tss/tds/ss	1
L77519-02B				5/11/2007		2320B-ALK-W	apr 27 - wc	1
				5/11/2007		300.0-W	apr 27 - wc	1
				5/11/2007		ACIDITY-W	apr 27 - wc	1
				5/11/2007		NO2-W	apr 27 - wc	1
				5/11/2007		NO3-W	apr 27 - wc	1
				5/11/2007		PO4-O	apr 27 - wc	1

WORK ORDER Summary

27-Apr-07

Work Order L77519

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L77519-02C	Sulfur Spring	4/25/2007 5:00:00 PM	4/27/2007	5/11/2007	Aqueous	NH3-W	apr 27 - nh3	1
				5/11/2007		NH3-W-PREP	apr 27 - nh3	1
L77519-02D				5/11/2007		OGB-W	ogb	1
L77519-02E				5/11/2007		3005A-ICPMS	apr 27 - met-total	1
				5/11/2007		ICP-W	apr 27 - met-total	1
L77519-02F				5/11/2007	Aqueous-Dissolved	3005A-Diss	apr 27 - dis met	1
				5/11/2007		6020-W-DISS	apr 27 - dis met	1
				5/11/2007		HARD	apr 27 - dis met	1
				5/11/2007		ICP-W-DIS	apr 27 - dis met	1
L77519-03A	Res-1	4/25/2007 5:25:00 PM		5/11/2007	Aqueous	SS	ww - tss/tds/ss	1
				5/11/2007		TDS-W	ww - tss/tds/ss	1
				5/11/2007		TSS-W	ww - tss/tds/ss	1
L77519-03B				5/11/2007		2320B-ALK-W	apr 27 - wc	1
				5/11/2007		300.0-W	apr 27 - wc	1
				5/11/2007		ACIDITY-W	apr 27 - wc	1
				5/11/2007		NO2-W	apr 27 - wc	1
				5/11/2007		NO3-W	apr 27 - wc	1
				5/11/2007		PO4-O	apr 27 - wc	1
L77519-03C				5/11/2007		NH3-W	apr 27 - nh3	1
				5/11/2007		NH3-W-PREP	apr 27 - nh3	1
L77519-03D				5/11/2007		OGB-W	ogb	1
L77519-03E				5/11/2007		3005A-ICPMS	apr 27 - met-total	1
				5/11/2007		ICP-W	apr 27 - met-total	1
L77519-03F				5/11/2007	Aqueous-Dissolved	3005A-Diss	apr 27 - dis met	1
				5/11/2007		6020-W-DISS	apr 27 - dis met	1
				5/11/2007		HARD	apr 27 - dis met	1
				5/11/2007		ICP-W-DIS	apr 27 - dis met	1
L77519-04A	Miller Outlet	4/25/2007 5:45:00 PM		5/11/2007	Aqueous	SS	ww - tss/tds/ss	1

WORK ORDER Summary

27-Apr-07

Work Order L77519

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L77519-04A	Miller Outlet	4/25/2007 5:45:00 PM	4/27/2007	5/11/2007	Aqueous	TDS-W	ww - tss/tds/ss	1
				5/11/2007		TSS-W	ww - tss/tds/ss	1
L77519-04B				5/11/2007		2320B-ALK-W	apr 27 - wc	1
				5/11/2007		300.0-W	apr 27 - wc	1
				5/11/2007		ACIDITY-W	apr 27 - wc	1
				5/11/2007		NO2-W	apr 27 - wc	1
				5/11/2007		NO3-W	apr 27 - wc	1
				5/11/2007		PO4-O	apr 27 - wc	1
L77519-04C				5/11/2007		NH3-W	apr 27 - nh3	1
				5/11/2007		NH3-W-PREP	apr 27 - nh3	1
L77519-04D				5/11/2007		OGB-W	ogb	1
L77519-04E				5/11/2007		3005A-ICPMS	apr 27 - met-total	1
				5/11/2007		ICP-W	apr 27 - met-total	1
L77519-04F				5/11/2007	Aqueous-Dissolved	3005A-Diss	apr 27 - dis met	1
				5/11/2007		6020-W-DISS	apr 27 - dis met	1
				5/11/2007		HARD	apr 27 - dis met	1
				5/11/2007		ICP-W-DIS	apr 27 - dis met	1

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE CO 81413

City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 77519

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE M										COMMENTS
				Please indicate tests needed below										
MUD CREEK	4-25-07 / 16:45	W	6	↓										
SULFUR SPRING	/ 17:00			↓										
RES-1	/ 17:25			↓										
MILLER OUTLET	/ 17:45			↓										

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or Hand delivered
Notes: UPS
2 Ambient or Chilled
Notes: w/ ice
3 Temperature 4.0
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Notes:
6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y (N) NA
4 Unbroken on Sample Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 10:50	PRINT NAME UPS
Relinquished By: Signature	Date	Received By: Signature Denise Bruun 4/27/07
PRINT NAME	Time	PRINT NAME Denise Bruun 10:05

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

PLEASE FILTER FOR DISSOLVED SOLIDS

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	✓	Total Dissolved Solids	mg/l
*	✓	Total Settleable Solids	(UPDES)
*	✓	Total Suspended Solids	mg/l
*	✓	Total Hardness ($CaCO_3$)	mg/l
*	✓	Total Alkalinity	mg/l
	✓	Acidity	mg/l
	✓	Aluminum (Dissolved)	mg/l
	✓	Arsenic (Dissolved)	mg/l
	✓	Boron (Dissolved)[1]	mg/l
*	✓	Carbonate	mg/l
*	✓	Bicarbonate	mg/l
	✓	Cadmium (Dissolved)	mg/l
*	✓	Calcium (Dissolved)	mg/l
*	✓	Chloride	mg/l
	✓	Copper (Dissolved)	mg/l
*	✓	Iron (Dissolved)	mg/l
*	✓	Iron (Total)	mg/l
	✓	Lead (Dissolved)	mg/l
*	✓	Magnesium (Dissolved)	mg/l
*	✓	Manganese (Dissolved)	mg/l
*	✓	Manganese (Total)	mg/l
	✓	Molybdenum (Dissolved)	mg/l
	✓	Ammonia	mg/l
	✓	Nitrates	mg/l
	✓	Nitrites	mg/l
*	✓	Potassium (Dissolved)	mg/l
	✓	Phosphates(Ortho)	mg/l
	✓	Selenium[1] (Dissolved)	mg/l
*	✓	Sodium (Dissolved)	mg/l
*	✓	Sulfate	mg/l
	✓	Zinc (Dissolved)	mg/l
*	✓	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 77519

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

June 14, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L78061

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 5/30/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-01E
Field Sample ID: **Miller Outlet**
Collected: 5/29/2007 12:40:00 PM
Received: 5/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/12/2007 6:45:28 PM	6010B	0.050	**2.8** [1]
Manganese	mg/L	6/12/2007 6:45:28 PM	6010B	0.0050	**0.12**

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L78061-02E
Field Sample ID: **Sulfur Spring**
Collected: 5/29/2007 1:00:00 PM
Received: 5/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/12/2007 9:05:44 PM	6010B	0.050	**0.054**
Manganese	mg/L	6/12/2007 9:05:44 PM	6010B	0.0050	**0.027**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Lab Sample ID: L78061-03E
Field Sample ID: **Mud Creek**
Collected: 5/29/2007 1:10:00 PM
Received: 5/30/2007

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/12/2007 9:09:39 PM	6010B	0.050	**0.47**
Manganese	mg/L	6/12/2007 9:09:39 PM	6010B	0.0050	**0.032**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

Lab Sample ID: L78061-04E
Field Sample ID: **Res-1**
Collected: 5/29/2007 1:30:00 PM
Received: 5/30/2007

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	6/12/2007 9:20:37 PM	6010B	0.050	**7.1**
Manganese	mg/L	6/12/2007 9:20:37 PM	6010B	0.0050	**0.46**

463 West 3600 South
Salt Lake City, Utah
84115

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-01F
Field Sample ID: **Miller Outlet**
Collected: 5/29/2007 12:40:00 PM
Received: 5/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	6/12/2007 11:35:11 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	6/1/2007 10:44:47 AM	6020	0.0050	< 0.0050	
Boron	mg/L	6/12/2007 8:01:08 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	6/1/2007 10:44:47 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	6/12/2007 10:54:36 AM	6010B	10	**75**	*
Copper	mg/L	6/8/2007 9:38:11 AM	6020	0.0040	< 0.0040	
Iron	mg/L	6/12/2007 8:01:08 PM	6010B	0.050	< 0.050	
Lead	mg/L	6/1/2007 10:44:47 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	6/12/2007 8:01:08 PM	6010B	1.0	**17**	
Manganese	mg/L	6/1/2007 10:44:47 AM	6020	0.0050	< 0.0050	
Molybdenum	mg/L	6/12/2007 8:01:08 PM	6010B	0.10	< 0.10	
Potassium	mg/L	6/12/2007 8:01:08 PM	6010B	1.0	**1.1**	
Selenium	mg/L	6/1/2007 10:44:47 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	6/12/2007 11:35:11 AM	6010B	1.0	**14**	[1] @
Zinc	mg/L	6/1/2007 10:44:47 AM	6020	0.010	**0.016**	

** The reporting limits were raised due to high analyte concentration.*

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

@ High RPD due to suspected matrix interference.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78061-02F
Field Sample ID: **Sulfur Spring**
Collected: 5/29/2007 1:00:00 PM
Received: 5/30/2007

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	6/12/2007 11:58:57 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	6/1/2007 11:11:44 AM	6020	0.0050	< 0.0050	
Boron	mg/L	6/12/2007 8:13:12 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	6/1/2007 11:11:44 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	6/12/2007 11:06:19 AM	6010B	10	**94**	*
Copper	mg/L	6/1/2007 11:11:44 AM	6020	0.0040	< 0.0040	
Iron	mg/L	6/12/2007 8:13:12 PM	6010B	0.050	< 0.050	
Lead	mg/L	6/1/2007 11:11:44 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	6/12/2007 8:13:12 PM	6010B	1.0	**37**	
Manganese	mg/L	6/1/2007 11:11:44 AM	6020	0.0050	**0.029**	
Molybdenum	mg/L	6/12/2007 8:13:12 PM	6010B	0.10	< 0.10	
Potassium	mg/L	6/12/2007 8:13:12 PM	6010B	1.0	**4.3**	
Selenium	mg/L	6/1/2007 11:11:44 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	6/12/2007 11:58:57 AM	6010B	1.0	**7.4**	
Zinc	mg/L	6/1/2007 11:11:44 AM	6020	0.010	< 0.010	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-03F
Field Sample ID: **Mud Creek**
Collected: 5/29/2007 1:10:00 PM
Received: 5/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	6/12/2007 12:04:26 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	6/1/2007 11:17:07 AM	6020	0.0050	< 0.0050	
Boron	mg/L	6/12/2007 8:17:05 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	6/1/2007 11:17:07 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	6/12/2007 11:10:15 AM	6010B	10	**69**	*
Copper	mg/L	6/1/2007 11:17:07 AM	6020	0.0040	< 0.0040	
Iron	mg/L	6/12/2007 8:17:05 PM	6010B	0.050	< 0.050	
Lead	mg/L	6/1/2007 11:17:07 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	6/12/2007 8:17:05 PM	6010B	1.0	**29**	
Manganese	mg/L	6/1/2007 11:17:07 AM	6020	0.0050	**0.012**	
Molybdenum	mg/L	6/12/2007 8:17:05 PM	6010B	0.10	< 0.10	
Potassium	mg/L	6/12/2007 8:17:05 PM	6010B	1.0	**3.8**	
Selenium	mg/L	6/1/2007 11:17:07 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	6/12/2007 12:04:26 PM	6010B	1.0	**27**	
Zinc	mg/L	6/1/2007 11:17:07 AM	6020	0.010	**0.012**	

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78061-04F
Field Sample ID: **Res-1**
Collected: 5/29/2007 1:30:00 PM
Received: 5/30/2007

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	6/12/2007 12:08:58 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	6/1/2007 11:22:30 AM	6020	0.0050	< 0.0050	
Boron	mg/L	6/12/2007 8:20:59 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	6/1/2007 11:22:30 AM	6020	0.0040	< 0.0040	
Calcium	mg/L	6/12/2007 11:14:15 AM	6010B	10	**47**	*
Copper	mg/L	6/1/2007 11:22:30 AM	6020	0.0040	< 0.0040	
Iron	mg/L	6/12/2007 8:20:59 PM	6010B	0.050	< 0.050	
Lead	mg/L	6/1/2007 11:22:30 AM	6020	0.0050	< 0.0050	
Magnesium	mg/L	6/12/2007 8:20:59 PM	6010B	1.0	**22**	
Manganese	mg/L	6/1/2007 11:22:30 AM	6020	0.0050	**0.042**	
Molybdenum	mg/L	6/12/2007 8:20:59 PM	6010B	0.10	< 0.10	
Potassium	mg/L	6/12/2007 8:20:59 PM	6010B	1.0	**2.0**	
Selenium	mg/L	6/1/2007 11:22:30 AM	6020	0.0050	< 0.0050	
Sodium	mg/L	6/12/2007 12:08:58 PM	6010B	1.0	**18**	
Zinc	mg/L	6/1/2007 11:22:30 AM	6020	0.010	**0.010**	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-01
Field Sample ID: **Miller Outlet**
Collected: 5/29/2007 12:40:00 PM
Received: 5/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	6/4/2007 9:45:00 AM	SM2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	20	**220**
Ammonia (as N)	mg/L	6/6/2007 7:50:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	10	< 10
Chloride	mg/L	5/30/2007 7:01:00 PM	300.0	5.0	**9.7**
Hardness (as CaCO3)	mg/L	6/12/2007	SM2340 B	10	**260**
Nitrate (as N)	mg/L	5/30/2007 12:08:00 PM	353.2	0.010	**0.025** [1]
Nitrite (as N)	mg/L	5/30/2007 12:08:00 PM	353.2	0.010	**0.015**
Oil & Grease	mg/L	6/1/2007 1:00:00 PM	EPA 1664A	3.0	**3.4**
Phosphate, ortho (as P)	mg/L	5/31/2007 7:51:00 AM	365.1	0.050	< 0.050
Settleable Solids	ml/L	5/30/2007 11:45:00 AM	SM2540F	0.10	**0.20**
Sulfate	mg/L	5/30/2007 7:01:00 PM	300.0	5.0	**23**
TDS	mg/L	6/1/2007 2:30:00 PM	160.1	20	**270**
TSS	mg/L	5/30/2007 3:30:00 PM	SM2540D	3.0	**120**

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78061-02
Field Sample ID: **Sulfur Spring**
Collected: 5/29/2007 1:00:00 PM
Received: 5/30/2007

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	6/4/2007 9:45:00 AM	SM2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	20	**330**
Ammonia (as N)	mg/L	6/6/2007 7:50:00 AM	350.1	0.050	**0.093** [1]
Bicarbonate (As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	20	**330**
Carbonate (As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	10	< 10
Chloride	mg/L	5/30/2007 10:21:00 PM	300.0	1.0	**6.4**
Hardness (as CaCO3)	mg/L	6/12/2007	SM2340 B	10	**390**
Nitrate (as N)	mg/L	5/30/2007 12:08:00 PM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	5/30/2007 12:08:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	6/1/2007 1:00:00 PM	EPA 1664A	3.0	**5.3**
Phosphate, ortho (as P)	mg/L	5/31/2007 7:51:00 AM	365.1	0.050	< 0.050
Settleable Solids	ml/L	5/30/2007 11:45:00 AM	SM2540F	0.10	< 0.10
Sulfate	mg/L	5/31/2007 12:01:00 AM	300.0	10	**46**
TDS	mg/L	6/1/2007 2:30:00 PM	160.1	20	**380**
TSS	mg/L	5/30/2007 3:30:00 PM	SM2540D	3.0	< 3.0

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-03
Field Sample ID: **Mud Creek**
Collected: 5/29/2007 1:10:00 PM
Received: 5/30/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	6/4/2007 9:45:00 AM	SM2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	20	**220**
Ammonia (as N)	mg/L	6/6/2007 7:50:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	20	**210**
Carbonate (As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	10	< 10
Chloride	mg/L	5/31/2007 12:34:00 AM	300.0	5.0	**13**
Hardness (as CaCO3)	mg/L	6/12/2007	SM2340 B	10	**290**
Nitrate (as N)	mg/L	5/30/2007 12:08:00 PM	353.2	0.010	**0.57**
Nitrite (as N)	mg/L	5/30/2007 12:08:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	6/1/2007 1:00:00 PM	EPA 1664A	3.0	**3.4**
Phosphate, ortho (as P)	mg/L	5/31/2007 7:51:00 AM	365.1	0.050	< 0.050
Settleable Solids	ml/L	5/30/2007 11:45:00 AM	SM2540F	0.10	**0.10**
Sulfate	mg/L	5/31/2007 1:07:00 AM	300.0	50	**87**
TDS	mg/L	6/1/2007 2:30:00 PM	160.1	20	**360**
TSS	mg/L	5/30/2007 3:30:00 PM	SM2540D	3.0	**48**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

Lab Sample ID: L78061-04
Field Sample ID: **Res-1**
Collected: 5/29/2007 1:30:00 PM
Received: 5/30/2007

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	6/4/2007 9:45:00 AM	SM2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	20	**190**
Ammonia (as N)	mg/L	6/6/2007 7:50:00 AM	350.1	0.050	**0.077**
Bicarbonate (As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	20	**190**
Carbonate (As CaCO3)	mg/L	6/4/2007 10:00:00 AM	2320B	10	< 10
Chloride	mg/L	5/31/2007 1:41:00 AM	300.0	5.0	**10**
Hardness (as CaCO3)	mg/L	6/12/2007	SM2340 B	10	**210**
Nitrate (as N)	mg/L	5/30/2007 12:08:00 PM	353.2	0.010	**0.37**
Nitrite (as N)	mg/L	5/30/2007 12:08:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	6/1/2007 1:00:00 PM	EPA 1664A	3.0	**3.8**
Phosphate, ortho (as P)	mg/L	5/31/2007 7:51:00 AM	365.1	0.050	< 0.050
Settleable Solids	ml/L	5/30/2007 11:45:00 AM	SM2540F	0.10	**5.5**
Sulfate	mg/L	5/31/2007 2:14:00 AM	300.0	10	**56**
TDS	mg/L	6/1/2007 2:30:00 PM	160.1	20	**250**
TSS	mg/L	5/30/2007 3:30:00 PM	SM2540D	8.0	**1600**

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-34917	Arsenic	mg/L	6020	0.2227	0.2	0	111	85-115				6/1/2007
LCS-34917	Cadmium	mg/L	6020	0.2092	0.2	0	105	85-115				6/1/2007
LCS-34917	Copper	mg/L	6020	0.2102	0.2	0	105	85-115				6/1/2007
LCS-34917	Lead	mg/L	6020	0.2154	0.2	0	108	85-115				6/1/2007
LCS-34917	Manganese	mg/L	6020	0.2121	0.2	0	106	85-115				6/1/2007
LCS-34917	Selenium	mg/L	6020	0.2061	0.2	0	103	85-115				6/1/2007
LCS-34917	Zinc	mg/L	6020	1.064	1	0.003017	106	85-115				6/1/2007
LCS-34985	Iron	mg/L	6010B	0.9908	1	0	99.1	75-125				6/12/2007
LCS-34985	Manganese	mg/L	6010B	0.1982	0.2	0	99.1	75-125				6/12/2007
LCS-34917	Aluminum	mg/L	6010B	1.135	1	0	113	75-125				6/12/2007
LCS-34917	Boron	mg/L	6010B	1.055	1	0	105	75-125				6/12/2007
LCS-34917	Calcium	mg/L	6010B	11.34	10	0	113	75-125				6/12/2007
LCS-34917	Iron	mg/L	6010B	1.149	1	0	115	75-125				6/12/2007
LCS-34917	Magnesium	mg/L	6010B	11.46	10	0	115	75-125				6/12/2007
LCS-34917	Molybdenum	mg/L	6010B	0.2102	0.2	0	105	75-125				6/12/2007
LCS-34917	Potassium	mg/L	6010B	11.08	10	0	111	75-125				6/12/2007
LCS-34917	Sodium	mg/L	6010B	9.034	10	0	90.3	75-125				6/12/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-34917	Arsenic	mg/L	6020	< 0.0050				-				6/1/2007
MB-34917	Cadmium	mg/L	6020	< 0.0040				-				6/1/2007
MB-34917	Copper	mg/L	6020	< 0.0040				-				6/1/2007
MB-34917	Lead	mg/L	6020	< 0.0050				-				6/1/2007
MB-34917	Manganese	mg/L	6020	< 0.0050				-				6/1/2007
MB-34917	Selenium	mg/L	6020	< 0.0050				-				6/1/2007
MB-34917	Zinc	mg/L	6020	< 0.010				-				6/1/2007
MB-34985	Iron	mg/L	6010B	< 0.050				-				6/12/2007
MB-34985	Manganese	mg/L	6010B	< 0.0050				-				6/12/2007
MB-34917	Aluminum	mg/L	6010B	< 0.10				-				6/12/2007
MB-34917	Boron	mg/L	6010B	< 0.50				-				6/12/2007
MB-34917	Calcium	mg/L	6010B	< 1.0				-				6/12/2007
MB-34917	Iron	mg/L	6010B	< 0.050				-				6/12/2007
MB-34917	Magnesium	mg/L	6010B	< 1.0				-				6/12/2007
MB-34917	Molybdenum	mg/L	6010B	< 0.040				-				6/12/2007
MB-34917	Potassium	mg/L	6010B	< 1.0				-				6/12/2007
MB-34917	Sodium	mg/L	6010B	< 1.0				-				6/12/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78061-01FMS	Arsenic	mg/L	6020	0.2242	0.2	0	112	70-130				6/1/2007
L78061-01FMS	Cadmium	mg/L	6020	0.2057	0.2	0	103	70-130				6/1/2007
L78061-01FMS	Lead	mg/L	6020	0.2158	0.2	0	108	70-130				6/1/2007
L78061-01FMS	Manganese	mg/L	6020	0.2198	0.2	0.004022	108	70-130				6/1/2007
L78061-01FMS	Selenium	mg/L	6020	0.2124	0.2	0.001197	106	70-130				6/1/2007
L78061-01FMS	Zinc	mg/L	6020	1.079	1	0.01631	106	70-130				6/1/2007
L78061-01FMS	Copper	mg/L	6020	0.2252	0.2	0.002609	111	70-130				6/8/2007
L78061-01EMS	Iron	mg/L	6010B	3.617	1	2.839	77.8	75-125				6/12/2007
L78061-01EMS	Manganese	mg/L	6010B	0.3045	0.2	0.123	90.7	75-125				6/12/2007
L78061-01FMS	Calcium	mg/L	6010B	86.97	10	75.28	117	75-125				6/12/2007
L78061-01FMS	Aluminum	mg/L	6010B	1.155	1	0.04221	111	75-125				6/12/2007
L78061-01FMS	Sodium	mg/L	6010B	26.06	10	14.38	117	75-125				6/12/2007
L78061-01FMS	Boron	mg/L	6010B	1.081	1	0.01853	106	75-125				6/12/2007
L78061-01FMS	Iron	mg/L	6010B	1.132	1	0	113	75-125				6/12/2007
L78061-01FMS	Magnesium	mg/L	6010B	27.85	10	16.88	110	75-125				6/12/2007
L78061-01FMS	Molybdenum	mg/L	6010B	0.2098	0.2	0.006293	102	75-125				6/12/2007
L78061-01FMS	Potassium	mg/L	6010B	11.94	10	1.138	108	75-125				6/12/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78061-01FMSD	Arsenic	mg/L	6020	0.2159	0.2	0	108	70-130	3.73	20		6/1/2007
L78061-01FMSD	Cadmium	mg/L	6020	0.1992	0.2	0	99.6	70-130	3.22	20		6/1/2007
L78061-01FMSD	Lead	mg/L	6020	0.2111	0.2	0	106	70-130	2.18	20		6/1/2007
L78061-01FMSD	Manganese	mg/L	6020	0.2116	0.2	0.004022	104	70-130	3.79	20		6/1/2007
L78061-01FMSD	Selenium	mg/L	6020	0.1988	0.2	0.001197	98.8	70-130	6.60	20		6/1/2007
L78061-01FMSD	Zinc	mg/L	6020	1.057	1	0.01631	104	70-130	2.02	20		6/1/2007
L78061-01FMSD	Copper	mg/L	6020	0.2154	0.2	0.002609	106	70-130	4.48	20		6/8/2007
L78061-01EMSD	Iron	mg/L	6010B	3.565	1	2.839	72.6	75-125	1.44	20	¹	6/12/2007
L78061-01EMSD	Manganese	mg/L	6010B	0.3036	0.2	0.123	90.3	75-125	0.269	20		6/12/2007
L78061-01FMSD	Calcium	mg/L	6010B	84.70	10	75.28	94.3	75-125	2.64	20		6/12/2007
L78061-01FMSD	Aluminum	mg/L	6010B	1.028	1	0.04221	98.6	75-125	11.6	20		6/12/2007
L78061-01FMSD	Sodium	mg/L	6010B	19.81	10	14.38	54.3	75-125	27.2	20	¹ @	6/12/2007
L78061-01FMSD	Boron	mg/L	6010B	1.039	1	0.01853	102	75-125	3.96	20		6/12/2007
L78061-01FMSD	Iron	mg/L	6010B	1.051	1	0	105	75-125	7.40	20		6/12/2007
L78061-01FMSD	Magnesium	mg/L	6010B	25.94	10	16.88	90.5	75-125	7.11	20		6/12/2007
L78061-01FMSD	Molybdenum	mg/L	6010B	0.2050	0.2	0.006293	99.4	75-125	2.31	20		6/12/2007
L78061-01FMSD	Potassium	mg/L	6010B	11.00	10	1.138	98.6	75-125	8.24	20		6/12/2007

@ High RPD due to suspected matrix interference.

¹ Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78049-13EDUP	TDS	mg/L	160.1	72.00	0	66		-	8.70	20		6/1/2007
L78061-04ADUP	TDS	mg/L	160.1	260.0	0	252		-	3.12	20		6/1/2007
L78037-02ADUP	TSS	mg/L	SM2540D	6.000	0	5		-	18.2	20		5/30/2007
L78065-02ADUP	TSS	mg/L	SM2540D	510.0	0	485		-	5.03	20		5/30/2007
L78061-03ADUP	TSS	mg/L	SM2540D	49.00	0	48		-	2.06	20		5/30/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R70482	Alkalinity,(As CaCO3)	mg/L	2320B	49860	50000	0	99.7	90-110				6/4/2007
LCS-R70367	Chloride	mg/L	300.0	5.045	5	0	101	90-110				5/30/2007
LCS-R70367	Fluoride	mg/L	300.0	5.088	5	0	102	90-110				5/30/2007
LCS-R70367	Sulfate	mg/L	300.0	5.073	5	0	101	90-110				5/30/2007
LCS-R70481	Acidity	mg/L	SM2310B	55.00	50	0	110	80-120				6/4/2007
LCS-34931	Ammonia (as N)	mg/L	350.1	0.9550	1	0.022	93.3	90-110				6/6/2007
LCS-70350	Nitrite (as N)	mg/L	353.2	0.9570	1	0	95.7	90-110				5/30/2007
LCS-70351	Nitrate (as N)	mg/L	353.2	1.049	1	0	105	90-110				5/30/2007
LCS-R70452	Oil & Grease	mg/L	EPA 1664A	32.20	40	0	80.5	79-114				6/1/2007
LCS-70365	Phosphate, ortho (as P)	mg/L	365.1	1.013	1	0	101	90-110				5/31/2007
LCS-R70515	TDS	mg/L	160.1	200.0	205	0	97.6	80-120				6/1/2007
LCS-R70368	TSS	mg/L	SM2540D	99.00	100	0	99.0	80-120				5/30/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R70482	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				6/4/2007
MB-R70482	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				6/4/2007
MB-R70482	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				6/4/2007
MB-R70367	Chloride	mg/L	300.0	< 1.0				-				5/30/2007
MB-R70367	Sulfate	mg/L	300.0	< 1.0				-				5/30/2007
MB-R70481	Acidity	mg/L	SM2310B	< 15				-				6/4/2007
MB-34931	Ammonia (as N)	mg/L	350.1	< 0.050				-				6/6/2007
MB-70350	Nitrite (as N)	mg/L	353.2	< 0.010				-				5/30/2007
MB-70351	Nitrate (as N)	mg/L	353.2	< 0.010				-				5/30/2007
MB-R70452	Oil & Grease	mg/L	EPA 1664A	< 3.0				-				6/1/2007
MB-70365	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				5/31/2007
MB-R70515	TDS	mg/L	160.1	< 10				-				6/1/2007
MB-R70368	TSS	mg/L	SM2540D	< 3.0				-				5/30/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78061-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	323.0	100	220	103	80-120				6/4/2007
L78041-01DMS	Fluoride	mg/L	300.0	5.329	5	0.233	102	90-110				5/30/2007
L78061-01BMS	Chloride	mg/L	300.0	35.22	25	9.699	102	90-110				5/30/2007
L78061-01BMS	Sulfate	mg/L	300.0	49.46	25	23.34	104	90-110				5/30/2007
L78061-01BMS	Acidity	mg/L	SM2310B	48.00	50	0	96.0	80-120				6/4/2007
L78049-02DMS	Ammonia (as N)	mg/L	350.1	0.9490	1	0.021	92.8	90-110				6/6/2007
L78061-02CMS	Ammonia (as N)	mg/L	350.1	0.9910	1	0.093	89.8	90-110			[1]	6/6/2007
L78061-01BMS	Nitrite (as N)	mg/L	353.2	1.083	1	0.015	107	90-110				5/30/2007
L78061-01BMS	Nitrate (as N)	mg/L	353.2	1.151	1	0.025	113	90-110			[1]	5/30/2007
L78061-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.122	1	0.04	108	90-110				5/31/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78061-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	319.0	100	220	99.0	80-120	1.25	10		6/4/2007
L78041-01DMSD	Fluoride	mg/L	300.0	5.488	5	0.233	105	90-110	2.94	20		5/30/2007
L78061-01BMSD	Chloride	mg/L	300.0	35.14	25	9.699	102	90-110	0.233	20		5/30/2007
L78061-01BMSD	Sulfate	mg/L	300.0	48.74	25	23.34	102	90-110	1.47	20		5/30/2007
L78061-01BMSD	Acidity	mg/L	SM2310B	50.00	50	0	100	80-120	4.08	20		6/4/2007
L78049-02DMSD	Ammonia (as N)	mg/L	350.1	0.9900	1	0.021	96.9	90-110	4.23	10		6/6/2007
L78061-02CMSD	Ammonia (as N)	mg/L	350.1	0.9890	1	0.093	89.6	90-110	0.202	10	1	6/6/2007
L78061-01BMSD	Nitrite (as N)	mg/L	353.2	1.025	1	0.015	101	90-110	5.50	10		5/30/2007
L78061-01BMSD	Nitrate (as N)	mg/L	353.2	1.142	1	0.025	112	90-110	0.785	10	1	5/30/2007
L78061-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.042	1	0.04	100	90-110	7.39	10		5/31/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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American West Analytical Labs

WORK ORDER Summary

30-May-07

Work Order L78061

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+ HOK-JB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L78061-01A	Miller Outlet	5/29/2007 12:40:00 PM	5/30/2007	6/13/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				6/13/2007		TDS-W	ww - tss/tds/ss	1
				6/13/2007		TSS-W-2540D	ww - tss/tds/ss	1
L78061-01B				6/13/2007		2320B-ALK-W	may 30 - wc	1
				6/13/2007		300.0-W	may 30 - wc	1
				6/13/2007		ACIDITY-W-2310B	may 30 - wc	1
				6/13/2007		NO2-W	may 30 - wc	1
				6/13/2007		NO3-W	may 30 - wc	1
				6/13/2007		PO4-O	may 30 - wc	1
L78061-01C				6/13/2007		NH3-W	may 30 - nh3	1
				6/13/2007		NH3-W-PREP	may 30 - nh3	1
L78061-01D				6/13/2007		OGB-W	ogb	1
L78061-01E				6/13/2007		3005A-ICPMS	may 30 - met-total	1
				6/13/2007		ICP-W	may 30 - met-total	1
L78061-01F				6/13/2007	Aqueous-Dissolved	3005A-Diss	may 30 - dis met	1
				6/13/2007		6020-W-DISS	may 30 - dis met	1
				6/13/2007		HARD	may 30 - dis met	1
				6/13/2007		ICP-W-DIS	may 30 - dis met	1
L78061-02A	Sulfur Spring	5/29/2007 1:00:00 PM		6/13/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				6/13/2007		TDS-W	ww - tss/tds/ss	1
				6/13/2007		TSS-W-2540D	ww - tss/tds/ss	1
L78061-02B				6/13/2007		2320B-ALK-W	may 30 - wc	1
				6/13/2007		300.0-W	may 30 - wc	1
				6/13/2007		ACIDITY-W-2310B	may 30 - wc	1
				6/13/2007		NO2-W	may 30 - wc	1
				6/13/2007		NO3-W	may 30 - wc	1
				6/13/2007		PO4-O	may 30 - wc	1

WORK ORDER Summary

30-May-07

Work Order L78061

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L78061-02C	Sulfur Spring	5/29/2007 1:00:00 PM	5/30/2007	6/13/2007	Aqueous	NH3-W	may 30 - nh3	1
				6/13/2007		NH3-W-PREP	may 30 - nh3	1
L78061-02D				6/13/2007		OGB-W	ogb	1
L78061-02E				6/13/2007		3005A-ICPMS	may 30 - met-total	1
				6/13/2007		ICP-W	may 30 - met-total	1
L78061-02F				6/13/2007	Aqueous-Dissolved	3005A-Diss	may 30 - dis met	1
				6/13/2007		6020-W-DISS	may 30 - dis met	1
				6/13/2007		HARD	may 30 - dis met	1
				6/13/2007		ICP-W-DIS	may 30 - dis met	1
L78061-03A	Mud Creek	5/29/2007 1:10:00 PM		6/13/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				6/13/2007		TDS-W	ww - tss/tds/ss	1
				6/13/2007		TSS-W-2540D	ww - tss/tds/ss	1
L78061-03B				6/13/2007		2320B-ALK-W	may 30 - wc	1
				6/13/2007		300.0-W	may 30 - wc	1
				6/13/2007		ACIDITY-W-2310B	may 30 - wc	1
				6/13/2007		NO2-W	may 30 - wc	1
				6/13/2007		NO3-W	may 30 - wc	1
				6/13/2007		PO4-O	may 30 - wc	1
L78061-03C				6/13/2007		NH3-W	may 30 - nh3	1
				6/13/2007		NH3-W-PREP	may 30 - nh3	1
L78061-03D				6/13/2007		OGB-W	ogb	1
L78061-03E				6/13/2007		3005A-ICPMS	may 30 - met-total	1
				6/13/2007		ICP-W	may 30 - met-total	1
L78061-03F				6/13/2007	Aqueous-Dissolved	3005A-Diss	may 30 - dis met	1
				6/13/2007		6020-W-DISS	may 30 - dis met	1
				6/13/2007		HARD	may 30 - dis met	1
				6/13/2007		ICP-W-DIS	may 30 - dis met	1
L78061-04A	Res-1	5/29/2007 1:30:00 PM		6/13/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1

WORK ORDER Summary

30-May-07

Work Order L78061

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L78061-04A	Res-1	5/29/2007 1:30:00 PM	5/30/2007	6/13/2007	Aqueous	TDS-W	ww - tss/tds/ss	1
				6/13/2007		TSS-W-2540D	ww - tss/tds/ss	1
L78061-04B				6/13/2007		2320B-ALK-W	may 30 - wc	1
				6/13/2007		300.0-W	may 30 - wc	1
				6/13/2007		ACIDITY-W-2310B	may 30 - wc	1
				6/13/2007		NO2-W	may 30 - wc	1
				6/13/2007		NO3-W	may 30 - wc	1
				6/13/2007		PO4-O	may 30 - wc	1
L78061-04C				6/13/2007		NH3-W	may 30 - nh3	1
				6/13/2007		NH3-W-PREP	may 30 - nh3	1
L78061-04D				6/13/2007		OGB-W	ogb	1
L78061-04E				6/13/2007		3005A-ICPMS	may 30 - met-total	1
				6/13/2007		ICP-W	may 30 - met-total	1
L78061-04F				6/13/2007	Aqueous-Dissolved	3005A-Diss	may 30 - dis met	1
				6/13/2007		6020-W-DISS	may 30 - dis met	1
				6/13/2007		HARD	may 30 - dis met	1
				6/13/2007		ICP-W-DIS	may 30 - dis met	1

Client Carbon Resources | Rock Logic

Address PO Box 544

Cedaredge CO 81413
City State Zip

Phone 970-856-3400 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 780161

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day Standard

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Table 3									QC LEVEL / COMMENTS
Miller Outlet	5.29.07 / 12:45	W	6	✓									
Sulfur Spring	5.29.07 / 13:00	W	6	✓									
Mud Creek	5.29.07 / 13:10	W	6	✓									
Rec-1	5.29.07 / 13:30	W	6	✓									

QC LEVEL: 1 2 2+ 3 3+ 4

COMMENTS

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature 3°C
4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME Brad Lindsay	Time 14:12	PRINT NAME UPS
Relinquished By: Signature UPS	Date 5/30/07	Received By: Signature
PRINT NAME	Time 10:40	PRINT NAME KERSTAN WINKLER
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

Please filter for dissolved metals

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 78061

Preservation Check Sheet

			Sample Set Extension and pH														
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4	✓															
O & G	pH <2 HCL																
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

July 12, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L78574

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 6/27/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

Lab Sample ID: L78574-01E
Field Sample ID: **Mud Creek**
Collected: 6/25/2007 1:45:00 PM
Received: 6/27/2007

463 West 3600 South
Salt Lake City, Utah
84115

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	7/2/2007 5:41:00 PM	6010B	0.050	**0.19**
Manganese	mg/L	7/2/2007 5:41:00 PM	6010B	0.0050	**0.020**

(801) 263-8686
Toll Free (888) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L78574-02E
Field Sample ID: **Sulfur Spring**
Collected: 6/25/2007 2:50:00 PM
Received: 6/27/2007

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	7/2/2007 5:57:00 PM	6010B	0.050	< 0.050
Manganese	mg/L	7/2/2007 5:57:00 PM	6010B	0.0050	**0.029**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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WEST
ANALYTICAL
LABORATORIES

Lab Sample ID: L78574-03E
Field Sample ID: **RES-1**
Collected: 6/25/2007 3:15:00 PM
Received: 6/27/2007

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	7/2/2007 6:09:00 PM	6010B	0.050	**0.63**
Manganese	mg/L	7/2/2007 6:09:00 PM	6010B	0.0050	**0.12**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78574-04E
Field Sample ID: **Miller Outlet**
Collected: 6/25/2007 2:30:00 PM
Received: 6/27/2007

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	7/2/2007 6:13:00 PM	6010B	0.050	**3.5**
Manganese	mg/L	7/2/2007 6:13:00 PM	6010B	0.0050	**0.17**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78574-01F
Field Sample ID: **Mud Creek**
Collected: 6/25/2007 1:45:00 PM
Received: 6/27/2007

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463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	7/2/2007 10:50:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	7/9/2007 7:27:28 PM	6020	0.0050	< 0.0050	
Boron	mg/L	7/2/2007 10:50:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	7/9/2007 7:27:28 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	7/2/2007 10:12:00 AM	6010B	10	**62**	*
Copper	mg/L	7/9/2007 7:27:28 PM	6020	0.0040	**0.0061**	
Iron	mg/L	7/2/2007 10:50:00 AM	6010B	0.050	< 0.050	
Lead	mg/L	7/9/2007 7:27:28 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	7/2/2007 10:12:00 AM	6010B	10	**33**	*
Manganese	mg/L	7/9/2007 7:27:28 PM	6020	0.0050	**0.022**	
Molybdenum	mg/L	7/2/2007 10:50:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	7/2/2007 10:50:00 AM	6010B	1.0	**5.8**	
Selenium	mg/L	7/9/2007 7:27:28 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	7/2/2007 10:12:00 AM	6010B	10	**55**	[2] *
Zinc	mg/L	7/9/2007 7:27:28 PM	6020	0.010	**0.027**	

[2] *Analyte concentration is too high for accurate spike and/or RPD recovery.*

* *The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78574-02F
Field Sample ID: **Sulfur Spring**
Collected: 6/25/2007 2:50:00 PM
Received: 6/27/2007

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	7/2/2007 11:06:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	7/9/2007 7:54:29 PM	6020	0.0050	< 0.0050	
Boron	mg/L	7/2/2007 11:06:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	7/9/2007 7:54:29 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	7/2/2007 10:24:00 AM	6010B	10	**83**	*
Copper	mg/L	7/9/2007 7:54:29 PM	6020	0.0040	**0.0046**	
Iron	mg/L	7/2/2007 11:06:00 AM	6010B	0.050	< 0.050	
Lead	mg/L	7/9/2007 7:54:29 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	7/2/2007 10:24:00 AM	6010B	10	**33**	*
Manganese	mg/L	7/9/2007 7:54:29 PM	6020	0.0050	**0.039**	
Molybdenum	mg/L	7/2/2007 11:06:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	7/2/2007 11:06:00 AM	6010B	1.0	**4.3**	
Selenium	mg/L	7/9/2007 7:54:29 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	7/2/2007 11:06:00 AM	6010B	1.0	**16**	
Zinc	mg/L	7/9/2007 7:54:29 PM	6020	0.010	**0.020**	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

Lab Sample ID: L78574-03F
Field Sample ID: **RES-1**
Collected: 6/25/2007 3:15:00 PM
Received: 6/27/2007

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	7/2/2007 11:10:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	7/9/2007 7:59:53 PM	6020	0.0050	< 0.0050	
Boron	mg/L	7/2/2007 11:10:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	7/9/2007 7:59:53 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	7/2/2007 11:10:00 AM	6010B	1.0	**21**	
Copper	mg/L	7/9/2007 7:59:53 PM	6020	0.0040	**0.0082**	
Iron	mg/L	7/2/2007 11:10:00 AM	6010B	0.050	< 0.050	
Lead	mg/L	7/9/2007 7:59:53 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	7/2/2007 11:10:00 AM	6010B	1.0	**19**	
Manganese	mg/L	7/9/2007 7:59:53 PM	6020	0.0050	**0.019**	
Molybdenum	mg/L	7/2/2007 11:10:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	7/2/2007 11:10:00 AM	6010B	1.0	**2.2**	
Selenium	mg/L	7/9/2007 7:59:53 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	7/2/2007 10:27:00 AM	6010B	10	**30**	*
Zinc	mg/L	7/9/2007 7:59:53 PM	6020	0.010	**0.037**	

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78574-04F
Field Sample ID: **Miller Outlet**
Collected: 6/25/2007 2:30:00 PM
Received: 6/27/2007

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	7/2/2007 11:14:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	7/9/2007 8:05:17 PM	6020	0.0050	< 0.0050	
Boron	mg/L	7/2/2007 11:14:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	7/9/2007 8:05:17 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	7/2/2007 10:31:00 AM	6010B	10	**66**	*
Copper	mg/L	7/9/2007 8:05:17 PM	6020	0.0040	**0.0068**	
Iron	mg/L	7/2/2007 11:14:00 AM	6010B	0.050	< 0.050	
Lead	mg/L	7/9/2007 8:05:17 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	7/2/2007 11:14:00 AM	6010B	1.0	**16**	
Manganese	mg/L	7/9/2007 8:05:17 PM	6020	0.0050	**0.011**	
Molybdenum	mg/L	7/2/2007 11:14:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	7/2/2007 11:14:00 AM	6010B	1.0	**2.3**	
Selenium	mg/L	7/9/2007 8:05:17 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	7/2/2007 11:14:00 AM	6010B	1.0	**15**	
Zinc	mg/L	7/9/2007 8:05:17 PM	6020	0.010	**0.020**	

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L78574-01
Field Sample ID: **Mud Creek**
Collected: 6/25/2007 1:45:00 PM
Received: 6/27/2007

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	6/28/2007 6:11:00 AM	SM2310B	15	< 15	
Alkalinity,(As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	**250**	
Ammonia (as N)	mg/L	6/29/2007 10:32:00 AM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	**250**	
Carbonate (As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	10	< 10	
Chloride	mg/L	7/9/2007 2:51:00 PM	300.0	5.0	**14**	
Hardness (as CaCO3)	mg/L	7/2/2007 10:50:00 AM	SM2340 B	10	**290**	
Nitrate (as N)	mg/L	6/28/2007 8:55:00 AM	353.2	0.010	**0.10**	**H**
Nitrite (as N)	mg/L	6/28/2007 8:55:00 AM	353.2	0.010	< 0.010	**H**
Oil & Grease	mg/L	7/5/2007 2:10:00 PM	EPA 1664A	3.0	**4.5**	
Phosphate, ortho (as P)	mg/L	6/27/2007 2:30:00 PM	365.1	0.050	< 0.050	**H**
Settleable Solids	mL/L	6/27/2007 12:45:00 PM	SM2540F	0.10	< 0.10	
Sulfate	mg/L	7/7/2007 2:25:00 AM	300.0	50	**140**	
TDS	mg/L	6/27/2007 2:30:00 PM	160.1	20	**440**	
TSS	mg/L	6/27/2007 3:45:00 PM	SM2540D	3.0	**10**	

H - Inadequate time given to run inside hold time.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L78574-02
Field Sample ID: **Sulfur Spring**
Collected: 6/25/2007 2:50:00 PM
Received: 6/27/2007

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	6/28/2007 6:11:00 AM	SM2310B	15	< 15	
Alkalinity,(As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	**340**	
Ammonia (as N)	mg/L	6/29/2007 10:32:00 AM	350.1	0.050	**0.060**	
Bicarbonate (As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	**340**	
Carbonate (As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	10	< 10	
Chloride	mg/L	7/9/2007 3:25:00 PM	300.0	2.0	**7.2**	
Hardness (as CaCO3)	mg/L	7/2/2007 11:06:00 AM	SM2340 B	10	**340**	
Nitrate (as N)	mg/L	6/28/2007 8:55:00 AM	353.2	0.010	< 0.010	**H**
Nitrite (as N)	mg/L	6/28/2007 8:55:00 AM	353.2	0.010	< 0.010	**H**
Oil & Grease	mg/L	7/5/2007 2:10:00 PM	EPA 1664A	3.0	**4.8**	
Phosphate, ortho (as P)	mg/L	6/27/2007 2:32:00 PM	365.1	0.050	< 0.050	
Settleable Solids	mL/L	6/27/2007 12:45:00 PM	SM2540F	0.10	< 0.10	
Sulfate	mg/L	7/7/2007 3:31:00 AM	300.0	10	**46**	
TDS	mg/L	6/27/2007 2:30:00 PM	160.1	20	**360**	
TSS	mg/L	6/27/2007 3:45:00 PM	SM2540D	3.0	< 3.0	

H- Inadequate time given to run inside hold time.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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84115

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78574-03
Field Sample ID: **RES-1**
Collected: 6/25/2007 3:15:00 PM
Received: 6/27/2007

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	6/28/2007 6:11:00 AM	SM2310B	15	< 15	
Alkalinity,(As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	**120**	
Ammonia (as N)	mg/L	6/29/2007 10:32:00 AM	350.1	0.050	**0.050**	
Bicarbonate (As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	< 20	
Carbonate (As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	**110**	
Chloride	mg/L	7/9/2007 3:58:00 PM	300.0	10	**41**	
Hardness (as CaCO3)	mg/L	7/2/2007 11:10:00 AM	SM2340 B	10	**130**	
Nitrate (as N)	mg/L	6/28/2007 8:55:00 AM	353.2	0.010	< 0.010	**H**
Nitrite (as N)	mg/L	6/28/2007 8:55:00 AM	353.2	0.010	< 0.010	**H**
Oil & Grease	mg/L	7/5/2007 2:10:00 PM	EPA 1664A	3.0	**4.7**	
Phosphate, ortho (as P)	mg/L	6/27/2007 2:32:00 PM	365.1	0.050	< 0.050	
Settleable Solids	mL/L	6/27/2007 12:45:00 PM	SM2540F	0.10	**0.50**	
Sulfate	mg/L	7/7/2007 4:04:00 AM	300.0	5.0	**25**	
TDS	mg/L	6/27/2007 2:30:00 PM	160.1	20	**190**	
TSS	mg/L	6/27/2007 3:45:00 PM	SM2540D	3.0	**40**	

H- Inadequate time given to run inside hold time.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78574-04
Field Sample ID: **Miller Outlet**
Collected: 6/25/2007 2:30:00 PM
Received: 6/27/2007

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	6/28/2007 6:11:00 AM	SM2310B	15	< 15	
Alkalinity,(As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	**240**	
Ammonia (as N)	mg/L	6/29/2007 10:32:00 AM	350.1	0.050	**0.084**	
Bicarbonate (As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	**230**	
Carbonate (As CaCO3)	mg/L	6/28/2007 6:00:00 AM	2320B	20	< 20	
Chloride	mg/L	7/9/2007 5:38:00 PM	300.0	5.0	**12**	
Hardness (as CaCO3)	mg/L	7/2/2007 11:14:00 AM	SM2340 B	10	**230**	
Nitrate (as N)	mg/L	6/28/2007 8:55:00 AM	353.2	0.010	**0.090**	**H**
Nitrite (as N)	mg/L	6/28/2007 8:55:00 AM	353.2	0.010	**0.028**	**H**
Oil & Grease	mg/L	7/5/2007 2:10:00 PM	EPA 1664A	3.0	**6.2**	
Phosphate, ortho (as P)	mg/L	6/27/2007 2:33:00 PM	365.1	0.050	**0.052**	**H**
Settleable Solids	mL/L	6/27/2007 12:45:00 PM	SM2540F	0.10	**0.10**	
Sulfate	mg/L	7/7/2007 7:57:00 AM	300.0	10	**27**	
TDS	mg/L	6/27/2007 2:30:00 PM	160.1	20	**280**	
TSS	mg/L	6/27/2007 3:45:00 PM	SM2540D	3.0	**150**	

H - Inadequate time given to run inside hold time.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-35383	Arsenic	mg/L	6020	0.2153	0.2	0	108	85-115				7/9/2007
LCS-35383	Cadmium	mg/L	6020	0.2050	0.2	0	102	85-115				7/9/2007
LCS-35383	Copper	mg/L	6020	0.2117	0.2	0	106	85-115				7/9/2007
LCS-35383	Lead	mg/L	6020	0.2059	0.2	0	103	85-115				7/9/2007
LCS-35383	Manganese	mg/L	6020	0.2180	0.2	0.002294	108	85-115				7/9/2007
LCS-35383	Selenium	mg/L	6020	0.2067	0.2	0	103	85-115				7/9/2007
LCS-35383	Zinc	mg/L	6020	1.030	1	0.007819	102	85-115				7/9/2007
LCS-35367	Iron	mg/L	6010B	1.002	1	0	100	75-125				7/2/2007
LCS-35367	Manganese	mg/L	6010B	0.1927	0.2	0	96.3	75-125				7/2/2007
LCS-35383	Aluminum	mg/L	6010B	0.9886	1	0	98.9	75-125				7/2/2007
LCS-35383	Boron	mg/L	6010B	1.037	1	0	104	75-125				7/2/2007
LCS-35383	Calcium	mg/L	6010B	9.784	10	0	97.8	75-125				7/2/2007
LCS-35383	Iron	mg/L	6010B	1.014	1	0	101	75-125				7/2/2007
LCS-35383	Magnesium	mg/L	6010B	9.993	10	0	99.9	75-125				7/2/2007
LCS-35383	Molybdenum	mg/L	6010B	0.1978	0.2	0	98.9	75-125				7/2/2007
LCS-35383	Potassium	mg/L	6010B	10.01	10	0	100	75-125				7/2/2007
LCS-35383	Sodium	mg/L	6010B	10.11	10	0	101	75-125				7/2/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-35383	Arsenic	mg/L	6020	< 0.0050				-				7/9/2007
MB-35383	Cadmium	mg/L	6020	< 0.0040				-				7/9/2007
MB-35383	Copper	mg/L	6020	< 0.0040				-				7/9/2007
MB-35383	Lead	mg/L	6020	< 0.0050				-				7/9/2007
MB-35383	Manganese	mg/L	6020	< 0.0050				-				7/9/2007
MB-35383	Selenium	mg/L	6020	< 0.0050				-				7/9/2007
MB-35383	Zinc	mg/L	6020	< 0.010				-				7/2/2007
MB-35367	Iron	mg/L	6010B	< 0.050				-				7/2/2007
MB-35367	Manganese	mg/L	6010B	< 0.0050				-				7/2/2007
MB-35383	Aluminum	mg/L	6010B	< 0.10				-				7/2/2007
MB-35383	Boron	mg/L	6010B	< 0.50				-				7/2/2007
MB-35383	Calcium	mg/L	6010B	< 1.0				-				7/2/2007
MB-35383	Iron	mg/L	6010B	< 0.050				-				7/2/2007
MB-35383	Magnesium	mg/L	6010B	< 1.0				-				7/2/2007
MB-35383	Molybdenum	mg/L	6010B	< 0.040				-				7/2/2007
MB-35383	Potassium	mg/L	6010B	< 1.0				-				7/2/2007
MB-35383	Sodium	mg/L	6010B	< 1.0				-				7/2/2007

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78574-01FMS	Arsenic	mg/L	6020	0.2177	0.2	0.001225	108	70-130				7/9/2007
L78574-01FMS	Cadmium	mg/L	6020	0.1996	0.2	0	99.8	70-130				7/9/2007
L78574-01FMS	Copper	mg/L	6020	0.2146	0.2	0.006055	104	70-130				7/9/2007
L78574-01FMS	Lead	mg/L	6020	0.2056	0.2	0.001032	102	70-130				7/9/2007
L78574-01FMS	Manganese	mg/L	6020	0.2365	0.2	0.02218	107	70-130				7/9/2007
L78574-01FMS	Selenium	mg/L	6020	0.2048	0.2	0.002152	101	70-130				7/9/2007
L78574-01FMS	Zinc	mg/L	6020	1.027	1	0.02738	100	70-130				7/9/2007
L78574-01EMS	Iron	mg/L	6010B	1.198	1	0.1871	101	75-125				7/2/2007
L78574-01EMS	Manganese	mg/L	6010B	0.2153	0.2	0.01979	97.8	75-125				7/2/2007
L78574-01FMS	Calcium	mg/L	6010B	72.77	10	61.96	108	75-125				7/2/2007
L78574-01FMS	Magnesium	mg/L	6010B	43.86	10	33.3	106	75-125				7/2/2007
L78574-01FMS	Sodium	mg/L	6010B	51.35	10	54.85	-34.9	75-125			2	7/2/2007
L78574-01FMS	Aluminum	mg/L	6010B	0.9750	1	0	97.5	75-125				7/2/2007
L78574-01FMS	Boron	mg/L	6010B	1.200	1	0.138	106	75-125				7/2/2007
L78574-01FMS	Iron	mg/L	6010B	1.010	1	0.0194	99.1	75-125				7/2/2007
L78574-01FMS	Molybdenum	mg/L	6010B	0.1950	0.2	0	97.5	75-125				7/2/2007
L78574-01FMS	Potassium	mg/L	6010B	15.60	10	5.77	98.3	75-125				7/2/2007

[2] Analyte concentration is too high for accurate spike and/or RPD recovery.

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78574-01FMSD	Arsenic	mg/L	6020	0.2194	0.2	0.001225	109	70-130	0.755	20		7/9/2007
L78574-01FMSD	Cadmium	mg/L	6020	0.2031	0.2	0	102	70-130	1.75	20		7/9/2007
L78574-01FMSD	Copper	mg/L	6020	0.2195	0.2	0.006055	107	70-130	2.25	20		7/9/2007
L78574-01FMSD	Lead	mg/L	6020	0.2078	0.2	0.001032	103	70-130	1.09	20		7/9/2007
L78574-01FMSD	Manganese	mg/L	6020	0.2371	0.2	0.02218	107	70-130	0.285	20		7/9/2007
L78574-01FMSD	Selenium	mg/L	6020	0.2093	0.2	0.002152	104	70-130	2.19	20		7/9/2007
L78574-01FMSD	Zinc	mg/L	6020	1.030	1	0.02738	100	70-130	0.301	20		7/9/2007
L78574-01EMSD	Iron	mg/L	6010B	1.220	1	0.1871	103	75-125	1.85	20		7/2/2007
L78574-01EMSD	Manganese	mg/L	6010B	0.2164	0.2	0.01979	98.3	75-125	0.482	20		7/2/2007
L78574-01FMSD	Calcium	mg/L	6010B	73.25	10	61.96	113	75-125	0.651	20		7/2/2007
L78574-01FMSD	Magnesium	mg/L	6010B	43.19	10	33.3	98.9	75-125	1.53	20		7/2/2007
L78574-01FMSD	Sodium	mg/L	6010B	51.51	10	54.85	-33.4	75-125	0.295	20	2	7/2/2007
L78574-01FMSD	Aluminum	mg/L	6010B	0.9700	1	0	97.0	75-125	0.514	20		7/2/2007
L78574-01FMSD	Boron	mg/L	6010B	1.200	1	0.138	106	75-125	0	20		7/2/2007
L78574-01FMSD	Iron	mg/L	6010B	1.010	1	0.0194	99.1	75-125	0	20		7/2/2007
L78574-01FMSD	Molybdenum	mg/L	6010B	0.1930	0.2	0	96.5	75-125	1.03	20		7/2/2007
L78574-01FMSD	Potassium	mg/L	6010B	15.50	10	5.77	97.3	75-125	0.643	20		7/2/2007

[2] Analyte concentration is too high for accurate spike and/or RPD recovery.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78564-04DDUP	TDS	mg/L	160.1	1076	0	1048		-	2.64	20		6/27/2007
L78574-04ADUP	TDS	mg/L	160.1	300.0	0	284		-	5.48	20		6/27/2007
L78574-01ADUP	TSS	mg/L	SM2540D	11.00	0	10		-	9.52	20		6/27/2007

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R71415	Alkalinity,(As CaCO3)	mg/L	2320B	49860	50000	0	99.7	90-110				6/28/2007
LCS	Fluoride	mg/L	300.0	4.908	5	0	98.2	90-110				7/7/2007
LCS	Sulfate	mg/L	300.0	5.207	5	0.021	104	90-110				7/7/2007
LCS	Chloride	mg/L	300.0	4.857	5	0.005	97.0	90-110				7/9/2007
LCS	Sulfate	mg/L	300.0	5.353	5	0.025	107	90-110				7/9/2007
LCS-R71414	Acidity	mg/L	SM2310B	50.00	50	0	100	80-120				6/28/2007
LCS-35376	Ammonia (as N)	mg/L	350.1	0.9120	1	0	91.2	90-110				6/29/2007
LCS-71424	Nitrite (as N)	mg/L	353.2	1.016	1	0	102	90-110				6/28/2007
LCS-71427	Nitrate (as N)	mg/L	353.2	0.9870	1	0	98.7	90-110				6/28/2007
LCS-R71681	Oil & Grease	mg/L	EPA 1664A	40.00	40	0	100	79-114				7/5/2007
LCS-71398	Phosphate, ortho (as P)	mg/L	365.1	0.9770	1	0	97.7	90-110				6/27/2007
LCS-R71448	TDS	mg/L	160.1	198.0	205	0	96.6	80-120				6/27/2007
LCS-R71425	TSS	mg/L	SM2540D	99.00	100	0	99.0	80-120				6/27/2007

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463 West 3600 South
Salt Lake City, Utah 84115
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R71415	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				6/28/2007
MB-R71415	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				6/28/2007
MB-R71415	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				6/28/2007
MB	Sulfate	mg/L	300.0	< 1.0				-				7/7/2007
MB	Chloride	mg/L	300.0	< 1.0				-				7/9/2007
MB	Sulfate	mg/L	300.0	< 1.0				-				7/9/2007
MB-R71414	Acidity	mg/L	SM2310B	< 15				-				6/28/2007
MB-35376	Ammonia (as N)	mg/L	350.1	< 0.050				-				6/29/2007
MB-71424	Nitrite (as N)	mg/L	353.2	< 0.010				-				6/28/2007
MB-71427	Nitrate (as N)	mg/L	353.2	< 0.010				-				6/28/2007
MB-R71681	Oil & Grease	mg/L	EPA 1664A	< 3.0				-				7/5/2007
MB-71398	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				6/27/2007
MB-R71448	TDS	mg/L	160.1	< 10				-				6/27/2007
MB-R71425	TSS	mg/L	SM2540D	< 3.0				-				6/27/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78574-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	350.0	100	248	102	80-120				6/28/2007
L78574-04BMS	Sulfate	mg/L	300.0	74.91	50	27.44	94.9	90-110				7/7/2007
L78612-01AMS	Fluoride	mg/L	300.0	5.309	5	0.135	103	90-110				7/7/2007
L78612-01AMS	Chloride	mg/L	300.0	40.08	25	12.38	111	90-110			[1]	7/9/2007
L78574-04BMS	Chloride	mg/L	300.0	36.92	25	12.18	99.0	90-110				7/9/2007
L78726-01AMS	Chloride	mg/L	300.0	536.0	500	25.72	102	90-110				7/9/2007
L78726-01AMS	Sulfate	mg/L	300.0	524.1	500	15.81	102	90-110				7/9/2007
L78574-01BMS	Acidity	mg/L	SM2310B	52.00	50	0	104	80-120				6/28/2007
L78574-01CMS	Ammonia (as N)	mg/L	350.1	0.9010	1	0	90.1	90-110				6/29/2007
L78583-04FMS	Ammonia (as N)	mg/L	350.1	0.9240	1	0	92.4	90-110				6/29/2007
L78574-01BMS	Nitrite (as N)	mg/L	353.2	1.029	1	0.005	102	90-110			H	6/28/2007
L78574-01BMS	Nitrate (as N)	mg/L	353.2	1.135	1	0.105	103	90-110			H	6/28/2007
L78574-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.029	1	0.01	102	90-110			H	6/27/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

H - Inadequate time given to run inside hold time.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78574-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	345.0	100	248	97.0	80-120	1.44	10		6/28/2007
L78574-04BMSD	Sulfate	mg/L	300.0	76.11	50	27.44	97.3	90-110	1.58	20		7/7/2007
L78612-01AMSD	Fluoride	mg/L	300.0	5.495	5	0.135	107	90-110	3.44	20		7/7/2007
L78612-01AMSD	Chloride	mg/L	300.0	37.12	25	12.38	99.0	90-110	7.66	20		7/9/2007
L78574-04BMSD	Chloride	mg/L	300.0	37.40	25	12.18	101	90-110	1.27	20		7/9/2007
L78726-01AMSD	Chloride	mg/L	300.0	535.2	500	25.72	102	90-110	0.153	20		7/9/2007
L78726-01AMSD	Sulfate	mg/L	300.0	520.7	500	15.81	101	90-110	0.649	20		7/9/2007
L78574-01BMSD	Acidity	mg/L	SM2310B	54.00	50	0	108	80-120	3.77	20		6/28/2007
L78574-01CMSD	Ammonia (as N)	mg/L	350.1	0.9130	1	0	91.3	90-110	1.32	10		6/29/2007
L78583-04FMSD	Ammonia (as N)	mg/L	350.1	0.9530	1	0	95.3	90-110	3.09	10		6/29/2007
L78574-01BMSD	Nitrite (as N)	mg/L	353.2	1.017	1	0.005	101	90-110	1.17	10	H	6/28/2007
L78574-01BMSD	Nitrate (as N)	mg/L	353.2	1.115	1	0.105	101	90-110	1.78	10	H	6/28/2007
L78574-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.021	1	0.01	101	90-110	0.780	10	H	6/27/2007

H - Inadequate time given to run inside hold time.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R71681	Oil & Grease	mg/L	EPA 1664A	39.00	40	0	97.5	79-114				7/5/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R71681	Oil & Grease	mg/L	EPA 1664A	38.40	40	0	96.0	79-114	1.55	18		7/5/2007

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American West Analytical Labs

WORK ORDER Summary

27-Jun-07

Work Order L78574

Client ID: CAR300
Project: Scofield Baseline
Comments: QCLevel: 2+

QC Level: 2+
Location: HLJB

Contact: Brad Lindsay

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L78574-01A	Mud Creek	6/25/2007 1:45:00 PM	6/27/2007	7/12/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				7/12/2007		TDS-W	ww - tss/tds/ss	1
				7/12/2007		TSS-W-2540D	ww - tss/tds/ss	1
L78574-01B				7/12/2007		2320B-ALK-W	june 27 - wc	1
				7/12/2007		300.0-W	june 27 - wc	1
				7/12/2007		ACIDITY-W-2310B	june 27 - wc	1
				7/12/2007		NO2-W	june 27 - wc	1
				7/12/2007		NO3-W	june 27 - wc	1
				7/12/2007		PO4-O	june 27 - wc	1
L78574-01C				7/12/2007		NH3-W	june 27 - nh3	1
				7/12/2007		NH3-W-PREP	june 27 - nh3	1
L78574-01D				7/12/2007		OGB-W	ogb	1
L78574-01E				7/12/2007		3005A-ICPMS	june 27 - met	1
				7/12/2007		ICP-W	june 27 - met	1
L78574-01F				7/12/2007	Aqueous-Dissolved	3005A-Diss	june 27 - dis met	1
				7/12/2007		6020-W-DISS	june 27 - dis met	1
				7/12/2007		HARD	june 27 - dis met	1
				7/12/2007		ICP-W-DIS	june 27 - dis met	1
L78574-02A	Sulfur Spring	6/25/2007 2:50:00 PM		7/12/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				7/12/2007		TDS-W	ww - tss/tds/ss	1
				7/12/2007		TSS-W-2540D	ww - tss/tds/ss	1
L78574-02B				7/12/2007		2320B-ALK-W	june 27 - wc	1
				7/12/2007		300.0-W	june 27 - wc	1
				7/12/2007		ACIDITY-W-2310B	june 27 - wc	1
				7/12/2007		NO2-W	june 27 - wc	1
				7/12/2007		NO3-W	june 27 - wc	1
				7/12/2007		PO4-O	june 27 - wc	1

WORK ORDER Summary

27-Jun-07

Work Order L78574

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L78574-02C	Sulfur Spring	6/25/2007 2:50:00 PM	6/27/2007	7/12/2007	Aqueous	NH3-W	june 27 - nh3	1
				7/12/2007		NH3-W-PREP	june 27 - nh3	1
L78574-02D				7/12/2007		OGB-W	ogb	1
L78574-02E				7/12/2007		3005A-ICPMS	june 27 - met	1
				7/12/2007		ICP-W	june 27 - met	1
L78574-02F				7/12/2007	Aqueous-Dissolved	3005A-Diss	june 27 - dis met	1
				7/12/2007		6020-W-DISS	june 27 - dis met	1
				7/12/2007		HARD	june 27 - dis met	1
				7/12/2007		ICP-W-DIS	june 27 - dis met	1
L78574-03A	RES-1	6/25/2007 3:15:00 PM		7/12/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				7/12/2007		TDS-W	ww - tss/tds/ss	1
				7/12/2007		TSS-W-2540D	ww - tss/tds/ss	1
L78574-03B				7/12/2007		2320B-ALK-W	june 27 - wc	1
				7/12/2007		300.0-W	june 27 - wc	1
				7/12/2007		ACIDITY-W-2310B	june 27 - wc	1
				7/12/2007		NO2-W	june 27 - wc	1
				7/12/2007		NO3-W	june 27 - wc	1
				7/12/2007		PO4-O	june 27 - wc	1
L78574-03C				7/12/2007		NH3-W	june 27 - nh3	1
				7/12/2007		NH3-W-PREP	june 27 - nh3	1
L78574-03D				7/12/2007		OGB-W	ogb	1
L78574-03E				7/12/2007		3005A-ICPMS	june 27 - met	1
				7/12/2007		ICP-W	june 27 - met	1
L78574-03F				7/12/2007	Aqueous-Dissolved	3005A-Diss	june 27 - dis met	1
				7/12/2007		6020-W-DISS	june 27 - dis met	1
				7/12/2007		HARD	june 27 - dis met	1
				7/12/2007		ICP-W-DIS	june 27 - dis met	1
L78574-04A	Miller Outlet	6/25/2007 2:30:00 PM		7/12/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1

WORK ORDER Summary

27-Jun-07

Work Order L78574

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L78574-04A	Miller Outlet	6/25/2007 2:30:00 PM	6/27/2007	7/12/2007	Aqueous	TDS-W	ww - tss/tds/ss	1
				7/12/2007		TSS-W-2540D	ww - tss/tds/ss	1
L78574-04B				7/12/2007		2320B-ALK-W	june 27 - wc	1
				7/12/2007		300.0-W	june 27 - wc	1
				7/12/2007		ACIDITY-W-2310B	june 27 - wc	1
				7/12/2007		NO2-W	june 27 - wc	1
				7/12/2007		NO3-W	june 27 - wc	1
				7/12/2007		PO4-O	june 27 - wc	1
L78574-04C				7/12/2007		NH3-W	june 27 - nh3	1
				7/12/2007		NH3-W-PREP	june 27 - nh3	1
L78574-04D				7/12/2007		OGB-W	ogb	1
L78574-04E				7/12/2007		3005A-ICPMS	june 27 - met	1
				7/12/2007		ICP-W	june 27 - met	1
L78574-04F				7/12/2007	Aqueous-Dissolved	3005A-Diss	june 27 - dis met	1
				7/12/2007		6020-W-DISS	june 27 - dis met	1
				7/12/2007		HARD	june 27 - dis met	1
				7/12/2007		ICP-W-DIS	june 27 - dis met	1

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE (City) CO (State) 81413 (Zip)

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail rocklogicconsulting@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 78574

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE N										QC LEVEL / COMMENTS
MUD CREEK	6-25-07 13:45	W	6	✓										
SULFUR SPRING	14:50			✓										
RES-1	15:15			✓										
MILLER OUTLET	14:30			✓										

QC LEVEL: 1 2 2+ 3 3+ 4

COMMENTS

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME: BRAD LINDSAY	Time: 17:00	PRINT NAME: UPS
Relinquished By: Signature: UPS	Date: 6/27/07	Received By: Signature
PRINT NAME	Time: 11:46	PRINT NAME: REBEKAH WINKLER
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

PLEASE FILTER FOR DISOLVED SOLIDS

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 11.6°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)[1]	mg/l
	-	Arsenic (Dissolved)[1]	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)[1]	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)[1]	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)[1]	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.
½ gallon HDPE

Sample Set: 78574

Preservation Check Sheet

		Sample Set Extension and pH																
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓																
COD[1]	pH <2 H_2SO_4																	
Cyanide	PH >12 NaOH																	
Metals	pH <2 HNO_3	✓																
NO_2 & NO_3[1]	pH <2 H_2SO_4																	
Nutrients[1]	pH <2 H_2SO_4																	
O & G	pH <2 HCL	✓																
Phenols[2]	pH <2 H_2SO_4																	
Sulfide	pH > 9NaOH, Zn Acetate																	
TKN[1]	pH <2 H_2SO_4																	
TOC	pH <2 H_3PO_4																	
TOX[2]	pH <2 H_2SO_4																	
T PO_4[1]	pH <2 H_2SO_4																	

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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e-mail: awal@awal-Labs.com

August 15, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L79128

Dear Brad Lindsay:

American West Analytical Labs received 2 samples on 8/1/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-01E
Field Sample ID: **Miller Outlet**
Collected: 7/30/2007 8:15:00 PM
Received: 8/1/2007

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	8/7/2007 5:13:00 PM	6010B	0.050	**2.6**
Manganese	mg/L	8/7/2007 5:13:00 PM	6010B	0.0050	**0.086**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-02E
Field Sample ID: **RES-1**
Collected: 7/30/2007 8:45:00 PM
Received: 8/1/2007

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	8/7/2007 5:29:00 PM	6010B	0.050	**0.40**
Manganese	mg/L	8/7/2007 5:29:00 PM	6010B	0.0050	**0.38**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-01F
Field Sample ID: **Miller Outlet**
Collected: 7/30/2007 8:15:00 PM
Received: 8/1/2007

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	8/10/2007 11:28:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	8/6/2007 12:48:58 PM	6020	0.0050	< 0.0050	
Boron	mg/L	8/10/2007 11:28:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	8/6/2007 12:48:58 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	8/10/2007 10:54:00 AM	6010B	10	**64**	*
Copper	mg/L	8/6/2007 12:48:58 PM	6020	0.0040	< 0.0040	
Iron	mg/L	8/10/2007 11:28:00 AM	6010B	0.050	< 0.050	
Lead	mg/L	8/6/2007 12:48:58 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	8/10/2007 10:54:00 AM	6010B	10	**16**	*
Manganese	mg/L	8/6/2007 12:48:58 PM	6020	0.0050	< 0.0050	
Molybdenum	mg/L	8/10/2007 11:28:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	8/10/2007 11:28:00 AM	6010B	1.0	**2.5**	
Selenium	mg/L	8/6/2007 12:48:58 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	8/10/2007 10:54:00 AM	6010B	10	**16**	*
Zinc	mg/L	8/6/2007 12:48:58 PM	6020	0.010	< 0.010	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-02F
Field Sample ID: **RES-1**
Collected: 7/30/2007 8:45:00 PM
Received: 8/1/2007

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	8/10/2007 11:44:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	8/6/2007 1:16:22 PM	6020	0.0050	< 0.0050	
Boron	mg/L	8/10/2007 11:44:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	8/6/2007 1:16:22 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	8/10/2007 11:05:00 AM	6010B	10	**71**	*
Copper	mg/L	8/6/2007 1:16:22 PM	6020	0.0040	< 0.0040	
Iron	mg/L	8/10/2007 11:44:00 AM	6010B	0.050	**0.15**	
Lead	mg/L	8/6/2007 1:16:22 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	8/10/2007 11:05:00 AM	6010B	10	**58**	*
Manganese	mg/L	8/6/2007 1:16:22 PM	6020	0.0050	**0.43**	
Molybdenum	mg/L	8/10/2007 11:44:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	8/10/2007 11:44:00 AM	6010B	1.0	**15**	
Selenium	mg/L	8/6/2007 1:16:22 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	8/10/2007 11:05:00 AM	6010B	10	**42**	*
Zinc	mg/L	8/6/2007 1:16:22 PM	6020	0.010	< 0.010	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-01
Field Sample ID: **Miller Outlet**
Collected: 7/30/2007 8:15:00 PM
Received: 8/1/2007

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	8/2/2007 8:10:00 AM	SM2310B	15	< 15	
Alkalinity,(As CaCO3)	mg/L	8/2/2007 9:45:00 AM	2320B	20	**210**	
Ammonia (as N)	mg/L	8/3/2007 10:21:00 AM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	8/2/2007 9:45:00 AM	2320B	20	**210**	
Carbonate (As CaCO3)	mg/L	8/2/2007 9:45:00 AM	2320B	10	< 10	
Chloride	mg/L	8/11/2007 1:45:00 PM	300.0	5.0	**9.4**	*
Hardness (as CaCO3)	mg/L	8/10/2007 10:54:00 AM	SM2340 B	10	**230**	
Nitrate (as N)	mg/L	8/1/2007 2:04:00 PM	353.2	0.010	< 0.010	
Nitrite (as N)	mg/L	8/1/2007 2:04:00 PM	353.2	0.010	**0.025**	
Oil & Grease	mg/L	8/2/2007 1:30:00 PM	EPA 1664A	3.0	**4.3**	
Phosphate, ortho (as P)	mg/L	8/1/2007 1:26:00 PM	365.1	0.050	**0.11**	1
Settleable Solids	ml/L	8/1/2007 1:00:00 PM	SM2540F	0.10	< 0.10	
Sulfate	mg/L	8/11/2007 1:45:00 PM	300.0	5.0	**19**	*
TDS	mg/L	8/3/2007 1:45:00 PM	160.1	10	**280**	
TSS	mg/L	8/1/2007 3:30:00 PM	SM2540D	3.0	**110**	

1 Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-02
Field Sample ID: **RES-1**
Collected: 7/30/2007 8:45:00 PM
Received: 8/1/2007

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/2/2007 8:10:00 AM	SM2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/2/2007 9:45:00 AM	2320B	20	**330**
Ammonia (as N)	mg/L	8/3/2007 10:21:00 AM	350.1	0.050	**0.11**
Bicarbonate (As CaCO3)	mg/L	8/2/2007 9:45:00 AM	2320B	20	**330**
Carbonate (As CaCO3)	mg/L	8/2/2007 9:45:00 AM	2320B	10	< 10
Chloride	mg/L	8/11/2007 3:25:00 PM	300.0	10	**86**
Hardness (as CaCO3)	mg/L	8/10/2007 11:05:00 AM	SM2340 B	10	**420**
Nitrate (as N)	mg/L	8/1/2007 2:04:00 PM	353.2	0.010	**0.017**
Nitrite (as N)	mg/L	8/1/2007 2:04:00 PM	353.2	0.010	< 0.010
Oil & Grease	mg/L	8/2/2007 1:30:00 PM	EPA 1664A	3.0	**4.0**
Phosphate, ortho (as P)	mg/L	8/1/2007 1:26:00 PM	365.1	0.050	**0.098**
Settleable Solids	ml/L	8/1/2007 1:00:00 PM	SM2540F	0.10	**0.50**
Sulfate	mg/L	8/11/2007 3:25:00 PM	300.0	10	**48**
TDS	mg/L	8/3/2007 1:45:00 PM	160.1	10	**590**
TSS	mg/L	8/1/2007 3:30:00 PM	SM2540D	3.0	**38**

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-35929	Arsenic	mg/L	6020	0.2113	0.2	0	106	85-115				8/6/2007
LCS-35929	Cadmium	mg/L	6020	0.2078	0.2	0.000039	104	85-115				8/6/2007
LCS-35929	Copper	mg/L	6020	0.2188	0.2	0.000375	109	85-115				8/6/2007
LCS-35929	Lead	mg/L	6020	0.1992	0.2	0.000019	99.6	85-115				8/6/2007
LCS-35929	Manganese	mg/L	6020	0.2110	0.2	0	105	85-115				8/6/2007
LCS-35929	Selenium	mg/L	6020	0.1848	0.2	0	92.4	85-115				8/6/2007
LCS-35929	Zinc	mg/L	6020	0.9930	1	0	99.3	85-115				8/6/2007
LCS-35902	Iron	mg/L	6010B	0.9730	1	0	97.3	75-125				8/7/2007
LCS-35902	Manganese	mg/L	6010B	0.1930	0.2	0	96.5	75-125				8/7/2007
LCS-35929	Aluminum	mg/L	6010B	1.043	1	0	104	75-125				8/10/2007
LCS-35929	Boron	mg/L	6010B	1.091	1	0	109	75-125				8/10/2007
LCS-35929	Calcium	mg/L	6010B	10.16	10	0	102	75-125				8/10/2007
LCS-35929	Iron	mg/L	6010B	1.040	1	0	104	75-125				8/10/2007
LCS-35929	Magnesium	mg/L	6010B	10.07	10	0	101	75-125				8/10/2007
LCS-35929	Molybdenum	mg/L	6010B	0.2006	0.2	0	100	75-125				8/10/2007
LCS-35929	Potassium	mg/L	6010B	10.06	10	0	101	75-125				8/10/2007
LCS-35929	Sodium	mg/L	6010B	10.12	10	0	101	75-125				8/10/2007

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-35929	Arsenic	mg/L	6020	< 0.0050				-				8/6/2007
MB-35929	Cadmium	mg/L	6020	< 0.0040				-				8/6/2007
MB-35929	Copper	mg/L	6020	< 0.0040				-				8/6/2007
MB-35929	Lead	mg/L	6020	< 0.0050				-				8/6/2007
MB-35929	Manganese	mg/L	6020	< 0.0050				-				8/6/2007
MB-35929	Selenium	mg/L	6020	< 0.0050				-				8/6/2007
MB-35929	Zinc	mg/L	6020	< 0.010				-				8/6/2007
MB-35902	Iron	mg/L	6010B	< 0.050				-				8/7/2007
MB-35902	Manganese	mg/L	6010B	< 0.0050				-				8/7/2007
MB-35929	Aluminum	mg/L	6010B	< 0.10				-				8/10/2007
MB-35929	Boron	mg/L	6010B	< 0.50				-				8/10/2007
MB-35929	Calcium	mg/L	6010B	< 1.0				-				8/10/2007
MB-35929	Iron	mg/L	6010B	< 0.050				-				8/10/2007
MB-35929	Magnesium	mg/L	6010B	< 1.0				-				8/10/2007
MB-35929	Molybdenum	mg/L	6010B	< 0.040				-				8/10/2007
MB-35929	Potassium	mg/L	6010B	< 1.0				-				8/10/2007
MB-35929	Sodium	mg/L	6010B	< 1.0				-				8/10/2007

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Salt Lake City, Utah 84115
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L79128-01FMS	Arsenic	mg/L	6020	0.2131	0.2	0.001031	106	70-130				8/6/2007
L79128-01FMS	Cadmium	mg/L	6020	0.2109	0.2	0	105	70-130				8/6/2007
L79128-01FMS	Copper	mg/L	6020	0.2235	0.2	0.002095	111	70-130				8/6/2007
L79128-01FMS	Lead	mg/L	6020	0.2017	0.2	0	101	70-130				8/6/2007
L79128-01FMS	Manganese	mg/L	6020	0.2134	0.2	0.001039	106	70-130				8/6/2007
L79128-01FMS	Selenium	mg/L	6020	0.1872	0.2	0.000717	93.2	70-130				8/6/2007
L79128-01FMS	Zinc	mg/L	6020	0.9962	1	0	99.6	70-130				8/6/2007
L79128-01EMS	Iron	mg/L	6010B	3.830	1	2.63	120	75-125				8/7/2007
L79128-01EMS	Manganese	mg/L	6010B	0.2800	0.2	0.0858	97.1	75-125				8/7/2007
L79128-01FMS	Calcium	mg/L	6010B	71.65	10	63.88	77.7	75-125				8/10/2007
L79128-01FMS	Magnesium	mg/L	6010B	25.86	10	16.2	96.6	75-125				8/10/2007
L79128-01FMS	Sodium	mg/L	6010B	25.37	10	15.52	98.5	75-125				8/10/2007
L79128-01FMS	Aluminum	mg/L	6010B	1.090	1	0.0546	104	75-125				8/10/2007
L79128-01FMS	Boron	mg/L	6010B	1.190	1	0.0569	113	75-125				8/10/2007
L79128-01FMS	Iron	mg/L	6010B	1.080	1	0.0293	105	75-125				8/10/2007
L79128-01FMS	Molybdenum	mg/L	6010B	0.2060	0.2	0	103	75-125				8/10/2007
L79128-01FMS	Potassium	mg/L	6010B	12.90	10	2.54	104	75-125				8/10/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

Dept: ME
SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L79128-01FMSD	Arsenic	mg/L	6020	0.2127	0.2	0.001031	106	70-130	0.178	20		8/6/2007
L79128-01FMSD	Cadmium	mg/L	6020	0.2041	0.2	0	102	70-130	3.28	20		8/6/2007
L79128-01FMSD	Copper	mg/L	6020	0.2194	0.2	0.002095	109	70-130	1.84	20		8/6/2007
L79128-01FMSD	Lead	mg/L	6020	0.1971	0.2	0	98.5	70-130	2.34	20		8/6/2007
L79128-01FMSD	Manganese	mg/L	6020	0.2098	0.2	0.001039	104	70-130	1.72	20		8/6/2007
L79128-01FMSD	Selenium	mg/L	6020	0.1807	0.2	0.000717	90.0	70-130	3.52	20		8/6/2007
L79128-01FMSD	Zinc	mg/L	6020	0.9577	1	0	95.8	70-130	3.94	20		8/6/2007
L79128-01EMSD	Iron	mg/L	6010B	3.700	1	2.63	107	75-125	3.45	20		8/7/2007
L79128-01EMSD	Manganese	mg/L	6010B	0.2760	0.2	0.0858	95.1	75-125	1.44	20		8/7/2007
L79128-01FMSD	Calcium	mg/L	6010B	72.29	10	63.88	84.1	75-125	0.889	20		8/10/2007
L79128-01FMSD	Magnesium	mg/L	6010B	26.02	10	16.2	98.3	75-125	0.636	20		8/10/2007
L79128-01FMSD	Sodium	mg/L	6010B	25.28	10	15.52	97.6	75-125	0.354	20		8/10/2007
L79128-01FMSD	Aluminum	mg/L	6010B	1.080	1	0.0546	103	75-125	0.922	20		8/10/2007
L79128-01FMSD	Boron	mg/L	6010B	1.170	1	0.0569	111	75-125	1.69	20		8/10/2007
L79128-01FMSD	Iron	mg/L	6010B	1.070	1	0.0293	104	75-125	0.930	20		8/10/2007
L79128-01FMSD	Molybdenum	mg/L	6010B	0.2030	0.2	0	102	75-125	1.47	20		8/10/2007
L79128-01FMSD	Potassium	mg/L	6010B	12.60	10	2.54	101	75-125	2.35	20		8/10/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78914-05ADUP	TDS	mg/L	160.1	348.0	0	334		-	4.11	20		8/3/2007
L79156-02ADUP	TDS	mg/L	160.1	442.0	0	438		-	0.909	20		8/3/2007
L78914-04ADUP	TSS	mg/L	SM2540D	77.00	0	78		-	1.29	20		8/1/2007
L79118-02ADUP	TSS	mg/L	SM2540D	< 3.0	0	0		-	0	20		8/1/2007
L79128-02ADUP	TSS	mg/L	SM2540D	39.00	0	38		-	2.60	20		8/1/2007
L79133-03ADUP	TSS	mg/L	SM2540D	1195	0	1260		-	5.30	20		8/1/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R72525	Alkalinity,(As CaCO3)	mg/L	2320B	51540	50000	0	103	90-110				8/2/2007
LCS-R72900	Chloride	mg/L	300.0	4.782	5	0.01	95.4	90-110				8/11/2007
LCS-R72900	Sulfate	mg/L	300.0	4.997	5	0.013	99.7	90-110				8/11/2007
LCS-R72514	Acidity	mg/L	SM2310B	55.00	50	0	110	80-120				8/2/2007
LCS-35876	Ammonia (as N)	mg/L	350.1	0.9950	1	0	99.5	90-110				8/3/2007
LCS-72484	Nitrite (as N)	mg/L	353.2	1.071	1	0	107	90-110				8/1/2007
LCS-72486	Nitrate (as N)	mg/L	353.2	1.030	1	0	103	90-110				8/1/2007
LCS-R72613	Oil & Grease	mg/L	EPA 1664A	41.50	40	0	104	79-114				8/2/2007
LCS-72477	Phosphate, ortho (as P)	mg/L	365.1	1.060	1	0	106	90-110				8/1/2007
LCS-R72674	TDS	mg/L	160.1	208.0	205	0	101	80-120				8/3/2007
LCS-R72520	TSS	mg/L	SM2540D	96.00	100	0	96.0	80-120				8/1/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R72525	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				8/2/2007
MB-R72525	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				8/2/2007
MB-R72525	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				8/2/2007
MB-R72900	Chloride	mg/L	300.0	< 1.0				-				8/11/2007
MB-R72900	Sulfate	mg/L	300.0	< 1.0				-				8/11/2007
MB-R72514	Acidity	mg/L	SM2310B	< 15				-				8/2/2007
MB-35876	Ammonia (as N)	mg/L	350.1	< 0.050				-				8/3/2007
MB-72484	Nitrite (as N)	mg/L	353.2	< 0.010				-				8/1/2007
MB-72486	Nitrate (as N)	mg/L	353.2	< 0.010				-				8/1/2007
MB-R72613	Oil & Grease	mg/L	EPA 1664A	< 3.0				-				8/2/2007
MB-72477	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				8/1/2007
MB-R72674	TDS	mg/L	160.1	< 10				-				8/3/2007
MB-R72520	TSS	mg/L	SM2540D	< 3.0				-				8/1/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L79128-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	308.0	100	210	98.0	80-120				8/2/2007
L79144-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	987.0	200	791	98.0	80-120				8/2/2007
L79128-01BMS	Chloride	mg/L	300.0	33.92	25	9.392	98.1	90-110				8/11/2007
L79128-01BMS	Sulfate	mg/L	300.0	45.86	25	18.71	109	90-110				8/11/2007
L79128-01BMS	Acidity	mg/L	SM2310B	54.00	50	0	108	80-120				8/2/2007
L79121-05DMS	Ammonia (as N)	mg/L	350.1	0.9490	1	0	94.9	90-110				8/3/2007
L79128-02CMS	Ammonia (as N)	mg/L	350.1	1.108	1	0.11	99.8	90-110				8/3/2007
L79128-01BMS	Nitrite (as N)	mg/L	353.2	1.119	1	0.025	109	90-110				8/1/2007
L79128-01BMS	Nitrate (as N)	mg/L	353.2	1.096	1	0	110	90-110				8/1/2007
L79128-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.210	1	0.107	110	90-110			[1]	8/1/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L79128-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	309.0	100	210	99.0	80-120	0.324	10		8/2/2007
L79144-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	990.0	200	791	99.5	80-120	0.303	10		8/2/2007
L79128-01BMSD	Chloride	mg/L	300.0	34.20	25	9.392	99.2	90-110	0.819	20		8/11/2007
L79128-01BMSD	Sulfate	mg/L	300.0	45.78	25	18.71	108	90-110	0.170	20		8/11/2007
L79128-01BMSD	Acidity	mg/L	SM2310B	56.00	50	0	112	80-120	3.64	20		8/2/2007
L79121-05DMSD	Ammonia (as N)	mg/L	350.1	0.9840	1	0	98.4	90-110	3.62	10		8/3/2007
L79128-02CMSD	Ammonia (as N)	mg/L	350.1	1.124	1	0.11	101	90-110	1.43	10		8/3/2007
L79128-01BMSD	Nitrite (as N)	mg/L	353.2	1.092	1	0.025	107	90-110	2.44	10		8/1/2007
L79128-01BMSD	Nitrate (as N)	mg/L	353.2	1.087	1	0	109	90-110	0.825	10		8/1/2007
L79128-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.277	1	0.107	117	90-110	5.39	10	1	8/1/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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American West Analytical Labs

WORK ORDER Summary

01-Aug-07

Work Order L79128

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

10K-DB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L79128-01A	Miller Outlet	7/30/2007 8:15:00 PM	8/1/2007	8/15/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				8/15/2007		TDS-W	ww - tss/tds/ss	1
				8/15/2007		TSS-W-2540D	ww - tss/tds/ss	1
L79128-01B				8/15/2007		2320B-ALK-W	aug 1 - wc	1
				8/15/2007		300.0-W	aug 1 - wc	1
				8/15/2007		ACIDITY-W-2310B	aug 1 - wc	1
				8/15/2007		NO2-W	aug 1 - wc	1
				8/15/2007		NO3-W	aug 1 - wc	1
				8/15/2007		PO4-O	aug 1 - wc	1
L79128-01C				8/15/2007		NH3-W	aug 1 - nh3	1
				8/15/2007		NH3-W-PREP	aug 1 - nh3	1
L79128-01D				8/15/2007		OGB-W	ogb	1
L79128-01E				8/15/2007		3005A-ICPMS	aug 1 - met	1
				8/15/2007		ICP-W	aug 1 - met	1
L79128-01F				8/15/2007	Aqueous-Dissolved	3005A-Diss	aug 1 - dis met	1
				8/15/2007		6020-W-DISS	aug 1 - dis met	1
				8/15/2007		HARD	aug 1 - dis met	1
				8/15/2007		ICP-W-DIS	aug 1 - dis met	1
L79128-02A	RES-1	7/30/2007 8:45:00 PM		8/15/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				8/15/2007		TDS-W	ww - tss/tds/ss	1
				8/15/2007		TSS-W-2540D	ww - tss/tds/ss	1
L79128-02B				8/15/2007		2320B-ALK-W	aug 1 - wc	1
				8/15/2007		300.0-W	aug 1 - wc	1
				8/15/2007		ACIDITY-W-2310B	aug 1 - wc	1
				8/15/2007		NO2-W	aug 1 - wc	1
				8/15/2007		NO3-W	aug 1 - wc	1
				8/15/2007		PO4-O	aug 1 - wc	1

WORK ORDER Summary

01-Aug-07

Work Order L79128

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L79128-02C	RES-1	7/30/2007 8:45:00 PM	8/1/2007	8/15/2007	Aqueous	NH3-W	aug 1 - nh3	1
				8/15/2007		NH3-W-PREP	aug 1 - nh3	1
L79128-02D				8/15/2007		OGB-W	ogb	1
L79128-02E				8/15/2007		3005A-ICPMS	aug 1 - met	1
				8/15/2007		ICP-W	aug 1 - met	1
L79128-02F				8/15/2007	Aqueous-Dissolved	3005A-Diss	aug 1 - dis met	1
				8/15/2007		6020-W-DISS	aug 1 - dis met	1
				8/15/2007		HARD	aug 1 - dis met	1
				8/15/2007		ICP-W-DIS	aug 1 - dis met	1

Client ROCK LOGIC CONSULTING

Address P.O. BOX 544

CEDAREDGE, CO 81413
City / State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGIC CONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 29128

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 2										QC LEVEL	LABORATORY USE ONLY
MILLER OUTLET	7/30/07 20:15	W	6	1										1 2 2+ 3 3+ 4	SAMPLES WERE: 1 Shipped or hand delivered Notes: 2 Ambient or Chilled Notes: ON ICE 3 Temperature 8°
RES-1	20:45													COMMENTS	4 Received Broken/Leaking (Improperly Sealed) Y (N) Notes:
* SULFUR SPRING	21:00														5 Properly Preserved Y N Notes:
* MUD CREEK	21:30														6 Received Within Holding Times Y N Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 9:30	PRINT NAME UPS
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date 8/1/07	Received By: Signature
PRINT NAME	Time 1056	PRINT NAME Elena Hayes

Special Instructions:

PLEASE FILTER

*SULFUR SPRING AND MUD CREEK NOT RECEIVED 8/1/07-RW

COC Tape Was:

1 Present on Outer Package (Y) N NA

2 Unbroken on Outer Package (Y) N NA

3 Present on Sample Y N (NA)

4 Unbroken on Sample Y N (NA) Notes:

Discrepancies Between Sample Labels and COC Record? Y (N) Notes:

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 79128

Preservation Check Sheet

		Sample Set Extension and pH															
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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84115

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e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

August 16, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L79156

Dear Brad Lindsay:

American West Analytical Labs received 2 samples on 8/2/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Lab Sample ID: L79156-01E
Field Sample ID: **Sulfur Spring**
Collected: 7/30/2007 9:00:00 PM
Received: 8/2/2007

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	8/7/2007 5:33:00 PM	6010B	0.050	< 0.050
Manganese	mg/L	8/7/2007 5:33:00 PM	6010B	0.0050	**0.031**

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Salt Lake City, Utah
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(801) 263-8686
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Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79156-02E
Field Sample ID: **Mud Creek**
Collected: 7/30/2007 9:30:00 PM
Received: 8/2/2007

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	8/7/2007 5:45:00 PM	6010B	0.050	**0.34**
Manganese	mg/L	8/7/2007 5:45:00 PM	6010B	0.0050	**0.028**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79156-01F
Field Sample ID: **Sulfur Spring**
Collected: 7/30/2007 9:00:00 PM
Received: 8/2/2007

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	8/10/2007 11:48:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	8/6/2007 1:21:51 PM	6020	0.0050	< 0.0050	
Boron	mg/L	8/10/2007 11:48:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	8/6/2007 1:21:51 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	8/10/2007 11:09:00 AM	6010B	10	**89**	*
Copper	mg/L	8/6/2007 1:21:51 PM	6020	0.0040	**0.0090**	
Iron	mg/L	8/10/2007 11:48:00 AM	6010B	0.050	< 0.050	
Lead	mg/L	8/6/2007 1:21:51 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	8/10/2007 11:09:00 AM	6010B	10	**35**	*
Manganese	mg/L	8/6/2007 1:21:51 PM	6020	0.0050	**0.038**	
Molybdenum	mg/L	8/10/2007 11:48:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	8/10/2007 11:48:00 AM	6010B	1.0	**4.9**	
Selenium	mg/L	8/6/2007 1:21:51 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	8/10/2007 11:48:00 AM	6010B	1.0	**8.5**	
Zinc	mg/L	8/6/2007 1:21:51 PM	6020	0.010	**0.018**	

** The reporting limits were raised due to high analyte concentration.*

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Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79156-02F
Field Sample ID: **Mud Creek**
Collected: 7/30/2007 9:30:00 PM
Received: 8/2/2007

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	8/10/2007 11:52:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	8/6/2007 1:27:20 PM	6020	0.0050	< 0.0050	
Boron	mg/L	8/10/2007 11:52:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	8/6/2007 1:27:20 PM	6020	0.0040	< 0.0040	
Calcium	mg/L	8/10/2007 11:13:00 AM	6010B	10	**63**	*
Copper	mg/L	8/6/2007 1:27:20 PM	6020	0.0040	< 0.0040	
Iron	mg/L	8/10/2007 11:52:00 AM	6010B	0.050	< 0.050	
Lead	mg/L	8/6/2007 1:27:20 PM	6020	0.0050	< 0.0050	
Magnesium	mg/L	8/10/2007 11:13:00 AM	6010B	10	**38**	*
Manganese	mg/L	8/6/2007 1:27:20 PM	6020	0.0050	**0.0090**	
Molybdenum	mg/L	8/10/2007 11:52:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	8/10/2007 11:52:00 AM	6010B	1.0	**6.8**	
Selenium	mg/L	8/6/2007 1:27:20 PM	6020	0.0050	< 0.0050	
Sodium	mg/L	8/10/2007 11:13:00 AM	6010B	10	**34**	*
Zinc	mg/L	8/6/2007 1:27:20 PM	6020	0.010	< 0.010	

** The reporting limits were raised due to high analyte concentration.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

Lab Sample ID: L79156-01
Field Sample ID: **Sulfur Spring**
Collected: 7/30/2007 9:00:00 PM
Received: 8/2/2007

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	8/6/2007 7:00:00 AM	SM2310B	15	< 15	
Alkalinity,(As CaCO3)	mg/L	8/3/2007 10:40:00 AM	2320B	20	**340**	
Ammonia (as N)	mg/L	8/3/2007 11:09:00 AM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	8/3/2007 10:40:00 AM	2320B	20	**340**	
Carbonate (As CaCO3)	mg/L	8/3/2007 10:40:00 AM	2320B	10	< 10	
Chloride	mg/L	8/11/2007 3:58:00 PM	300.0	5.0	**6.3**	
Hardness (as CaCO3)	mg/L	8/10/2007 11:09:00 AM	SM2340 B	10	**370**	
Nitrate (as N)	mg/L	8/2/2007 11:59:00 AM	353.2	0.010	< 0.010	**H**
Nitrite (as N)	mg/L	8/2/2007 11:59:00 AM	353.2	0.010	< 0.010	**[1]H**
Oil & Grease	mg/L	8/6/2007 11:10:00 AM	EPA 1664A	3.0	**3.7**	
Phosphate, ortho (as P)	mg/L	8/2/2007 2:07:00 PM	365.1	0.050	< 0.050	**[1]H**
Settleable Solids	ml/L	8/2/2007 12:00:00 PM	SM2540F	0.10	< 0.10	**H**
Sulfate	mg/L	8/11/2007 3:58:00 PM	300.0	5.0	**47**	
TDS	mg/L	8/3/2007 1:45:00 PM	160.1	10	**390**	
TSS	mg/L	8/2/2007 3:30:00 PM	SM2540D	3.0	< 3.0	

H - Sample was received outside of holding time.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79156-02
Field Sample ID: **Mud Creek**
Collected: 7/30/2007 9:30:00 PM
Received: 8/2/2007

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	8/6/2007 7:00:00 AM	SM2310B	15	< 15	
Alkalinity,(As CaCO3)	mg/L	8/3/2007 10:40:00 AM	2320B	20	**230**	
Ammonia (as N)	mg/L	8/3/2007 11:09:00 AM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	8/3/2007 10:40:00 AM	2320B	20	**230**	
Carbonate (As CaCO3)	mg/L	8/3/2007 10:40:00 AM	2320B	10	< 10	
Chloride	mg/L	8/11/2007 5:38:00 PM	300.0	10	**12**	
Hardness (as CaCO3)	mg/L	8/10/2007 11:13:00 AM	SM2340 B	10	**310**	
Nitrate (as N)	mg/L	8/2/2007 11:59:00 AM	353.2	0.010	**0.15**	**H**
Nitrite (as N)	mg/L	8/2/2007 11:59:00 AM	353.2	0.010	< 0.010	**H**
Oil & Grease	mg/L	8/6/2007 11:10:00 AM	EPA 1664A	3.0	**4.9**	
Phosphate, ortho (as P)	mg/L	8/2/2007 2:07:00 PM	365.1	0.050	< 0.050	**H**
Settleable Solids	ml/L	8/2/2007 12:00:00 PM	SM2540F	0.10	**0.10**	**H**
Sulfate	mg/L	8/11/2007 6:11:00 PM	300.0	20	**140**	
TDS	mg/L	8/3/2007 1:45:00 PM	160.1	10	**440**	
TSS	mg/L	8/2/2007 3:30:00 PM	SM2540D	3.0	**28**	

H - Sample was received outside of holding time.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-35929	Arsenic	mg/L	6020	0.2113	0.2	0	106	85-115				8/6/2007
LCS-35929	Cadmium	mg/L	6020	0.2078	0.2	0.000039	104	85-115				8/6/2007
LCS-35929	Copper	mg/L	6020	0.2188	0.2	0.000375	109	85-115				8/6/2007
LCS-35929	Lead	mg/L	6020	0.1992	0.2	0.000019	99.6	85-115				8/6/2007
LCS-35929	Manganese	mg/L	6020	0.2110	0.2	0	105	85-115				8/6/2007
LCS-35929	Selenium	mg/L	6020	0.1848	0.2	0	92.4	85-115				8/6/2007
LCS-35929	Zinc	mg/L	6020	0.9930	1	0	99.3	85-115				8/6/2007
LCS-35902	Iron	mg/L	6010B	0.9730	1	0	97.3	75-125				8/7/2007
LCS-35902	Manganese	mg/L	6010B	0.1930	0.2	0	96.5	75-125				8/7/2007
LCS-35929	Aluminum	mg/L	6010B	1.043	1	0	104	75-125				8/10/2007
LCS-35929	Boron	mg/L	6010B	1.091	1	0	109	75-125				8/10/2007
LCS-35929	Calcium	mg/L	6010B	10.16	10	0	102	75-125				8/10/2007
LCS-35929	Iron	mg/L	6010B	1.040	1	0	104	75-125				8/10/2007
LCS-35929	Magnesium	mg/L	6010B	10.07	10	0	101	75-125				8/10/2007
LCS-35929	Molybdenum	mg/L	6010B	0.2006	0.2	0	100	75-125				8/10/2007
LCS-35929	Potassium	mg/L	6010B	10.06	10	0	101	75-125				8/10/2007
LCS-35929	Sodium	mg/L	6010B	10.12	10	0	101	75-125				8/10/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-35929	Arsenic	mg/L	6020	< 0.0050				-				8/6/2007
MB-35929	Cadmium	mg/L	6020	< 0.0040				-				8/6/2007
MB-35929	Copper	mg/L	6020	< 0.0040				-				8/6/2007
MB-35929	Lead	mg/L	6020	< 0.0050				-				8/6/2007
MB-35929	Manganese	mg/L	6020	< 0.0050				-				8/6/2007
MB-35929	Selenium	mg/L	6020	< 0.0050				-				8/6/2007
MB-35929	Zinc	mg/L	6020	< 0.010				-				8/6/2007
MB-35902	Iron	mg/L	6010B	< 0.050				-				8/7/2007
MB-35902	Manganese	mg/L	6010B	< 0.0050				-				8/7/2007
MB-35929	Aluminum	mg/L	6010B	< 0.10				-				8/10/2007
MB-35929	Boron	mg/L	6010B	< 0.50				-				8/10/2007
MB-35929	Calcium	mg/L	6010B	< 1.0				-				8/10/2007
MB-35929	Iron	mg/L	6010B	< 0.050				-				8/10/2007
MB-35929	Magnesium	mg/L	6010B	< 1.0				-				8/10/2007
MB-35929	Molybdenum	mg/L	6010B	< 0.040				-				8/10/2007
MB-35929	Potassium	mg/L	6010B	< 1.0				-				8/10/2007
MB-35929	Sodium	mg/L	6010B	< 1.0				-				8/10/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L79128-01FMS	Arsenic	mg/L	6020	0.2131	0.2	0.001031	106	70-130				8/6/2007
L79128-01FMS	Cadmium	mg/L	6020	0.2109	0.2	0	105	70-130				8/6/2007
L79128-01FMS	Copper	mg/L	6020	0.2235	0.2	0.002095	111	70-130				8/6/2007
L79128-01FMS	Lead	mg/L	6020	0.2017	0.2	0	101	70-130				8/6/2007
L79128-01FMS	Manganese	mg/L	6020	0.2134	0.2	0.001039	106	70-130				8/6/2007
L79128-01FMS	Selenium	mg/L	6020	0.1872	0.2	0.000717	93.2	70-130				8/6/2007
L79128-01FMS	Zinc	mg/L	6020	0.9962	1	0	99.6	70-130				8/6/2007
L79128-01EMS	Iron	mg/L	6010B	3.830	1	2.63	120	75-125				8/7/2007
L79128-01EMS	Manganese	mg/L	6010B	0.2800	0.2	0.0858	97.1	75-125				8/7/2007
L79128-01FMS	Calcium	mg/L	6010B	71.65	10	63.88	77.7	75-125				8/10/2007
L79128-01FMS	Magnesium	mg/L	6010B	25.86	10	16.2	96.6	75-125				8/10/2007
L79128-01FMS	Sodium	mg/L	6010B	25.37	10	15.52	98.5	75-125				8/10/2007
L79128-01FMS	Aluminum	mg/L	6010B	1.090	1	0.0546	104	75-125				8/10/2007
L79128-01FMS	Boron	mg/L	6010B	1.190	1	0.0569	113	75-125				8/10/2007
L79128-01FMS	Iron	mg/L	6010B	1.080	1	0.0293	105	75-125				8/10/2007
L79128-01FMS	Molybdenum	mg/L	6010B	0.2060	0.2	0	103	75-125				8/10/2007
L79128-01FMS	Potassium	mg/L	6010B	12.90	10	2.54	104	75-125				8/10/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L79128-01FMSD	Arsenic	mg/L	6020	0.2127	0.2	0.001031	106	70-130	0.178	20		8/6/2007
L79128-01FMSD	Cadmium	mg/L	6020	0.2041	0.2	0	102	70-130	3.28	20		8/6/2007
L79128-01FMSD	Copper	mg/L	6020	0.2194	0.2	0.002095	109	70-130	1.84	20		8/6/2007
L79128-01FMSD	Lead	mg/L	6020	0.1971	0.2	0	98.5	70-130	2.34	20		8/6/2007
L79128-01FMSD	Manganese	mg/L	6020	0.2098	0.2	0.001039	104	70-130	1.72	20		8/6/2007
L79128-01FMSD	Selenium	mg/L	6020	0.1807	0.2	0.000717	90.0	70-130	3.52	20		8/6/2007
L79128-01FMSD	Zinc	mg/L	6020	0.9577	1	0	95.8	70-130	3.94	20		8/6/2007
L79128-01EMSD	Iron	mg/L	6010B	3.700	1	2.63	107	75-125	3.45	20		8/7/2007
L79128-01EMSD	Manganese	mg/L	6010B	0.2760	0.2	0.0858	95.1	75-125	1.44	20		8/7/2007
L79128-01FMSD	Calcium	mg/L	6010B	72.29	10	63.88	84.1	75-125	0.889	20		8/10/2007
L79128-01FMSD	Magnesium	mg/L	6010B	26.02	10	16.2	98.3	75-125	0.636	20		8/10/2007
L79128-01FMSD	Sodium	mg/L	6010B	25.28	10	15.52	97.6	75-125	0.354	20		8/10/2007
L79128-01FMSD	Aluminum	mg/L	6010B	1.080	1	0.0546	103	75-125	0.922	20		8/10/2007
L79128-01FMSD	Boron	mg/L	6010B	1.170	1	0.0569	111	75-125	1.69	20		8/10/2007
L79128-01FMSD	Iron	mg/L	6010B	1.070	1	0.0293	104	75-125	0.930	20		8/10/2007
L79128-01FMSD	Molybdenum	mg/L	6010B	0.2030	0.2	0	102	75-125	1.47	20		8/10/2007
L79128-01FMSD	Potassium	mg/L	6010B	12.60	10	2.54	101	75-125	2.35	20		8/10/2007

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L78914-05ADUP	TDS	mg/L	160.1	348.0	0	334		-	4.11	20		8/3/2007
L79156-02ADUP	TDS	mg/L	160.1	442.0	0	438		-	0.909	20		8/3/2007
L79147-02ADUP	TSS	mg/L	SM2540D	5.000	0	6		-	18.2	20		8/2/2007
L79156-02ADUP	TSS	mg/L	SM2540D	27.00	0	28		-	3.64	20		8/2/2007

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Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R72590	Alkalinity,(As CaCO3)	mg/L	2320B	51540	50000	0	103	90-110				8/3/2007
LCS-R72900	Chloride	mg/L	300.0	4.782	5	0.01	95.4	90-110				8/11/2007
LCS-R72900	Sulfate	mg/L	300.0	4.997	5	0.013	99.7	90-110				8/11/2007
LCS-R72624	Acidity	mg/L	SM2310B	55.00	50	0	110	80-120				8/6/2007
LCS-35901	Ammonia (as N)	mg/L	350.1	0.9360	1	0.024	91.2	90-110				8/3/2007
LCS-72537	Nitrite (as N)	mg/L	353.2	1.036	1	0	104	90-110				8/2/2007
LCS-72539	Nitrate (as N)	mg/L	353.2	1.028	1	0	103	90-110				8/2/2007
LCS-R72665	Oil & Grease	mg/L	EPA 1664A	40.60	40	0	102	79-114				8/6/2007
LCS-72548	Phosphate, ortho (as P)	mg/L	365.1	1.054	1	0	105	90-110				8/2/2007
LCS-R72674	TDS	mg/L	160.1	208.0	205	0	101	80-120				8/3/2007
LCS-R72578	TSS	mg/L	SM2540D	97.00	100	0	97.0	80-120				8/2/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R72590	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				8/3/2007
MB-R72590	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				8/3/2007
MB-R72590	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				8/3/2007
MB-R72900	Chloride	mg/L	300.0	< 1.0				-				8/11/2007
MB-R72900	Sulfate	mg/L	300.0	< 1.0				-				8/11/2007
MB-R72624	Acidity	mg/L	SM2310B	< 15				-				8/6/2007
MB-35901	Ammonia (as N)	mg/L	350.1	< 0.050				-				8/3/2007
MB-72537	Nitrite (as N)	mg/L	353.2	< 0.010				-				8/2/2007
MB-72539	Nitrate (as N)	mg/L	353.2	< 0.010				-				8/2/2007
MB-R72665	Oil & Grease	mg/L	EPA 1664A	< 3.0				-				8/6/2007
MB-72548	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				8/2/2007
MB-R72674	TDS	mg/L	160.1	< 10				-				8/3/2007
MB-R72578	TSS	mg/L	SM2540D	< 3.0				-				8/2/2007

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L79156-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	439.0	100	336	103	80-120				8/3/2007
L79128-01BMS	Chloride	mg/L	300.0	33.92	25	9.392	98.1	90-110				8/11/2007
L79128-01BMS	Sulfate	mg/L	300.0	45.86	25	18.71	109	90-110				8/11/2007
L79156-01BMS	Acidity	mg/L	SM2310B	50.00	50	0	100	80-120				8/6/2007
L79144-03DMS	Ammonia (as N)	mg/L	350.1	2.206	1	1.243	96.3	90-110				8/3/2007
L79156-01CMS	Ammonia (as N)	mg/L	350.1	1.023	1	0.042	98.1	90-110				8/3/2007
L79156-01BMS	Nitrite (as N)	mg/L	353.2	1.120	1	0	112	90-110			[1]H	8/2/2007
L79144-01BMS	Nitrate (as N)	mg/L	353.2	1.065	1	0	106	90-110				8/2/2007
L79156-01BMS	Nitrate (as N)	mg/L	353.2	1.014	1	0	101	90-110			H	8/2/2007
L79156-01BMS	Phosphate, ortho (as P)	mg/L	365.1	1.133	1	0	113	90-110			[1]H	8/2/2007

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

H - Sample was received outside of holding time.

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L79156-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	434.0	100	336	98.0	80-120	1.15	10		8/3/2007
L79128-01BMSD	Chloride	mg/L	300.0	34.20	25	9.392	99.2	90-110	0.819	20		8/11/2007
L79128-01BMSD	Sulfate	mg/L	300.0	45.78	25	18.71	108	90-110	0.170	20		8/11/2007
L79156-01BMSD	Acidity	mg/L	SM2310B	48.00	50	0	96.0	80-120	4.08	20		8/6/2007
L79144-03DMSD	Ammonia (as N)	mg/L	350.1	2.156	1	1.243	91.3	90-110	2.29	10		8/3/2007
L79156-01CMSD	Ammonia (as N)	mg/L	350.1	1.062	1	0.042	102	90-110	3.74	10		8/3/2007
L79156-01BMSD	Nitrite (as N)	mg/L	353.2	1.058	1	0	106	90-110	5.69	10	H	8/2/2007
L79144-01BMSD	Nitrate (as N)	mg/L	353.2	1.042	1	0	104	90-110	2.18	10		8/2/2007
L79156-01BMSD	Nitrate (as N)	mg/L	353.2	1.009	1	0	101	90-110	0.494	10	H	8/2/2007
L79156-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.071	1	0	107	90-110	5.63	10	H	8/2/2007

H - Sample was received outside of holding time.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: WC
SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R72665	Oil & Grease	mg/L	EPA 1664A	38.10	40	0	95.2	79-114				8/6/2007

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

Dept: WC

SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R72665	Oil & Grease	mg/L	EPA 1664A	36.60	40	0	91.5	79-114	0	18		8/6/2007

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American West Analytical Labs

WORK ORDER Summary

02-Aug-07

Work Order L79156

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+. Footnote report: SS, NO3, NO2, PO4-O received outside of hold. HOK-DB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L79156-01A	Sulfur Spring	7/30/2007 9:00:00 PM	8/2/2007	8/16/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				8/16/2007		TDS-W	ww - tss/tds/ss	1
				8/16/2007		TSS-W-2540D	ww - tss/tds/ss	1
L79156-01B				8/16/2007		2320B-ALK-W	aug 2 - wc	1
				8/16/2007		300.0-W	aug 2 - wc	1
				8/16/2007		ACIDITY-W-2310B	aug 2 - wc	1
				8/16/2007		NO2-W	aug 2 - wc	1
				8/16/2007		NO3-W	aug 2 - wc	1
				8/16/2007		PO4-O	aug 2 - wc	1
L79156-01C				8/16/2007		NH3-W	aug 2 - nh3	1
				8/16/2007		NH3-W-PREP	aug 2 - nh3	1
L79156-01D				8/16/2007		OGB-W	ogb	1
L79156-01E				8/16/2007		3005A-ICPMS	aug 2 - met	1
				8/16/2007		ICP-W	aug 2 - met	1
L79156-01F				8/16/2007	Aqueous-Dissolved	3005A-Diss	aug 2 - dis met	1
				8/16/2007		6020-W-DISS	aug 2 - dis met	1
				8/16/2007		HARD	aug 2 - dis met	1
				8/16/2007		ICP-W-DIS	aug 2 - dis met	1
L79156-02A	Mud Creek	7/30/2007 9:30:00 PM		8/16/2007	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				8/16/2007		TDS-W	ww - tss/tds/ss	1
				8/16/2007		TSS-W-2540D	ww - tss/tds/ss	1
L79156-02B				8/16/2007		2320B-ALK-W	aug 2 - wc	1
				8/16/2007		300.0-W	aug 2 - wc	1
				8/16/2007		ACIDITY-W-2310B	aug 2 - wc	1
				8/16/2007		NO2-W	aug 2 - wc	1
				8/16/2007		NO3-W	aug 2 - wc	1
				8/16/2007		PO4-O	aug 2 - wc	1

WORK ORDER Summary

02-Aug-07

Work Order L79156

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+. Footnote report: SS, NO3, NO2, PO4-O received outside of hold.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L79156-02C	Mud Creek	7/30/2007 9:30:00 PM	8/2/2007	8/16/2007	Aqueous	NH3-W	aug 2 - nh3	1
				8/16/2007		NH3-W-PREP	aug 2 - nh3	1
L79156-02D				8/16/2007		OGB-W	ogb	1
L79156-02E				8/16/2007		3005A-ICPMS	aug 2 - met	1
				8/16/2007		ICP-W	aug 2 - met	1
L79156-02F				8/16/2007	Aqueous-Dissolved	3005A-Diss	aug 2 - dis met	1
				8/16/2007		6020-W-DISS	aug 2 - dis met	1
				8/16/2007		HARD	aug 2 - dis met	1
				8/16/2007		ICP-W-DIS	aug 2 - dis met	1

Client ROCK LOGIC CONSULTING

Address P.O. BOX 544

CEDAREDGE, CO 81413
City / State / Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGIC CONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # ~~79128~~ RW

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 2	QC LEVEL 1 2 2+ 3 3+ 4 COMMENTS
MILLER OUTLET	7/30/07 20:15	W	6		79128
RES-1	20:45				
* SULFUR SPRING	21:00				79156
* MUD CREEK	21:30				

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes: on ice

3 Temperature 8° 20°C RW 8-2-07

4 Received Broken/Leaking (Improperly Sealed)
Y (N) RW
Notes: 1 L HDPE FOR MUD CREEK WAS CRACKED. SAMPLE COMPROMISED.

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y RW (N)
Notes: SS, NO2, NO3, PO4-O

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y N (NA)

4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 9:30	PRINT NAME UPS
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date 8/1/07	Received By: Signature
PRINT NAME	Time 1056	PRINT NAME Elmer Hayes

Special Instructions:

PLEASE FILTER

*SULFUR SPRING AND MUD CREEK NOT RECEIVED 8/1/07-RW
SAMPLES RECEIVED 8/2/07
79156 RW

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.
½ gallon HDPE

Sample Set: 79156

Preservation Check Sheet

			Sample Set Extension and pH														
Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia[1]	pH <2 H_2SO_4	✓															
COD[1]	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3[1]	pH <2 H_2SO_4																
Nutrients[1]	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols[2]	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN[1]	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX[2]	pH <2 H_2SO_4																
T PO_4[1]	pH <2 H_2SO_4																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

November 12, 2008

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L87283

Dear Brad Lindsay:

American West Analytical Labs received 5 samples on 10/30/2008 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Approved by: _____
Laboratory Director or designee

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-01F
Field Sample ID: **Mud Creek**
Collected: 10/29/2008 2:15:00 PM
Received: 10/30/2008

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Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/5/2008 2:14:00 PM	6010B	0.050	**0.25**
Manganese	mg/L	11/5/2008 2:14:00 PM	6010B	0.0050	**0.020**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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84115

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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Lab Sample ID: L87283-02F
Field Sample ID: **Sulfur Spring**
Collected: 10/29/2008 2:40:00 PM
Received: 10/30/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/5/2008 2:30:00 PM	6010B	0.050	< 0.050
Manganese	mg/L	11/5/2008 2:30:00 PM	6010B	0.0050	**0.029**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-03F
Field Sample ID: **RES-1**
Collected: 10/29/2008 3:00:00 PM
Received: 10/30/2008

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Salt Lake City, Utah
84115

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TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/5/2008 2:34:00 PM	6010B	0.050	**3.3**
Manganese	mg/L	11/5/2008 2:34:00 PM	6010B	0.0050	**0.65**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-04F
Field Sample ID: **Miller Outlet**
Collected: 10/29/2008 3:15:00 PM
Received: 10/30/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/5/2008 2:37:00 PM	6010B	0.050	**0.67**
Manganese	mg/L	11/5/2008 2:37:00 PM	6010B	0.0050	**0.026**

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84115

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-05F
Field Sample ID: **Aspen Spring**
Collected: 10/29/2008 12:00:00 PM
Received: 10/30/2008

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Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	11/5/2008 2:49:00 PM	6010B	0.050	**2.5**
Manganese	mg/L	11/5/2008 2:49:00 PM	6010B	0.0050	**0.65**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-01E
Field Sample ID: **Mud Creek**
Collected: 10/29/2008 2:15:00 PM
Received: 10/30/2008

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463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	11/5/2008 1:17:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	10/31/2008 8:07:26 PM	6020	0.00060	< 0.00060
Boron	mg/L	11/5/2008 1:17:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	10/31/2008 8:07:26 PM	6020	0.00018	< 0.00018
Calcium	mg/L	11/5/2008 12:39:00 PM	6010B	10	**66** ~
Copper	mg/L	10/31/2008 8:07:26 PM	6020	0.00080	< 0.00080
Iron	mg/L	11/5/2008 1:17:00 PM	6010B	0.050	< 0.050
Lead	mg/L	10/31/2008 8:07:26 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	11/5/2008 1:17:00 PM	6010B	1.0	**38**
Manganese	mg/L	10/31/2008 8:07:26 PM	6020	0.0012	**0.012**
Molybdenum	mg/L	11/5/2008 1:17:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	11/5/2008 1:17:00 PM	6010B	1.0	**6.9**
Selenium	mg/L	10/31/2008 8:07:26 PM	6020	0.00080	< 0.00080
Sodium	mg/L	11/5/2008 1:17:00 PM	6010B	1.0	**37**
Zinc	mg/L	10/31/2008 8:07:26 PM	6020	0.0054	< 0.0054

~ - The reporting limits were raised due to high analyte concentrations.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-02E
Field Sample ID: **Sulfur Spring**
Collected: 10/29/2008 2:40:00 PM
Received: 10/30/2008

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463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	11/5/2008 1:33:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	10/31/2008 8:34:28 PM	6020	0.00060	< 0.00060
Boron	mg/L	11/5/2008 1:33:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	10/31/2008 8:34:28 PM	6020	0.00018	< 0.00018
Calcium	mg/L	11/5/2008 12:50:00 PM	6010B	10	**89** ~
Copper	mg/L	10/31/2008 8:34:28 PM	6020	0.00080	< 0.00080
Iron	mg/L	11/5/2008 1:33:00 PM	6010B	0.050	< 0.050
Lead	mg/L	10/31/2008 8:34:28 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	11/5/2008 1:33:00 PM	6010B	1.0	**36**
Manganese	mg/L	10/31/2008 8:34:28 PM	6020	0.0012	**0.028**
Molybdenum	mg/L	11/5/2008 1:33:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	11/5/2008 1:33:00 PM	6010B	1.0	**5.0**
Selenium	mg/L	10/31/2008 8:34:28 PM	6020	0.00080	< 0.00080
Sodium	mg/L	11/5/2008 1:33:00 PM	6010B	1.0	**9.1**
Zinc	mg/L	10/31/2008 8:34:28 PM	6020	0.0054	< 0.0054

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-03E
Field Sample ID: **RES-1**
Collected: 10/29/2008 3:00:00 PM
Received: 10/30/2008

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	11/5/2008 1:37:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	10/31/2008 8:39:52 PM	6020	0.00060	**0.0013**
Boron	mg/L	11/5/2008 1:37:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	10/31/2008 8:39:52 PM	6020	0.00018	< 0.00018
Calcium	mg/L	11/5/2008 12:54:00 PM	6010B	10	**79** ~
Copper	mg/L	10/31/2008 8:39:52 PM	6020	0.00080	< 0.00080
Iron	mg/L	11/5/2008 1:37:00 PM	6010B	0.050	< 0.050
Lead	mg/L	10/31/2008 8:39:52 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	11/5/2008 1:37:00 PM	6010B	1.0	**33**
Manganese	mg/L	10/31/2008 8:39:52 PM	6020	0.0012	**0.47**
Molybdenum	mg/L	11/5/2008 1:37:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	11/5/2008 1:37:00 PM	6010B	1.0	**7.2**
Selenium	mg/L	10/31/2008 8:39:52 PM	6020	0.00080	< 0.00080
Sodium	mg/L	11/5/2008 1:37:00 PM	6010B	1.0	**22**
Zinc	mg/L	10/31/2008 8:39:52 PM	6020	0.0054	< 0.0054

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L87283-04E
Field Sample ID: **Miller Outlet**
Collected: 10/29/2008 3:15:00 PM
Received: 10/30/2008

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	11/5/2008 1:41:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	10/31/2008 8:45:17 PM	6020	0.00060	**0.00063**
Boron	mg/L	11/5/2008 1:41:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	10/31/2008 8:45:17 PM	6020	0.00018	< 0.00018
Calcium	mg/L	11/5/2008 12:58:00 PM	6010B	10	**74** ~
Copper	mg/L	10/31/2008 8:45:17 PM	6020	0.00080	< 0.00080
Iron	mg/L	11/5/2008 1:41:00 PM	6010B	0.050	< 0.050
Lead	mg/L	10/31/2008 8:45:17 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	11/5/2008 1:41:00 PM	6010B	1.0	**17**
Manganese	mg/L	10/31/2008 8:45:17 PM	6020	0.0012	**0.0054**
Molybdenum	mg/L	11/5/2008 1:41:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	11/5/2008 1:41:00 PM	6010B	1.0	**2.0**
Selenium	mg/L	10/31/2008 8:45:17 PM	6020	0.00080	< 0.00080
Sodium	mg/L	11/5/2008 1:41:00 PM	6010B	1.0	**6.4**
Zinc	mg/L	10/31/2008 8:45:17 PM	6020	0.0054	**0.010**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-05E
Field Sample ID: **Aspen Spring**
Collected: 10/29/2008 12:00:00 PM
Received: 10/30/2008

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	11/5/2008 1:45:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	10/31/2008 9:03:43 PM	6020	0.00060	**0.00094**
Boron	mg/L	11/5/2008 1:45:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	10/31/2008 9:03:43 PM	6020	0.00018	< 0.00018
Calcium	mg/L	11/5/2008 1:02:00 PM	6010B	10	**92** ~
Copper	mg/L	10/31/2008 9:03:43 PM	6020	0.00080	**0.00089**
Iron	mg/L	11/5/2008 1:45:00 PM	6010B	0.050	**0.057**
Lead	mg/L	10/31/2008 9:03:43 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	11/5/2008 1:45:00 PM	6010B	1.0	**15**
Manganese	mg/L	10/31/2008 9:03:43 PM	6020	0.0012	**0.025**
Molybdenum	mg/L	11/5/2008 1:45:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	11/5/2008 1:45:00 PM	6010B	1.0	**6.0**
Selenium	mg/L	10/31/2008 9:03:43 PM	6020	0.00080	< 0.00080
Sodium	mg/L	11/5/2008 1:45:00 PM	6010B	1.0	**8.6**
Zinc	mg/L	10/31/2008 9:03:43 PM	6020	0.0054	**0.022**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-01
Field Sample ID: **Mud Creek**
Collected: 10/29/2008 2:15:00 PM
Received: 10/30/2008

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463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	10/31/2008 12:00:00 PM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**250**
Ammonia (as N)	mg/L	11/7/2008 9:59:00 AM	350.1	0.050	< 0.050 [1]
Bicarbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**250**
Carbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/11/2008 10:40:15 AM	300.0	0.50	**14**
Hardness (as CaCO3)	mg/L	11/5/2008	2340B	10	**320**
Nitrate (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	**0.20**
Nitrite (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/2/2008 4:03:00 PM	1664A	3.0	**6.2**
Phosphate, ortho (as P)	mg/L	10/30/2008 2:50:00 PM	365.1	0.050	< 0.050 [1]
Settleable Solids	ml/L	10/30/2008 11:00:00 AM	2540F	0.10	< 0.10
Sulfate	mg/L	11/11/2008 5:36:45 AM	300.0	75	**130**
TDS	mg/L	10/31/2008 2:30:00 PM	160.1	20	**460**
TSS	mg/L	10/30/2008 3:45:00 PM	2540D	3.0	**15**

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-02
Field Sample ID: **Sulfur Spring**
Collected: 10/29/2008 2:40:00 PM
Received: 10/30/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	10/31/2008 12:00:00 PM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**340**
Ammonia (as N)	mg/L	11/7/2008 9:59:00 AM	350.1	0.050	**0.074**
Bicarbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**340**
Carbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/11/2008 11:05:32 AM	300.0	0.50	**6.5**
Hardness (as CaCO3)	mg/L	11/5/2008	2340B	10	**370**
Nitrate (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/2/2008 4:03:00 PM	1664A	3.0	**4.4**
Phosphate, ortho (as P)	mg/L	10/31/2008 8:16:00 AM	365.1	0.050	< 0.050 [1]
Settleable Solids	ml/L	10/30/2008 11:00:00 AM	2540F	0.10	< 0.10
Sulfate	mg/L	11/11/2008 11:05:32 AM	300.0	3.8	**47**
TDS	mg/L	10/31/2008 2:30:00 PM	160.1	20	**390**
TSS	mg/L	10/30/2008 3:45:00 PM	2540D	3.0	< 3.0

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-03
Field Sample ID: **RES-1**
Collected: 10/29/2008 3:00:00 PM
Received: 10/30/2008

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	10/31/2008 12:00:00 PM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**300**
Ammonia (as N)	mg/L	11/7/2008 9:59:00 AM	350.1	0.050	**0.12**
Bicarbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**300**
Carbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/11/2008 8:33:44 AM	300.0	2.0	**31**
Hardness (as CaCO3)	mg/L	11/5/2008	2340B	10	**330**
Nitrate (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	**0.015**
Nitrite (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/2/2008 4:03:00 PM	1664A	3.0	**4.3**
Phosphate, ortho (as P)	mg/L	10/31/2008 8:16:00 AM	365.1	0.050	< 0.050
Settleable Solids	ml/L	10/30/2008 11:00:00 AM	2540F	0.10	**0.20**
Sulfate	mg/L	11/11/2008 8:33:44 AM	300.0	15	**57**
TDS	mg/L	10/31/2008 2:30:00 PM	160.1	20	**420**
TSS	mg/L	10/30/2008 3:45:00 PM	2540D	3.0	**99**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-04
Field Sample ID: **Miller Outlet**
Collected: 10/29/2008 3:15:00 PM
Received: 10/30/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	10/31/2008 12:00:00 PM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**230**
Ammonia (as N)	mg/L	11/7/2008 9:59:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	10	**18**
Chloride	mg/L	11/11/2008 11:30:50 AM	300.0	0.50	**9.8**
Hardness (as CaCO3)	mg/L	11/5/2008	2340B	10	**250**
Nitrate (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	**0.15**
Nitrite (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/2/2008 4:03:00 PM	1664A	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	10/31/2008 8:16:00 AM	365.1	0.050	< 0.050
Settleable Solids	ml/L	10/30/2008 11:00:00 AM	2540F	0.10	< 0.10
Sulfate	mg/L	11/11/2008 11:30:50 AM	300.0	3.8	**23**
TDS	mg/L	10/31/2008 2:30:00 PM	160.1	20	**290**
TSS	mg/L	10/30/2008 3:45:00 PM	2540D	3.0	**18**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-05
Field Sample ID: **Aspen Spring**
Collected: 10/29/2008 12:00:00 PM
Received: 10/30/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	10/31/2008 12:00:00 PM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**280**
Ammonia (as N)	mg/L	11/7/2008 9:59:00 AM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	20	**280**
Carbonate (As CaCO3)	mg/L	10/31/2008 8:00:00 AM	2320B	10	< 10
Chloride	mg/L	11/11/2008 11:56:08 AM	300.0	0.50	**25**
Hardness (as CaCO3)	mg/L	11/5/2008	2340B	10	**290**
Nitrate (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	10/31/2008 9:22:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	11/2/2008 4:03:00 PM	1664A	3.0	**4.0**
Phosphate, ortho (as P)	mg/L	10/31/2008 8:16:00 AM	365.1	0.050	< 0.050
Settleable Solids	ml/L	10/30/2008 11:00:00 AM	2540F	0.10	< 0.10
Sulfate	mg/L	11/11/2008 11:56:08 AM	300.0	3.8	**8.7**
TDS	mg/L	10/31/2008 2:30:00 PM	160.1	20	**370**
TSS	mg/L	10/30/2008 3:45:00 PM	2540D	3.0	**26**

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: ME
SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-43223	Arsenic	mg/L	6020	0.2096	0.2	0	105	85-115				10/31/2008
LCS-43223	Cadmium	mg/L	6020	0.2045	0.2	0	102	85-115				10/31/2008
LCS-43223	Copper	mg/L	6020	0.2042	0.2	0	102	85-115				10/31/2008
LCS-43223	Lead	mg/L	6020	0.2193	0.2	0	110	85-115				10/31/2008
LCS-43223	Manganese	mg/L	6020	0.2035	0.2	0	102	85-115				10/31/2008
LCS-43223	Selenium	mg/L	6020	0.1954	0.2	0	97.7	85-115				10/31/2008
LCS-43223	Zinc	mg/L	6020	1.047	1	0	105	85-115				10/31/2008
LCS-43221	Iron	mg/L	6010B	1.200	1	0	120	75-125				11/5/2008
LCS-43221	Manganese	mg/L	6010B	0.2230	0.2	0	112	75-125				11/5/2008
LCS-43223	Aluminum	mg/L	6010B	1.060	1	0	106	75-125				11/5/2008
LCS-43223	Boron	mg/L	6010B	1.020	1	0	102	75-125				11/5/2008
LCS-43223	Calcium	mg/L	6010B	11.00	10	0	110	75-125				11/5/2008
LCS-43223	Iron	mg/L	6010B	1.200	1	0	120	75-125				11/5/2008
LCS-43223	Magnesium	mg/L	6010B	11.60	10	0	116	75-125				11/5/2008
LCS-43223	Molybdenum	mg/L	6010B	0.2300	0.2	0	115	75-125				11/5/2008
LCS-43223	Potassium	mg/L	6010B	10.40	10	0	104	75-125				11/5/2008
LCS-43223	Sodium	mg/L	6010B	10.50	10	0	105	75-125				11/5/2008

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-43223	Arsenic	mg/L	6020	< 0.00060				-				10/31/2008
MB-43223	Cadmium	mg/L	6020	< 0.00018				-				10/31/2008
MB-43223	Copper	mg/L	6020	< 0.00080				-				10/31/2008
MB-43223	Lead	mg/L	6020	< 0.00040				-				10/31/2008
MB-43223	Manganese	mg/L	6020	< 0.0012				-				10/31/2008
MB-43223	Selenium	mg/L	6020	< 0.00080				-				10/31/2008
MB-43223	Zinc	mg/L	6020	< 0.0050				-				10/31/2008
MB-43221	Iron	mg/L	6010B	< 0.050				-				11/5/2008
MB-43221	Manganese	mg/L	6010B	< 0.0050				-				11/5/2008
MB-43223	Aluminum	mg/L	6010B	< 0.10				-				11/5/2008
MB-43223	Boron	mg/L	6010B	< 0.50				-				11/5/2008
MB-43223	Calcium	mg/L	6010B	< 1.0				-				11/5/2008
MB-43223	Iron	mg/L	6010B	< 0.050				-				11/5/2008
MB-43223	Magnesium	mg/L	6010B	< 1.0				-				11/5/2008
MB-43223	Molybdenum	mg/L	6010B	< 0.040				-				11/5/2008
MB-43223	Potassium	mg/L	6010B	< 1.0				-				11/5/2008
MB-43223	Sodium	mg/L	6010B	< 1.0				-				11/5/2008

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Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: ME
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L87283-01EMS	Arsenic	mg/L	6020	0.2101	0.2	0.000506	105	70-130				10/31/2008
L87283-01EMS	Cadmium	mg/L	6020	0.1977	0.2	0	98.9	70-130				10/31/2008
L87283-01EMS	Copper	mg/L	6020	0.2027	0.2	0.000797	101	70-130				10/31/2008
L87283-01EMS	Lead	mg/L	6020	0.2057	0.2	0	103	70-130				10/31/2008
L87283-01EMS	Manganese	mg/L	6020	0.2187	0.2	0.01178	103	70-130				10/31/2008
L87283-01EMS	Selenium	mg/L	6020	0.1986	0.2	0.000252	99.2	70-130				10/31/2008
L87283-01EMS	Zinc	mg/L	6020	1.014	1	0	101	70-130				10/31/2008
L87283-01FMS	Iron	mg/L	6010B	1.460	1	0.252	121	75-125				11/5/2008
L87283-01FMS	Manganese	mg/L	6010B	0.2420	0.2	0.0198	111	75-125				11/5/2008
L87283-01EMS	Calcium	mg/L	6010B	75.90	10	65.7	102	75-125				11/5/2008
L87283-01EMS	Aluminum	mg/L	6010B	1.070	1	0	107	75-125				11/5/2008
L87283-01EMS	Boron	mg/L	6010B	1.220	1	0.0885	113	75-125				11/5/2008
L87283-01EMS	Iron	mg/L	6010B	1.190	1	0	119	75-125				11/5/2008
L87283-01EMS	Magnesium	mg/L	6010B	48.20	10	37.9	103	75-125				11/5/2008
L87283-01EMS	Molybdenum	mg/L	6010B	0.2570	0.2	0.0285	114	75-125				11/5/2008
L87283-01EMS	Potassium	mg/L	6010B	19.00	10	6.85	122	75-125				11/5/2008
L87283-01EMS	Sodium	mg/L	6010B	47.80	10	37.2	106	75-125				11/5/2008

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(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L87283-01EMSD	Arsenic	mg/L	6020	0.2046	0.2	0.000506	102	70-130	2.66	20		10/31/2008
L87283-01EMSD	Cadmium	mg/L	6020	0.1949	0.2	0	97.5	70-130	1.42	20		10/31/2008
L87283-01EMSD	Copper	mg/L	6020	0.2005	0.2	0.000797	99.8	70-130	1.11	20		10/31/2008
L87283-01EMSD	Lead	mg/L	6020	0.2021	0.2	0	101	70-130	1.74	20		10/31/2008
L87283-01EMSD	Manganese	mg/L	6020	0.2160	0.2	0.01178	102	70-130	1.26	20		10/31/2008
L87283-01EMSD	Selenium	mg/L	6020	0.1951	0.2	0.000252	97.4	70-130	1.76	20		10/31/2008
L87283-01EMSD	Zinc	mg/L	6020	0.9837	1	0	98.4	70-130	3.02	20		10/31/2008
L87283-01FMSD	Iron	mg/L	6010B	1.420	1	0.252	117	75-125	2.78	20		11/5/2008
L87283-01FMSD	Manganese	mg/L	6010B	0.2410	0.2	0.0198	111	75-125	0.414	20		11/5/2008
L87283-01EMSD	Calcium	mg/L	6010B	76.40	10	65.7	107	75-125	0.657	20		11/5/2008
L87283-01EMSD	Aluminum	mg/L	6010B	1.060	1	0	106	75-125	0.939	20		11/5/2008
L87283-01EMSD	Boron	mg/L	6010B	1.200	1	0.0885	111	75-125	1.65	20		11/5/2008
L87283-01EMSD	Iron	mg/L	6010B	1.150	1	0	115	75-125	3.42	20		11/5/2008
L87283-01EMSD	Magnesium	mg/L	6010B	48.10	10	37.9	102	75-125	0.208	20		11/5/2008
L87283-01EMSD	Molybdenum	mg/L	6010B	0.2490	0.2	0.0285	110	75-125	3.16	20		11/5/2008
L87283-01EMSD	Potassium	mg/L	6010B	18.90	10	6.85	120	75-125	0.528	20		11/5/2008
L87283-01EMSD	Sodium	mg/L	6010B	48.70	10	37.2	115	75-125	1.87	20		11/5/2008

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L87261-03GDUP	TDS	mg/L	160.1	760.0	0	724		-	4.85	20		10/31/2008
L87283-05ADUP	TDS	mg/L	160.1	356.0	0	368		-	3.31	20		10/31/2008
L87311-04LDUP	TDS	mg/L	160.1	932.0	0	900		-	3.49	20		10/31/2008
L87266-02ADUP	TSS	mg/L	2540D	< 3.0	0	2		-	0	20		10/30/2008
L87267-01ADUP	TSS	mg/L	2540D	76.00	0	80		-	5.13	20		10/30/2008
L87283-01ADUP	TSS	mg/L	2540D	13.00	0	15		-	14.3	20		10/30/2008

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R88501	Alkalinity,(As CaCO3)	mg/L	2320B	50750	50000	0	102	90-110				10/31/2008
LCS-R88946	Chloride	mg/L	300.0	4.893	5	0	97.9	90-110				11/11/2008
LCS-R88946	Sulfate	mg/L	300.0	5.036	5	0	101	90-110				11/11/2008
LCS-R88574	Acidity	mg/L	2310B	20.00	20	0	100	80-120				10/31/2008
LCS-43317	Ammonia (as N)	mg/L	350.1	1.006	1	0	101	90-110				11/7/2008
LCS-88508	Nitrite (as N)	mg/L	353.2	0.9979	1	0	99.8	90-110				10/31/2008
LCS-88509	Nitrate (as N)	mg/L	353.2	1.019	1	0	102	90-110				10/31/2008
LCS-88609	Oil & Grease	mg/L	1664A	42.60	40	0	106	78-114				11/2/2008
LCS-R88465	Phosphate, ortho (as P)	mg/L	365.1	1.006	1	0.0462	96.0	90-110				10/30/2008
LCS-88500	Phosphate, ortho (as P)	mg/L	365.1	1.014	1	0.0068	101	90-110				10/31/2008
LCS-R88623	TDS	mg/L	160.1	204.0	205	0	99.5	80-120				10/31/2008
LCS-R88505	TSS	mg/L	2540D	98.00	100	0	98.0	80-120				10/30/2008

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R88501	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				10/31/2008
MB-R88501	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				10/31/2008
MB-R88501	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				10/31/2008
MB-R88946	Chloride	mg/L	300.0	< 0.10				-				11/11/2008
MB-R88946	Sulfate	mg/L	300.0	< 0.75				-				11/11/2008
MB-R88574	Acidity	mg/L	2310B	< 15				-				10/31/2008
MB-43317	Ammonia (as N)	mg/L	350.1	< 0.050				-				11/7/2008
MB-88508	Nitrite (as N)	mg/L	353.2	< 0.010				-				10/31/2008
MB-88509	Nitrate (as N)	mg/L	353.2	< 0.010				-				10/31/2008
MB-88609	Oil & Grease	mg/L	1664A	< 3.0				-				11/2/2008
MB-R88465	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				10/30/2008
MB-88500	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				10/31/2008
MB-R88623	TDS	mg/L	160.1	< 10				-				10/31/2008
M-R88505	TSS	mg/L	2540D	< 3.0				-				10/30/2008

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Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L87283-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	354.0	100	249	105	80-120				10/31/2008
L87283-01BMS	Chloride	mg/L	300.0	504.4	500	13.76	98.1	90-110				11/11/2008
L87283-01BMS	Sulfate	mg/L	300.0	624.6	500	129.3	99.1	90-110				11/11/2008
L87283-05BMS	Acidity	mg/L	2310B	50.00	50	0	100	80-120				10/31/2008
L87238-05FMS	Ammonia (as N)	mg/L	350.1	0.9282	1	0	92.8	90-110				11/7/2008
L87261-03EMS	Ammonia (as N)	mg/L	350.1	1.276	1	0.4669	81.0	90-110			[1]	11/7/2008
L87283-01DMS	Ammonia (as N)	mg/L	350.1	0.8935	1	0	89.4	90-110			[1]	11/7/2008
L87299-01IMS	Ammonia (as N)	mg/L	350.1	1.327	1	0.4357	89.1	90-110			[1]	11/7/2008
L87283-01BMS	Nitrite (as N)	mg/L	353.2	1.028	1	0	103	90-110				10/31/2008
L87283-01BMS	Nitrate (as N)	mg/L	353.2	1.245	1	0.1955	105	90-110				10/31/2008
L87311-04FMS	Nitrate (as N)	mg/L	353.2	1.006	1	0.0822	92.3	90-110				10/31/2008
L87283-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.8012	1	0.0433	75.8	90-110			[1]	10/30/2008
L87283-02BMS	Phosphate, ortho (as P)	mg/L	365.1	0.7902	1	0.0104	78.0	90-110			[1]	10/31/2008

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L87283-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	354.0	100	249	105	80-120	0	10		10/31/2008
L87283-01BMSD	Chloride	mg/L	300.0	500.2	500	13.76	97.3	90-110	0.828	20		11/11/2008
L87283-01BMSD	Sulfate	mg/L	300.0	619.6	500	129.3	98.1	90-110	0.803	20		11/11/2008
L87283-05BMSD	Acidity	mg/L	2310B	48.00	50	0	96.0	80-120	4.08	20		10/31/2008
L87238-05FMSD	Ammonia (as N)	mg/L	350.1	0.9491	1	0	94.9	90-110	2.23	10		11/7/2008
L87261-03EMSD	Ammonia (as N)	mg/L	350.1	1.272	1	0.4669	80.5	90-110	0.377	10	[1]	11/7/2008
L87283-01DMSD	Ammonia (as N)	mg/L	350.1	0.9356	1	0	93.6	90-110	4.60	10		11/7/2008
L87299-01IMSD	Ammonia (as N)	mg/L	350.1	1.296	1	0.4357	86.1	90-110	2.33	10	[1]	11/7/2008
L87283-01BMSD	Nitrite (as N)	mg/L	353.2	1.016	1	0	102	90-110	1.11	10		10/31/2008
L87283-01BMSD	Nitrate (as N)	mg/L	353.2	1.239	1	0.1955	104	90-110	0.515	10		10/31/2008
L87311-04FMSD	Nitrate (as N)	mg/L	353.2	1.004	1	0.0822	92.2	90-110	0.149	10		10/31/2008
L87283-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.8339	1	0.0433	79.1	90-110	4.00	10	[1]	10/30/2008
L87283-02BMSD	Phosphate, ortho (as P)	mg/L	365.1	0.7940	1	0.0104	78.4	90-110	0.480	10	[1]	10/31/2008

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-88609	Oil & Grease	mg/L	1664A	44.90	40	0	112	79-114				11/2/2008

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-88609	Oil & Grease	mg/L	1664A	44.50	40	0	111	78-114	0.895	18		11/2/2008

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American West Analytical Labs

WORK ORDER Summary

31-Oct-08

Work Order L87283

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+; EDD report.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L87283-01A	Mud Creek	10/29/2008 2:15:00 PM	10/30/2008	11/13/2008	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				11/13/2008		TDS-W	ww - tss/tds/ss	1
				11/13/2008		TSS-W-2540D	ww - tss/tds/ss	1
L87283-01B				11/13/2008		2320B-ALK-W	oct 30 - wc	1
				11/13/2008		300.0-W	oct 30 - wc	1
				11/13/2008		ACIDITY-W-2310B	oct 30 - wc	1
				11/13/2008		NO2-W	oct 30 - wc	1
				11/13/2008		NO3-W	oct 30 - wc	1
				11/13/2008		PO4-O	oct 30 - wc	1
L87283-01C				11/13/2008		OGB-W	OGBFridge	1
L87283-01D				11/13/2008		NH3-W	oct 30 - nh3	1
				11/13/2008		NH3-W-PREP	oct 30 - nh3	1
L87283-01E				11/13/2008	Aqueous-Dissolved	3005A-Diss	oct 30 - dis met	1
				11/13/2008		6020-W-DISS	oct 30 - dis met	1
				11/13/2008		HARD	oct 30 - dis met	1
				11/13/2008		ICP-W-DIS	oct 30 - dis met	1
L87283-01F				11/13/2008	Aqueous	3005A-ICPMS	oct 30 - met	1
				11/13/2008		ICP-W	oct 30 - met	1
L87283-02A	Sulfur Spring	10/29/2008 2:40:00 PM		11/13/2008		SS-W-2540F	ww - tss/tds/ss	1
				11/13/2008		TDS-W	ww - tss/tds/ss	1
				11/13/2008		TSS-W-2540D	ww - tss/tds/ss	1
L87283-02B				11/13/2008		2320B-ALK-W	oct 30 - wc	1
				11/13/2008		300.0-W	oct 30 - wc	1
				11/13/2008		ACIDITY-W-2310B	oct 30 - wc	1
				11/13/2008		NO2-W	oct 30 - wc	1
				11/13/2008		NO3-W	oct 30 - wc	1
				11/13/2008		PO4-O	oct 30 - wc	1

WORK ORDER Summary

31-Oct-08

Work Order L87283

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+; EDD report.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L87283-02C	Sulfur Spring	10/29/2008 2:40:00 PM	10/30/2008	11/13/2008	Aqueous	OGB-W	OGBFridge	1
L87283-02D				11/13/2008		NH3-W	oct 30 - nh3	1
				11/13/2008		NH3-W-PREP	oct 30 - nh3	1
L87283-02E				11/13/2008	Aqueous-Dissolved	3005A-Diss	oct 30 - dis met	1
				11/13/2008		6020-W-DISS	oct 30 - dis met	1
				11/13/2008		HARD	oct 30 - dis met	1
				11/13/2008		ICP-W-DIS	oct 30 - dis met	1
L87283-02F				11/13/2008	Aqueous	3005A-ICPMS	oct 30 - met	1
				11/13/2008		ICP-W	oct 30 - met	1
L87283-03A	RES-1	10/29/2008 3:00:00 PM		11/13/2008		SS-W-2540F	ww - tss/tds/ss	1
				11/13/2008		TDS-W	ww - tss/tds/ss	1
				11/13/2008		TSS-W-2540D	ww - tss/tds/ss	1
L87283-03B				11/13/2008		2320B-ALK-W	oct 30 - wc	1
				11/13/2008		300.0-W	oct 30 - wc	1
				11/13/2008		ACIDITY-W-2310B	oct 30 - wc	1
				11/13/2008		NO2-W	oct 30 - wc	1
				11/13/2008		NO3-W	oct 30 - wc	1
				11/13/2008		PO4-O	oct 30 - wc	1
L87283-03C				11/13/2008		OGB-W	OGBFridge	1
L87283-03D				11/13/2008		NH3-W	oct 30 - nh3	1
				11/13/2008		NH3-W-PREP	oct 30 - nh3	1
L87283-03E				11/13/2008	Aqueous-Dissolved	3005A-Diss	oct 30 - dis met	1
				11/13/2008		6020-W-DISS	oct 30 - dis met	1
				11/13/2008		HARD	oct 30 - dis met	1
				11/13/2008		ICP-W-DIS	oct 30 - dis met	1
L87283-03F				11/13/2008	Aqueous	3005A-ICPMS	oct 30 - met	1
				11/13/2008		ICP-W	oct 30 - met	1
L87283-04A	Miller Outlet	10/29/2008 3:15:00 PM		11/13/2008		SS-W-2540F	ww - tss/tds/ss	1

WORK ORDER Summary

31-Oct-08

Work Order L87283

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+; EDD report.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L87283-04A	Miller Outlet	10/29/2008 3:15:00 PM	10/30/2008	11/13/2008	Aqueous	TDS-W	ww - tss/tds/ss	1
				11/13/2008		TSS-W-2540D	ww - tss/tds/ss	1
L87283-04B				11/13/2008		2320B-ALK-W	oct 30 - wc	1
				11/13/2008		300.0-W	oct 30 - wc	1
				11/13/2008		ACIDITY-W-2310B	oct 30 - wc	1
				11/13/2008		NO2-W	oct 30 - wc	1
				11/13/2008		NO3-W	oct 30 - wc	1
				11/13/2008		PO4-O	oct 30 - wc	1
L87283-04C				11/13/2008		OGB-W	OGBFridge	1
L87283-04D				11/13/2008		NH3-W	oct 30 - nh3	1
				11/13/2008		NH3-W-PREP	oct 30 - nh3	1
L87283-04E				11/13/2008	Aqueous-Dissolved	3005A-Diss	oct 30 - dis met	1
				11/13/2008		6020-W-DISS	oct 30 - dis met	1
				11/13/2008		HARD	oct 30 - dis met	1
				11/13/2008		ICP-W-DIS	oct 30 - dis met	1
L87283-04F				11/13/2008	Aqueous	3005A-ICPMS	oct 30 - met	1
				11/13/2008		ICP-W	oct 30 - met	1
L87283-05A	Aspen Spring	10/29/2008 12:00:00 PM		11/13/2008		SS-W-2540F	ww - tss/tds/ss	1
				11/13/2008		TDS-W	ww - tss/tds/ss	1
				11/13/2008		TSS-W-2540D	ww - tss/tds/ss	1
L87283-05B				11/13/2008		2320B-ALK-W	oct 30 - wc	1
				11/13/2008		300.0-W	oct 30 - wc	1
				11/13/2008		ACIDITY-W-2310B	oct 30 - wc	1
				11/13/2008		NO2-W	oct 30 - wc	1
				11/13/2008		NO3-W	oct 30 - wc	1
				11/13/2008		PO4-O	oct 30 - wc	1
L87283-05C				11/13/2008		OGB-W	OGBFridge	1
L87283-05D				11/13/2008		NH3-W	oct 30 - nh3	1

WORK ORDER Summary

31-Oct-08

Work Order L87283

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+; EDD report.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L87283-05D	Aspen Spring	10/29/2008 12:00:00 PM	10/30/2008	11/13/2008	Aqueous	NH3-W-PREP	oct 30 - nh3	1
L87283-05E				11/13/2008	Aqueous-Dissolved	3005A-Diss	oct 30 - dis met	1
				11/13/2008		6020-W-DISS	oct 30 - dis met	1
				11/13/2008		HARD	oct 30 - dis met	1
				11/13/2008		ICP-W-DIS	oct 30 - dis met	1
L87283-05F				11/13/2008	Aqueous	3005A-ICPMS	oct 30 - met	1
				11/13/2008		ICP-W	oct 30 - met	1

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE CO 81413
City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.# —

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 87283

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 3 (ON FILE)	QC LEVEL	COMMENTS
MUD CREEK	10/29/08 14:15	W	6	✓	1 2 2+ 3 3+ 4	
SULFUR SPRING	14:40			✓		
RES-1	15:00			✓		
MILLER OUTLET	15:15			✓		
ASPEN SPRING	12:00			✓		

LABORATORY USE ONLY

SAMPLES WERE:
1 (Shipped or hand delivered) Notes: UPS
2 Ambient or (Chilled) Notes:
3 Temperature 2.1
4 Received Broken/Leaking (Improperly Sealed) Y (N) Notes:
5 (Properly Preserved) Y N Notes:
6 Received Within Holding Times (Y) N Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 16:30	PRINT NAME UPS
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date 10/30/08	Received By: Signature
PRINT NAME	Time 2031	PRINT NAME Elena Hayes

Special Instructions:

PLEASE FILTER

Shipping 32.00

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.
½ gallon HDPE

Sample Set: 87283

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

April 14, 2008

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L83169

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 3/27/2008 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Approved by: _____
Laboratory Director or designee

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L83169-01E
Field Sample ID: **Mud Creek**
Collected: 3/25/2008 6:45:00 PM
Received: 3/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Iron	mg/L	4/2/2008 5:14:00 PM	6010B	0.050	**2.4**	[1]
Manganese	mg/L	4/2/2008 5:14:00 PM	6010B	0.0050	**0.024**	[1] @

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

@ High RPD due to suspected matrix interference.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Lab Sample ID: L83169-02E
Field Sample ID: **Sulfur Spring**
Collected: 3/25/2008 4:45:00 PM
Received: 3/27/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/10/2008 6:42:00 PM	6010B	0.050	< 0.050
Manganese	mg/L	4/10/2008 6:42:00 PM	6010B	0.0050	**0.033**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Lab Sample ID: L83169-03E
Field Sample ID: **Miller Outlet**
Collected: 3/25/2008 5:50:00 PM
Received: 3/27/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/2/2008 5:31:00 PM	6010B	0.050	**1.6**
Manganese	mg/L	4/2/2008 5:31:00 PM	6010B	0.0050	**0.25**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-04E
Field Sample ID: **Res-1**
Collected: 3/25/2008 5:10:00 PM
Received: 3/27/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	4/2/2008 5:35:00 PM	6010B	0.050	< 0.050
Manganese	mg/L	4/2/2008 5:35:00 PM	6010B	0.0050	**0.033**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-01F
Field Sample ID: **Mud Creek**
Collected: 3/25/2008 6:45:00 PM
Received: 3/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

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Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	4/2/2008 2:47:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	3/31/2008 7:25:15 PM	6020	0.00060	< 0.00060
Boron	mg/L	4/2/2008 2:47:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	3/31/2008 7:25:15 PM	6020	0.00018	< 0.00018
Calcium	mg/L	4/2/2008 2:16:00 PM	6010B	10	**68** #
Copper	mg/L	3/31/2008 7:25:15 PM	6020	0.00080	**0.0034**
Iron	mg/L	4/2/2008 2:47:00 PM	6010B	0.050	< 0.050
Lead	mg/L	3/31/2008 7:25:15 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	4/2/2008 2:47:00 PM	6010B	1.0	**35**
Manganese	mg/L	3/31/2008 7:25:15 PM	6020	0.0012	**0.030**
Molybdenum	mg/L	4/2/2008 2:47:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	4/2/2008 2:47:00 PM	6010B	1.0	**6.4**
Selenium	mg/L	3/31/2008 7:25:15 PM	6020	0.00080	< 0.00080
Sodium	mg/L	4/2/2008 2:47:00 PM	6010B	1.0	**49**
Zinc	mg/L	3/31/2008 7:25:15 PM	6020	0.0054	**0.0076**

 # The reporting limits were raised due to high analyte concentration.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L83169-02F
Field Sample ID: **Sulfur Spring**
Collected: 3/25/2008 4:45:00 PM
Received: 3/27/2008

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	4/2/2008 3:07:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	3/31/2008 8:03:04 PM	6020	0.00060	< 0.00060
Boron	mg/L	4/2/2008 3:07:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	3/31/2008 8:03:04 PM	6020	0.00018	< 0.00018
Calcium	mg/L	4/2/2008 2:28:00 PM	6010B	10	**86** #
Copper	mg/L	3/31/2008 8:03:04 PM	6020	0.00080	**0.0015**
Iron	mg/L	4/2/2008 3:07:00 PM	6010B	0.050	< 0.050
Lead	mg/L	3/31/2008 8:03:04 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	4/2/2008 3:07:00 PM	6010B	1.0	**35**
Manganese	mg/L	3/31/2008 8:03:04 PM	6020	0.0012	**0.032**
Molybdenum	mg/L	4/2/2008 3:07:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	4/2/2008 3:07:00 PM	6010B	1.0	**4.8**
Selenium	mg/L	3/31/2008 8:03:04 PM	6020	0.00080	< 0.00080
Sodium	mg/L	4/2/2008 3:07:00 PM	6010B	1.0	**10**
Zinc	mg/L	3/31/2008 8:03:04 PM	6020	0.0054	< 0.0054

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-03F
Field Sample ID: **Miller Outlet**
Collected: 3/25/2008 5:50:00 PM
Received: 3/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	4/2/2008 3:11:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	3/31/2008 8:08:29 PM	6020	0.00060	< 0.00060
Boron	mg/L	4/2/2008 3:11:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	3/31/2008 8:08:29 PM	6020	0.00018	< 0.00018
Calcium	mg/L	4/2/2008 2:32:00 PM	6010B	10	**82** #
Copper	mg/L	3/31/2008 8:08:29 PM	6020	0.00080	**0.0017**
Iron	mg/L	4/2/2008 3:11:00 PM	6010B	0.050	< 0.050
Lead	mg/L	3/31/2008 8:08:29 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	4/2/2008 3:11:00 PM	6010B	1.0	**15**
Manganese	mg/L	3/31/2008 8:08:29 PM	6020	0.0012	**0.043**
Molybdenum	mg/L	4/2/2008 3:11:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	4/2/2008 3:11:00 PM	6010B	1.0	**2.1**
Selenium	mg/L	3/31/2008 8:08:29 PM	6020	0.00080	< 0.00080
Sodium	mg/L	4/2/2008 3:11:00 PM	6010B	1.0	**6.6**
Zinc	mg/L	3/31/2008 8:08:29 PM	6020	0.0054	< 0.0054

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-04F
Field Sample ID: **Res-1**
Collected: 3/25/2008 5:10:00 PM
Received: 3/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	4/2/2008 3:14:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	3/31/2008 8:13:53 PM	6020	0.00060	**0.00072**
Boron	mg/L	4/2/2008 3:14:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	3/31/2008 8:13:53 PM	6020	0.00018	< 0.00018
Calcium	mg/L	4/2/2008 2:36:00 PM	6010B	10	**70** #
Copper	mg/L	3/31/2008 8:13:53 PM	6020	0.00080	**0.0029**
Iron	mg/L	4/2/2008 3:14:00 PM	6010B	0.050	**0.072**
Lead	mg/L	3/31/2008 8:13:53 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	4/2/2008 3:14:00 PM	6010B	1.0	**36**
Manganese	mg/L	3/31/2008 8:13:53 PM	6020	0.0012	**0.14**
Molybdenum	mg/L	4/2/2008 3:14:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	4/2/2008 3:14:00 PM	6010B	1.0	**6.0**
Selenium	mg/L	3/31/2008 8:13:53 PM	6020	0.00080	< 0.00080
Sodium	mg/L	4/2/2008 3:14:00 PM	6010B	1.0	**41**
Zinc	mg/L	3/31/2008 8:13:53 PM	6020	0.0054	**0.0065**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L83169-01
Field Sample ID: **Mud Creek**
Collected: 3/25/2008 6:45:00 PM
Received: 3/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	3/28/2008 5:45:00 AM	2310B	15	< 15	
Alkalinity,(As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	20	**230**	
Ammonia (as N)	mg/L	4/1/2008 11:08:00 AM	350.1	0.050	< 0.050	
Bicarbonate (As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	20	**230**	
Carbonate (As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	10	< 10	
Chloride	mg/L	3/29/2008 11:27:04 PM	300.0	1.0	**45**	
Hardness (as CaCO3)	mg/L	4/2/2008	2340B	10	**320**	
Nitrate (as N)	mg/L	3/27/2008 11:39:00 AM	353.2	0.010	**0.12**	
Nitrite (as N)	mg/L	3/27/2008 11:39:00 AM	353.2	0.010	< 0.010	1
Oil & Grease	mg/L	3/31/2008 10:30:00 AM	1664A	3.0	< 3.0	
Phosphate, ortho (as P)	mg/L	3/27/2008 12:39:00 PM	365.1	0.050	< 0.050	
Settleable Solids	ml/L	3/27/2008 12:00:00 PM	2540F	0.10	**0.10**	
Sulfate	mg/L	3/29/2008 11:27:04 PM	300.0	7.5	**130**	1
TDS	mg/L	3/28/2008 2:45:00 PM	160.1	20	**490**	
TSS	mg/L	3/27/2008 3:30:00 PM	2540D	3.0	**26**	

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-02
Field Sample ID: **Sulfur Spring**
Collected: 3/25/2008 4:45:00 PM
Received: 3/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	3/28/2008 5:45:00 AM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	20	**340**
Ammonia (as N)	mg/L	4/1/2008 11:08:00 AM	350.1	0.050	**0.077**
Bicarbonate (As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	20	**340**
Carbonate (As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/30/2008 12:36:56 AM	300.0	1.0	**9.3**
Hardness (as CaCO3)	mg/L	4/2/2008	2340B	10	**360**
Nitrate (as N)	mg/L	3/27/2008 11:39:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	3/27/2008 11:39:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	3/31/2008 10:30:00 AM	1664A	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	3/27/2008 12:39:00 PM	365.1	0.050	< 0.050
Settleable Solids	ml/L	3/27/2008 12:00:00 PM	2540F	0.10	< 0.10
Sulfate	mg/L	3/30/2008 12:36:56 AM	300.0	7.5	**44**
TDS	mg/L	3/28/2008 2:45:00 PM	160.1	20	**400**
TSS	mg/L	3/27/2008 3:30:00 PM	2540D	3.0	< 3.0

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L83169-03
Field Sample ID: **Miller Outlet**
Collected: 3/25/2008 5:50:00 PM
Received: 3/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	3/28/2008 5:45:00 AM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	20	**250**
Ammonia (as N)	mg/L	4/1/2008 11:08:00 AM	350.1	0.050	**0.095**
Bicarbonate (As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	20	**250**
Carbonate (As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/30/2008 1:00:14 AM	300.0	1.0	**9.4**
Hardness (as CaCO3)	mg/L	4/2/2008	2340B	10	**270**
Nitrate (as N)	mg/L	3/27/2008 11:39:00 AM	353.2	0.010	**0.64**
Nitrite (as N)	mg/L	3/27/2008 11:39:00 AM	353.2	0.010	**0.014**
Oil & Grease	mg/L	3/31/2008 10:30:00 AM	1664A	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	3/27/2008 12:39:00 PM	365.1	0.050	< 0.050
Settleable Solids	ml/L	3/27/2008 12:00:00 PM	2540F	0.10	**0.50**
Sulfate	mg/L	3/30/2008 1:00:14 AM	300.0	7.5	**29**
TDS	mg/L	3/28/2008 2:45:00 PM	160.1	20	**330**
TSS	mg/L	3/27/2008 3:30:00 PM	2540D	3.0	**430**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L83169-04
Field Sample ID: **Res-1**
Collected: 3/25/2008 5:10:00 PM
Received: 3/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	3/28/2008 5:45:00 AM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	20	**220**
Ammonia (as N)	mg/L	4/1/2008 11:08:00 AM	350.1	0.050	**0.20**
Bicarbonate (As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	3/28/2008 6:00:00 AM	2320B	10	< 10
Chloride	mg/L	3/30/2008 1:23:32 AM	300.0	1.0	**40**
Hardness (as CaCO3)	mg/L	4/2/2008	2340B	10	**320**
Nitrate (as N)	mg/L	3/27/2008 11:39:00 AM	353.2	0.010	**0.15**
Nitrite (as N)	mg/L	3/27/2008 11:39:00 AM	353.2	0.010	**0.011**
Oil & Grease	mg/L	3/31/2008 10:30:00 AM	1664A	3.0	< 3.0
Phosphate, ortho (as P)	mg/L	3/27/2008 12:39:00 PM	365.1	0.050	< 0.050
Settleable Solids	ml/L	3/27/2008 12:00:00 PM	2540F	0.10	**0.30**
Sulfate	mg/L	3/30/2008 1:23:32 AM	300.0	7.5	**110**
TDS	mg/L	3/28/2008 2:45:00 PM	160.1	20	**470**
TSS	mg/L	3/27/2008 3:30:00 PM	2540D	3.0	**180**

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-39726	Arsenic	mg/L	6020	0.2134	0.2	0	107	85-115				3/31/2008
LCS-39726	Cadmium	mg/L	6020	0.1968	0.2	0	98.4	85-115				3/31/2008
LCS-39726	Copper	mg/L	6020	0.2228	0.2	0.000799	111	85-115				3/31/2008
LCS-39726	Lead	mg/L	6020	0.2251	0.2	0	113	85-115				3/31/2008
LCS-39726	Manganese	mg/L	6020	0.1982	0.2	0.000577	98.8	85-115				3/31/2008
LCS-39726	Selenium	mg/L	6020	0.1789	0.2	0	89.4	85-115				3/31/2008
LCS-39726	Zinc	mg/L	6020	1.004	1	0	100	85-115				3/31/2008
LCS-39739	Iron	mg/L	6010B	1.040	1	0	104	75-125				4/2/2008
LCS-39739	Manganese	mg/L	6010B	0.2010	0.2	0	101	75-125				4/2/2008
LCS-39937	Iron	mg/L	6010B	0.9973	1	0	99.7	75-125				4/10/2008
LCS-39937	Manganese	mg/L	6010B	0.1960	0.2	0	98.0	75-125				4/10/2008
LCS-39726	Aluminum	mg/L	6010B	0.9810	1	0	98.1	75-125				4/2/2008
LCS-39726	Boron	mg/L	6010B	1.010	1	0	101	75-125				4/2/2008
LCS-39726	Calcium	mg/L	6010B	9.820	10	0.063	97.6	75-125				4/2/2008
LCS-39726	Iron	mg/L	6010B	1.040	1	0.00831	103	75-125				4/2/2008
LCS-39726	Magnesium	mg/L	6010B	10.10	10	0	101	75-125				4/2/2008
LCS-39726	Molybdenum	mg/L	6010B	0.2050	0.2	0.00541	99.8	75-125				4/2/2008
LCS-39726	Potassium	mg/L	6010B	9.740	10	0.222	95.2	75-125				4/2/2008
LCS-39726	Sodium	mg/L	6010B	9.130	10	0	91.3	75-125				4/2/2008

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: ME

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-39726	Arsenic	mg/L	6020	< 0.00060				-				3/31/2008
MB-39726	Cadmium	mg/L	6020	< 0.00018				-				3/31/2008
MB-39726	Copper	mg/L	6020	< 0.00080				-				3/31/2008
MB-39726	Lead	mg/L	6020	< 0.00040				-				3/31/2008
MB-39726	Manganese	mg/L	6020	< 0.0012				-				3/31/2008
MB-39726	Selenium	mg/L	6020	< 0.00080				-				3/31/2008
MB-39726	Zinc	mg/L	6020	< 0.0050				-				3/31/2008
MB-39739	Iron	mg/L	6010B	< 0.050				-				4/2/2008
MB-39739	Manganese	mg/L	6010B	< 0.0050				-				4/2/2008
MB-39937	Iron	mg/L	6010B	< 0.050				-				4/10/2008
MB-39937	Manganese	mg/L	6010B	< 0.0050				-				4/10/2008
MB-39726	Aluminum	mg/L	6010B	< 0.10				-				4/2/2008
MB-39726	Boron	mg/L	6010B	< 0.50				-				4/2/2008
MB-39726	Calcium	mg/L	6010B	< 1.0				-				4/2/2008
MB-39726	Iron	mg/L	6010B	< 0.050				-				4/2/2008
MB-39726	Magnesium	mg/L	6010B	< 1.0				-				4/2/2008
MB-39726	Molybdenum	mg/L	6010B	< 0.040				-				4/2/2008
MB-39726	Potassium	mg/L	6010B	< 1.0				-				4/2/2008
MB-39726	Sodium	mg/L	6010B	< 1.0				-				4/2/2008

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L83169-01FMS	Arsenic	mg/L	6020	0.2112	0.2	0.000221	105	70-130				3/31/2008
L83169-01FMS	Cadmium	mg/L	6020	0.1976	0.2	0	98.8	70-130				3/31/2008
L83169-01FMS	Copper	mg/L	6020	0.2148	0.2	0.003392	106	70-130				3/31/2008
L83169-01FMS	Lead	mg/L	6020	0.2176	0.2	0.000322	109	70-130				3/31/2008
L83169-01FMS	Manganese	mg/L	6020	0.2266	0.2	0.02999	98.3	70-130				3/31/2008
L83169-01FMS	Selenium	mg/L	6020	0.1773	0.2	0.00028	88.5	70-130				3/31/2008
L83169-01FMS	Zinc	mg/L	6020	1.005	1	0.007633	99.7	70-130				3/31/2008
L83169-01EMS	Iron	mg/L	6010B	0.5740	1	2.38	-181	75-125			[1]	4/2/2008
L83169-01EMS	Manganese	mg/L	6010B	0.04950	0.2	0.0242	12.6	75-125			[1]	4/2/2008
L83169-02EMS	Iron	mg/L	6010B	1.040	1	0.03146	101	75-125				4/10/2008
L83169-02EMS	Manganese	mg/L	6010B	0.2302	0.2	0.0327	98.7	75-125				4/10/2008
L83169-01FMS	Aluminum	mg/L	6010B	1.020	1	0.04914	97.1	75-125				4/2/2008
L83169-01FMS	Boron	mg/L	6010B	1.150	1	0.1325	102	75-125				4/2/2008
L83169-01FMS	Iron	mg/L	6010B	1.050	1	0.01798	103	75-125				4/2/2008
L83169-01FMS	Magnesium	mg/L	6010B	44.40	10	35.14	92.6	75-125				4/2/2008
L83169-01FMS	Molybdenum	mg/L	6010B	0.2040	0.2	0.00527	99.4	75-125				4/2/2008
L83169-01FMS	Potassium	mg/L	6010B	16.00	10	6.363	96.4	75-125				4/2/2008
L83169-01FMS	Sodium	mg/L	6010B	58.90	10	49.31	95.9	75-125				4/2/2008
L83169-01FMS	Calcium	mg/L	6010B	78.00	10	68.5	95.0	75-125				4/2/2008

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L83169-01FMSD	Arsenic	mg/L	6020	0.2149	0.2	0.000221	107	70-130	1.74	20		3/31/2008
L83169-01FMSD	Cadmium	mg/L	6020	0.2002	0.2	0	100	70-130	1.34	20		3/31/2008
L83169-01FMSD	Copper	mg/L	6020	0.2108	0.2	0.003392	104	70-130	1.88	20		3/31/2008
L83169-01FMSD	Lead	mg/L	6020	0.2181	0.2	0.000322	109	70-130	0.230	20		3/31/2008
L83169-01FMSD	Manganese	mg/L	6020	0.2279	0.2	0.02999	99.0	70-130	0.593	20		3/31/2008
L83169-01FMSD	Selenium	mg/L	6020	0.1862	0.2	0.00028	93.0	70-130	4.87	20		3/31/2008
L83169-01FMSD	Zinc	mg/L	6020	1.006	1	0.007633	99.9	70-130	0.192	20		3/31/2008
L83169-01EMSD	Iron	mg/L	6010B	1.610	1	2.38	-77.0	75-125	94.9	20	[1]	4/2/2008
L83169-01EMSD	Manganese	mg/L	6010B	0.2560	0.2	0.0242	116	75-125	135	20	@	4/2/2008
L83169-02EMSD	Iron	mg/L	6010B	1.033	1	0.03146	100	75-125	0.705	20		4/10/2008
L83169-02EMSD	Manganese	mg/L	6010B	0.2267	0.2	0.0327	97.0	75-125	1.52	20		4/10/2008
L83169-01FMSD	Aluminum	mg/L	6010B	1.070	1	0.04914	102	75-125	4.78	20		4/2/2008
L83169-01FMSD	Boron	mg/L	6010B	1.180	1	0.1325	105	75-125	2.58	20		4/2/2008
L83169-01FMSD	Iron	mg/L	6010B	1.050	1	0.01798	103	75-125	0	20		4/2/2008
L83169-01FMSD	Magnesium	mg/L	6010B	44.90	10	35.14	97.6	75-125	1.12	20		4/2/2008
L83169-01FMSD	Molybdenum	mg/L	6010B	0.2090	0.2	0.00527	102	75-125	2.42	20		4/2/2008
L83169-01FMSD	Potassium	mg/L	6010B	16.40	10	6.363	100	75-125	2.47	20		4/2/2008
L83169-01FMSD	Sodium	mg/L	6010B	59.90	10	49.31	106	75-125	1.68	20		4/2/2008
L83169-01FMSD	Calcium	mg/L	6010B	76.40	10	68.5	79.0	75-125	2.07	20		4/2/2008

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: WC
SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L83161-05DDUP	TDS	mg/L	160.1	908.0	0	944		-	3.89	20		3/28/2008
L83162-01CDUP	TDS	mg/L	160.1	684.0	0	656		-	4.18	20		3/28/2008
L83169-01ADUP	TDS	mg/L	160.1	492.0	0	492		-	0	20		3/28/2008
L83154-02ADUP	TSS	mg/L	2540D	4.000	0	4		-	0	20		3/27/2008
L83169-01ADUP	TSS	mg/L	2540D	25.00	0	26		-	3.92	20		3/27/2008

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R80517	Alkalinity,(As CaCO3)	mg/L	2320B	50960	50000	0	102	90-110				3/28/2008
LCS-R80572	Chloride	mg/L	300.0	4.849	5	0	97.0	90-110				3/29/2008
LCS-R80572	Sulfate	mg/L	300.0	4.859	5	0	97.2	90-110				3/29/2008
LCS-R81107	Chloride	mg/L	300.0	5.371	5	0	107	90-110				4/9/2008
LCS-R81107	Sulfate	mg/L	300.0	4.983	5	0	99.7	90-110				4/9/2008
LCS-R80519	Acidity	mg/L	2310B	20.00	20	0	100	80-120				3/28/2008
LCS-39775	Ammonia (as N)	mg/L	350.1	0.9700	1	0	97.0	90-110				4/1/2008
LCS-R80468	Nitrite (as N)	mg/L	353.2	0.9750	1	0	97.5	90-110				3/27/2008
LCS-R80469	Nitrate (as N)	mg/L	353.2	0.9560	1	0	95.6	90-110				3/27/2008
LCS-R80682	Oil & Grease	mg/L	1664A	40.00	40	0	100	79-114				3/31/2008
LCS-R80471	Phosphate, ortho (as P)	mg/L	365.1	0.9720	1	0	97.2	90-110				3/27/2008
LCS-R80627	TDS	mg/L	160.1	202.0	205	0	98.5	80-120				3/28/2008
LCS-R80515	TSS	mg/L	2540D	97.00	100	0	97.0	80-120				3/27/2008

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: WC

SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R80517	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				3/28/2008
MB-R80517	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				3/28/2008
MB-R80517	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				3/28/2008
MB-R80572	Chloride	mg/L	300.0	< 0.10				-				3/29/2008
MB-R80572	Sulfate	mg/L	300.0	< 0.75				-				3/29/2008
MB-R81107	Chloride	mg/L	300.0	< 0.10				-				4/9/2008
MB-R81107	Sulfate	mg/L	300.0	< 0.75				-				4/9/2008
MB-R80519	Acidity	mg/L	2310B	< 15				-				3/28/2008
MB-39775	Ammonia (as N)	mg/L	350.1	< 0.050				-				4/1/2008
MB-R80468	Nitrite (as N)	mg/L	353.2	< 0.010				-				3/27/2008
MB-R80469	Nitrate (as N)	mg/L	353.2	< 0.010				-				3/27/2008
MB-R80682	Oil & Grease	mg/L	1664A	< 3.0				-				3/31/2008
MB-R80471	Phosphate, ortho (as P)	mg/L	365.1	< 0.050				-				3/27/2008
MB-R80627	TDS	mg/L	160.1	< 10				-				3/28/2008
MB-R80515	TSS	mg/L	2540D	< 3.0				-				3/27/2008

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: WC

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L83162-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	402.0	100	300	102	80-120				3/28/2008
L83169-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	329.0	100	228	101	80-120				3/28/2008
L83169-01BMS	Chloride	mg/L	300.0	153.4	100	44.56	109	90-110				3/29/2008
L83169-01BMS	Sulfate	mg/L	300.0	239.6	100	128.4	111	90-110			[1]	3/29/2008
L83420-01AMS	Chloride	mg/L	300.0	528.5	500	3.772	105	90-110				4/9/2008
L83420-01AMS	Sulfate	mg/L	300.0	494.6	500	1.773	98.6	90-110				4/9/2008
L82946-03AMS	Chloride	mg/L	300.0	472.8	250	83.73	156	90-110			[1]	4/10/2008
L82946-03AMS	Sulfate	mg/L	300.0	314.3	250	49.62	106	90-110				4/10/2008
L83169-01BMS	Acidity	mg/L	2310B	48.00	50	0	96.0	80-120				3/28/2008
L83169-02CMS	Ammonia (as N)	mg/L	350.1	1.043	1	0.077	96.6	90-110				4/1/2008
L83169-01BMS	Nitrite (as N)	mg/L	353.2	1.106	1	0	111	90-110			[1]	3/27/2008
L83169-01BMS	Nitrate (as N)	mg/L	353.2	1.184	1	0.123	106	90-110				3/27/2008
L83169-01BMS	Phosphate, ortho (as P)	mg/L	365.1	0.9620	1	0.008	95.4	90-110				3/27/2008

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L83162-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	399.0	100	300	99.0	80-120	0.749	10		3/28/2008
L83169-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	333.0	100	228	105	80-120	1.21	10		3/28/2008
L83169-01BMSD	Chloride	mg/L	300.0	149.7	100	44.56	105	90-110	2.50	20		3/30/2008
L83169-01BMSD	Sulfate	mg/L	300.0	233.0	100	128.4	105	90-110	2.81	20		3/30/2008
L83420-01AMSD	Chloride	mg/L	300.0	528.5	500	3.772	105	90-110	0.00606	20		4/9/2008
L83420-01AMSD	Sulfate	mg/L	300.0	494.8	500	1.773	98.6	90-110	0.0437	20		4/9/2008
L82946-03AMSD	Chloride	mg/L	300.0	372.5	250	83.73	116	90-110	23.7	20	[1]@	4/10/2008
L82946-03AMSD	Sulfate	mg/L	300.0	317.3	250	49.62	107	90-110	0.945	20		4/10/2008
L83169-01BMSD	Acidity	mg/L	2310B	52.00	50	0	104	80-120	8.00	20		3/28/2008
L83169-02CMSD	Ammonia (as N)	mg/L	350.1	1.014	1	0.077	93.7	90-110	2.82	10		4/1/2008
L83169-01BMSD	Nitrite (as N)	mg/L	353.2	1.146	1	0	115	90-110	3.55	10	[1]	3/27/2008
L83169-01BMSD	Nitrate (as N)	mg/L	353.2	1.197	1	0.123	107	90-110	1.09	10		3/27/2008
L83169-01BMSD	Phosphate, ortho (as P)	mg/L	365.1	1.044	1	0.008	104	90-110	8.18	10		3/27/2008

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-R80682	Oil & Grease	mg/L	1664A	37.50	40	0	93.8	79-114				3/31/2008

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-R80682	Oil & Grease	mg/L	1664A	37.80	40	0	94.5	79-114	0.797	18		3/31/2008

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American West Analytical Labs

WORK ORDER Summary

28-Mar-08

Work Order L83169

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** Hallsb

Contact: Brad Lindsay

Comments: QCLevel: 2+. Include EDD.

DB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L83169-01A	Mud Creek	3/25/2008 6:45:00 PM	3/27/2008	4/10/2008	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				4/10/2008		TDS-W	ww - tss/tds/ss	1
				4/10/2008		TSS-W-2540D	ww - tss/tds/ss	1
L83169-01B				4/10/2008		2320B-ALK-W	mar 27 - wc	1
				4/10/2008		300.0-W	mar 27 - wc	1
				4/10/2008		ACIDITY-W-2310B	mar 27 - wc	1
				4/10/2008		NO2-W	mar 27 - wc	1
				4/10/2008		NO3-W	mar 27 - wc	1
				4/10/2008		PO4-O	mar 27 - wc	1
L83169-01C				4/10/2008		NH3-W	mar 27 - nh3	1
				4/10/2008		NH3-W-PREP	mar 27 - nh3	1
L83169-01D				4/10/2008		OGB-W	OGBFridge	1
L83169-01E				4/10/2008		3005A-ICPMS	mar 27 - met	1
				4/10/2008		ICP-W	mar 27 - met	1
L83169-01F				4/10/2008	Aqueous-Dissolved	3005A-Diss	mar 27 - dis met	1
				4/10/2008		6020-W-DISS	mar 27 - dis met	1
				4/10/2008		HARD	mar 27 - dis met	1
				4/10/2008		ICP-W-DIS	mar 27 - dis met	1
L83169-02A	Sulfur Spring	3/25/2008 4:45:00 PM		4/10/2008	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				4/10/2008		TDS-W	ww - tss/tds/ss	1
				4/10/2008		TSS-W-2540D	ww - tss/tds/ss	1
L83169-02B				4/10/2008		2320B-ALK-W	mar 27 - wc	1
				4/10/2008		300.0-W	mar 27 - wc	1
				4/10/2008		ACIDITY-W-2310B	mar 27 - wc	1
				4/10/2008		NO2-W	mar 27 - wc	1
				4/10/2008		NO3-W	mar 27 - wc	1
				4/10/2008		PO4-O	mar 27 - wc	1

WORK ORDER Summary

28-Mar-08

Work Order L83169

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+. Include EDD.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L83169-02C	Sulfur Spring	3/25/2008 4:45:00 PM	3/27/2008	4/10/2008	Aqueous	NH3-W	mar 27 - nh3	1
				4/10/2008		NH3-W-PREP	mar 27 - nh3	1
L83169-02D				4/10/2008		OGB-W	OGBFridge	1
L83169-02E				4/10/2008		3005A-ICPMS	mar 27 - met	1
				4/10/2008		ICP-W	mar 27 - met	1
L83169-02F				4/10/2008	Aqueous-Dissolved	3005A-Diss	mar 27 - dis met	1
				4/10/2008		6020-W-DISS	mar 27 - dis met	1
				4/10/2008		HARD	mar 27 - dis met	1
				4/10/2008		ICP-W-DIS	mar 27 - dis met	1
L83169-03A	Miller Outlet	3/25/2008 5:50:00 PM		4/10/2008	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				4/10/2008		TDS-W	ww - tss/tds/ss	1
				4/10/2008		TSS-W-2540D	ww - tss/tds/ss	1
L83169-03B				4/10/2008		2320B-ALK-W	mar 27 - wc	1
				4/10/2008		300.0-W	mar 27 - wc	1
				4/10/2008		ACIDITY-W-2310B	mar 27 - wc	1
				4/10/2008		NO2-W	mar 27 - wc	1
				4/10/2008		NO3-W	mar 27 - wc	1
				4/10/2008		PO4-O	mar 27 - wc	1
L83169-03C				4/10/2008		NH3-W	mar 27 - nh3	1
				4/10/2008		NH3-W-PREP	mar 27 - nh3	1
L83169-03D				4/10/2008		OGB-W	OGBFridge	1
L83169-03E				4/10/2008		3005A-ICPMS	mar 27 - met	1
				4/10/2008		ICP-W	mar 27 - met	1
L83169-03F				4/10/2008	Aqueous-Dissolved	3005A-Diss	mar 27 - dis met	1
				4/10/2008		6020-W-DISS	mar 27 - dis met	1
				4/10/2008		HARD	mar 27 - dis met	1
				4/10/2008		ICP-W-DIS	mar 27 - dis met	1
L83169-04A	Res-1	3/25/2008 5:10:00 PM		4/10/2008	Aqueous	SS-W-2540F	ww - tss/tds/ss	1

WORK ORDER Summary

28-Mar-08

Work Order L83169

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+. Include EDD.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L83169-04A	Res-1	3/25/2008 5:10:00 PM	3/27/2008	4/10/2008	Aqueous	TDS-W	ww - tss/tds/ss	1
				4/10/2008		TSS-W-2540D	ww - tss/tds/ss	1
L83169-04B				4/10/2008		2320B-ALK-W	mar 27 - wc	1
				4/10/2008		300.0-W	mar 27 - wc	1
				4/10/2008		ACIDITY-W-2310B	mar 27 - wc	1
				4/10/2008		NO2-W	mar 27 - wc	1
				4/10/2008		NO3-W	mar 27 - wc	1
				4/10/2008		PO4-O	mar 27 - wc	1
L83169-04C				4/10/2008		NH3-W	mar 27 - nh3	1
				4/10/2008		NH3-W-PREP	mar 27 - nh3	1
L83169-04D				4/10/2008		OGB-W	OGBFridge	1
L83169-04E				4/10/2008		3005A-ICPMS	mar 27 - met	1
				4/10/2008		ICP-W	mar 27 - met	1
L83169-04F				4/10/2008	Aqueous-Dissolved	3005A-Diss	mar 27 - dis met	1
				4/10/2008		6020-W-DISS	mar 27 - dis met	1
				4/10/2008		HARD	mar 27 - dis met	1
				4/10/2008		ICP-W-DIS	mar 27 - dis met	1

Client CARBON RESOURCES C/O ROCK LOGIC

Address PO BOX 544

CEDAREDGE CO 81413
City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 83169

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 3										QC LEVEL / COMMENTS
MUD CREEK	3/25/08 18:45	W	6	✓										
SULFUR SPRING	3/25/08 16:45	W	6	✓										
MILLER OUTLET	3/25/08 17:50	W	6	✓										
RES-1	3/25/08 17:10	W	6	✓										

QC LEVEL: 1 2 2+ 3 3+ 4

COMMENTS

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date 3-27-08	Received By: Signature Denise Brown
PRINT NAME	Time 1825	PRINT NAME Denise Brown

Special Instructions:

I DID NOT FILTER.

PLEASE MAIL RESULTS & E-MAIL .XLS & .PDF

THANKS!

LABORATORY USE ONLY

SAMPLES WERE: DB 3/27/08

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 0.5°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
(Y) (N) DB 3/27/08 NA

2 Unbroken on Outer Package
(Y) N (NA)

3 Present on Sample DB 3/27/08
(Y) N NA

4 Unbroken on Sample
(Y) N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
*	-	Acidity	mg/l
*	-	Aluminum (Dissolved)	mg/l
*	-	Arsenic (Dissolved)	mg/l
*	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
*	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
*	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
*	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
*	-	Molybdenum (Dissolved)	mg/l
*	-	Ammonia	mg/l
*	-	Nitrates	mg/l
*	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
*	-	Phosphates(Ortho)	mg/l
*	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
*	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 83169

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

September 09, 2008

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L85972

Dear Brad Lindsay:

American West Analytical Labs received 5 samples on 8/27/2008 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Approved by: _____
Laboratory Director or designee

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Lab Sample ID: L85972-01F
Field Sample ID: **Aspen Spring**
Collected: 8/26/2008 3:50:00 PM
Received: 8/27/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/5/2008 11:32:00 AM	6010B	0.050	**1.4**
Manganese	mg/L	9/5/2008 11:32:00 AM	6010B	0.0050	**0.22**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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Project ID: Scofield Baseline

Contact: Brad Lindsay

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84115

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e-mail: awal@awal-labs.com

Lab Sample ID: L85972-02F
Field Sample ID: **Sulfur Spring**
Collected: 8/26/2008 5:15:00 PM
Received: 8/27/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/5/2008 11:48:00 AM	6010B	0.050	**0.073**
Manganese	mg/L	9/5/2008 11:48:00 AM	6010B	0.0050	**0.035**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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e-mail: awal@awal-labs.com

Lab Sample ID: L85972-03F
Field Sample ID: **RES-1**
Collected: 8/26/2008 6:20:00 PM
Received: 8/27/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/5/2008 11:52:00 AM	6010B	0.050	**1.1**
Manganese	mg/L	9/5/2008 11:52:00 AM	6010B	0.0050	**0.55**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Lab Sample ID: L85972-04F
Field Sample ID: **Miller Outlet**
Collected: 8/26/2008 6:00:00 PM
Received: 8/27/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/5/2008 11:56:00 AM	6010B	0.050	**1.3**
Manganese	mg/L	9/5/2008 11:56:00 AM	6010B	0.0050	**0.058**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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Project ID: Scofield Baseline

Contact: Brad Lindsay

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Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Lab Sample ID: L85972-05F
Field Sample ID: **Mud Creek**
Collected: 8/26/2008 6:40:00 PM
Received: 8/27/2008

TOTAL METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Iron	mg/L	9/5/2008 2:31:00 PM	6010B	0.050	**0.11**
Manganese	mg/L	9/5/2008 12:08:00 PM	6010B	0.0050	**0.016**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-01E
Field Sample ID: **Aspen Spring**
Collected: 8/26/2008 3:50:00 PM
Received: 8/27/2008

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	9/5/2008 11:40:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	8/28/2008 5:34:38 PM	6020	0.00060	**0.00092**	
Boron	mg/L	9/5/2008 11:40:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	8/28/2008 5:34:38 PM	6020	0.00018	< 0.00018	
Calcium	mg/L	9/5/2008 12:26:00 PM	6010B	10	**57**	² ~
Copper	mg/L	8/28/2008 5:34:38 PM	6020	0.00080	**0.0022**	
Iron	mg/L	9/5/2008 11:40:00 AM	6010B	0.050	< 0.050	
Lead	mg/L	8/28/2008 5:34:38 PM	6020	0.00040	**0.0011**	
Magnesium	mg/L	9/5/2008 11:40:00 AM	6010B	1.0	**12**	
Manganese	mg/L	8/28/2008 5:34:38 PM	6020	0.0012	**0.053**	
Molybdenum	mg/L	9/5/2008 11:40:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	9/5/2008 11:40:00 AM	6010B	1.0	**10**	
Selenium	mg/L	8/28/2008 5:34:38 PM	6020	0.00080	< 0.00080	
Sodium	mg/L	9/5/2008 12:26:00 PM	6010B	10	**22**	~
Zinc	mg/L	8/28/2008 5:34:38 PM	6020	0.0054	< 0.0054	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.
~ - The reporting limits were raised due to high analyte concentrations.

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Project ID: Scofield Baseline

Contact: Brad Lindsay

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Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-02E
Field Sample ID: **Sulfur Spring**
Collected: 8/26/2008 5:15:00 PM
Received: 8/27/2008

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/5/2008 11:55:00 AM	6010B	0.10	< 0.10
Arsenic	mg/L	8/28/2008 6:01:31 PM	6020	0.00060	< 0.00060
Boron	mg/L	9/5/2008 11:55:00 AM	6010B	0.50	< 0.50
Cadmium	mg/L	8/28/2008 6:01:31 PM	6020	0.00018	< 0.00018
Calcium	mg/L	9/5/2008 12:38:00 PM	6010B	10	**88** ~
Copper	mg/L	8/28/2008 6:01:31 PM	6020	0.00080	**0.0011**
Iron	mg/L	9/5/2008 11:55:00 AM	6010B	0.050	< 0.050
Lead	mg/L	8/28/2008 6:01:31 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	9/5/2008 11:55:00 AM	6010B	1.0	**35**
Manganese	mg/L	8/28/2008 6:01:31 PM	6020	0.0012	**0.036**
Molybdenum	mg/L	9/5/2008 11:55:00 AM	6010B	0.10	< 0.10
Potassium	mg/L	9/5/2008 11:55:00 AM	6010B	1.0	**5.2**
Selenium	mg/L	8/28/2008 6:01:31 PM	6020	0.00080	< 0.00080
Sodium	mg/L	9/5/2008 11:55:00 AM	6010B	1.0	**9.0**
Zinc	mg/L	8/28/2008 6:01:31 PM	6020	0.0054	**0.011**

~ - The reporting limits were raised due to high analyte concentrations.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-03E
Field Sample ID: **RES-1**
Collected: 8/26/2008 6:20:00 PM
Received: 8/27/2008

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	9/5/2008 11:59:00 AM	6010B	0.10	< 0.10	
Arsenic	mg/L	8/28/2008 6:06:54 PM	6020	0.00060	**0.0023**	
Boron	mg/L	9/5/2008 11:59:00 AM	6010B	0.50	< 0.50	
Cadmium	mg/L	8/28/2008 6:06:54 PM	6020	0.00018	< 0.00018	
Calcium	mg/L	9/5/2008 12:42:00 PM	6010B	10	**81**	~
Copper	mg/L	8/28/2008 6:06:54 PM	6020	0.00080	**0.0031**	
Iron	mg/L	9/5/2008 11:59:00 AM	6010B	0.050	< 0.050	
Lead	mg/L	8/28/2008 6:06:54 PM	6020	0.00040	< 0.00040	
Magnesium	mg/L	9/5/2008 12:42:00 PM	6010B	10	**56**	~
Manganese	mg/L	8/28/2008 6:06:54 PM	6020	0.0012	**0.11**	
Molybdenum	mg/L	9/5/2008 11:59:00 AM	6010B	0.10	< 0.10	
Potassium	mg/L	9/5/2008 11:59:00 AM	6010B	1.0	**2.5**	
Selenium	mg/L	8/28/2008 6:06:54 PM	6020	0.00080	< 0.00080	
Sodium	mg/L	9/5/2008 12:42:00 PM	6010B	10	**41**	~
Zinc	mg/L	8/28/2008 6:06:54 PM	6020	0.0054	**0.0066**	

~ - The reporting limits were raised due to high analyte concentrations.

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INORGANIC ANALYSIS REPORT

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Contact: Brad Lindsay
Project ID: Scofield Baseline

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84115

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Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-04E
Field Sample ID: **Miller Outlet**
Collected: 8/26/2008 6:00:00 PM
Received: 8/27/2008

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results
Aluminum	mg/L	9/5/2008 12:03:00 PM	6010B	0.10	< 0.10
Arsenic	mg/L	8/28/2008 6:12:17 PM	6020	0.00060	**0.0010**
Boron	mg/L	9/5/2008 12:03:00 PM	6010B	0.50	< 0.50
Cadmium	mg/L	8/28/2008 6:12:17 PM	6020	0.00018	< 0.00018
Calcium	mg/L	9/5/2008 12:46:00 PM	6010B	10	**63** ~
Copper	mg/L	8/28/2008 6:12:17 PM	6020	0.00080	**0.0016**
Iron	mg/L	9/5/2008 12:03:00 PM	6010B	0.050	< 0.050
Lead	mg/L	8/28/2008 6:12:17 PM	6020	0.00040	< 0.00040
Magnesium	mg/L	9/5/2008 12:03:00 PM	6010B	1.0	**15**
Manganese	mg/L	8/28/2008 6:12:17 PM	6020	0.0012	< 0.0012
Molybdenum	mg/L	9/5/2008 12:03:00 PM	6010B	0.10	< 0.10
Potassium	mg/L	9/5/2008 12:03:00 PM	6010B	1.0	**2.0**
Selenium	mg/L	8/28/2008 6:12:17 PM	6020	0.00080	< 0.00080
Sodium	mg/L	9/5/2008 12:03:00 PM	6010B	1.0	**6.6**
Zinc	mg/L	8/28/2008 6:12:17 PM	6020	0.0054	< 0.0054

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Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-05E
Field Sample ID: **Mud Creek**
Collected: 8/26/2008 6:40:00 PM
Received: 8/27/2008

DISSOLVED METALS

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Results	
Aluminum	mg/L	9/5/2008 12:15:00 PM	6010B	0.10	< 0.10	
Arsenic	mg/L	8/28/2008 6:28:26 PM	6020	0.00060	< 0.00060	
Boron	mg/L	9/5/2008 12:15:00 PM	6010B	0.50	< 0.50	
Cadmium	mg/L	8/28/2008 6:28:26 PM	6020	0.00018	< 0.00018	
Calcium	mg/L	9/5/2008 12:50:00 PM	6010B	10	**63**	~
Copper	mg/L	8/28/2008 6:28:26 PM	6020	0.00080	**0.0019**	
Iron	mg/L	9/5/2008 12:15:00 PM	6010B	0.050	< 0.050	
Lead	mg/L	8/28/2008 6:28:26 PM	6020	0.00040	< 0.00040	
Magnesium	mg/L	9/5/2008 12:15:00 PM	6010B	1.0	**34**	
Manganese	mg/L	8/28/2008 6:28:26 PM	6020	0.0012	**0.011**	
Molybdenum	mg/L	9/5/2008 12:15:00 PM	6010B	0.10	< 0.10	
Potassium	mg/L	9/5/2008 12:15:00 PM	6010B	1.0	**6.1**	
Selenium	mg/L	8/28/2008 6:28:26 PM	6020	0.00080	< 0.00080	
Sodium	mg/L	9/5/2008 12:50:00 PM	6010B	10	**33**	~
Zinc	mg/L	8/28/2008 6:28:26 PM	6020	0.0054	**0.020**	

~ - The reporting limits were raised due to high analyte concentrations.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L85972-01
Field Sample ID: **Aspen Spring**
Collected: 8/26/2008 3:50:00 PM
Received: 8/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/29/2008 5:10:00 AM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**180**
Ammonia (as N)	mg/L	8/29/2008 12:32:00 PM	350.1	0.050	**0.057**
Bicarbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**180**
Carbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	10	< 10
Chloride	mg/L	8/28/2008 3:32:05 PM	300.0	2.0	**24**
Hardness (as CaCO3)	mg/L	9/5/2008	2340B	10	**200**
Nitrate (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	< 0.010
Nitrite (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	9/5/2008 12:04:00 PM	1664A	3.0	**3.2**
Phosphorus, Orthophosphate (as P)	mg/L	8/28/2008 12:01:45 PM	300.0	0.10	< 0.10
Settleable Solids	ml/L	8/28/2008 10:30:00 AM	2540F	0.10	< 0.10
Sulfate	mg/L	8/28/2008 12:01:45 PM	300.0	0.75	**8.7**
TDS	mg/L	8/28/2008 2:00:00 PM	160.1	20	**280**
TSS	mg/L	8/28/2008 4:15:00 PM	2540D	3.0	**27**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-02
Field Sample ID: **Sulfur Spring**
Collected: 8/26/2008 5:15:00 PM
Received: 8/27/2008

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result	
Acidity	mg/L	8/29/2008 5:10:00 AM	2310B	15	< 15	
Alkalinity,(As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**350**	
Ammonia (as N)	mg/L	8/29/2008 12:32:00 PM	350.1	0.050	**0.090**	
Bicarbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**350**	
Carbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	10	< 10	
Chloride	mg/L	8/28/2008 1:11:58 PM	300.0	0.10	**7.7**	
Hardness (as CaCO3)	mg/L	9/5/2008	2340B	10	**360**	
Nitrate (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	< 0.010	
Nitrite (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	< 0.010	
Oil & Grease	mg/L	9/5/2008 12:04:00 PM	1664A	3.0	**3.8**	
Phosphorus, Orthophosphate (as P)	mg/L	8/28/2008 1:11:58 PM	300.0	0.10	< 0.10	
Settleable Solids	ml/L	8/28/2008 10:30:00 AM	2540F	0.10	< 0.10	
Sulfate	mg/L	8/28/2008 4:42:07 PM	300.0	15	**43**	
TDS	mg/L	8/28/2008 2:00:00 PM	160.1	20	**420**	
TSS	mg/L	8/28/2008 4:15:00 PM	2540D	3.0	**3.0**	#

 # - High RPD due to low analyte concentration. In this range, high RPDs are expected.

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-03
Field Sample ID: **RES-1**
Collected: 8/26/2008 6:20:00 PM
Received: 8/27/2008

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/29/2008 5:10:00 AM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**240**
Ammonia (as N)	mg/L	8/29/2008 12:32:00 PM	350.1	0.050	**0.11**
Bicarbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**240**
Carbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	10	< 10
Chloride	mg/L	8/28/2008 5:05:27 PM	300.0	2.0	**61**
Hardness (as CaCO3)	mg/L	9/5/2008	2340B	10	**430**
Nitrate (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	**0.054**
Nitrite (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	9/5/2008 12:04:00 PM	1664A	3.0	**3.2**
Phosphorus, Orthophosphate (as P)	mg/L	8/28/2008 1:35:25 PM	300.0	0.10	< 0.10
Settleable Solids	ml/L	8/28/2008 10:30:00 AM	2540F	0.10	**2.5**
Sulfate	mg/L	8/28/2008 5:05:27 PM	300.0	15	**140**
TDS	mg/L	8/28/2008 2:00:00 PM	160.1	20	**620**
TSS	mg/L	8/28/2008 4:15:00 PM	2540D	3.0	**200**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L85972-04
Field Sample ID: **Miller Outlet**
Collected: 8/26/2008 6:00:00 PM
Received: 8/27/2008

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/29/2008 5:10:00 AM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**220**
Ammonia (as N)	mg/L	8/29/2008 12:32:00 PM	350.1	0.050	**0.056**
Bicarbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**220**
Carbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	10	< 10
Chloride	mg/L	8/28/2008 1:58:45 PM	300.0	0.10	**12**
Hardness (as CaCO3)	mg/L	9/5/2008	2340B	10	**220**
Nitrate (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	**0.025**
Nitrite (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	9/5/2008 12:04:00 PM	1664A	3.0	**3.0**
Phosphorus, Orthophosphate (as P)	mg/L	8/28/2008 1:58:45 PM	300.0	0.10	< 0.10
Settleable Solids	ml/L	8/28/2008 10:30:00 AM	2540F	0.10	**0.20**
Sulfate	mg/L	8/28/2008 1:58:45 PM	300.0	0.75	**22**
TDS	mg/L	8/28/2008 2:00:00 PM	160.1	20	**310**
TSS	mg/L	8/28/2008 4:15:00 PM	2540D	3.0	**88**

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INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-05
Field Sample ID: **Mud Creek**
Collected: 8/26/2008 6:40:00 PM
Received: 8/27/2008

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Acidity	mg/L	8/29/2008 5:10:00 AM	2310B	15	< 15
Alkalinity,(As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**250**
Ammonia (as N)	mg/L	8/29/2008 12:32:00 PM	350.1	0.050	< 0.050
Bicarbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	20	**250**
Carbonate (As CaCO3)	mg/L	8/28/2008 11:15:00 AM	2320B	10	< 10
Chloride	mg/L	8/28/2008 5:28:47 PM	300.0	2.0	**16**
Hardness (as CaCO3)	mg/L	9/5/2008	2340B	10	**300**
Nitrate (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	**0.066**
Nitrite (as N)	mg/L	8/28/2008 11:21:00 AM	353.2	0.010	< 0.010
Oil & Grease	mg/L	9/5/2008 12:04:00 PM	1664A	3.0	**3.1**
Phosphorus, Orthophosphate (as P)	mg/L	8/28/2008 2:22:05 PM	300.0	0.10	< 0.10
Settleable Solids	ml/L	8/28/2008 10:30:00 AM	2540F	0.10	< 0.10
Sulfate	mg/L	8/28/2008 5:28:47 PM	300.0	15	**120**
TDS	mg/L	8/28/2008 2:00:00 PM	160.1	20	**490**
TSS	mg/L	8/28/2008 4:15:00 PM	2540D	3.0	**5.0**

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: ME

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-42125	Arsenic	mg/L	6020	0.2204	0.2	0	110	85-115				8/28/2008
LCS-42125	Cadmium	mg/L	6020	0.2085	0.2	0	104	85-115				8/28/2008
LCS-42125	Copper	mg/L	6020	0.2117	0.2	0	106	85-115				8/28/2008
LCS-42125	Lead	mg/L	6020	0.2132	0.2	0	107	85-115				8/28/2008
LCS-42125	Manganese	mg/L	6020	0.2129	0.2	0	106	85-115				8/28/2008
LCS-42125	Selenium	mg/L	6020	0.1995	0.2	0	99.7	85-115				8/28/2008
LCS-42125	Zinc	mg/L	6020	1.025	1	0	102	85-115				8/28/2008
LCS-42126	Iron	mg/L	6010B	1.060	1	0	106	75-125				9/5/2008
LCS-42126	Manganese	mg/L	6010B	0.2120	0.2	0	106	75-125				9/5/2008
LCS-42125	Aluminum	mg/L	6010B	1.089	1	0	109	75-125				9/5/2008
LCS-42125	Boron	mg/L	6010B	1.104	1	0	110	75-125				9/5/2008
LCS-42125	Calcium	mg/L	6010B	10.42	10	0	104	75-125				9/5/2008
LCS-42125	Iron	mg/L	6010B	1.002	1	0	100	75-125				9/5/2008
LCS-42125	Magnesium	mg/L	6010B	10.50	10	0	105	75-125				9/5/2008
LCS-42125	Molybdenum	mg/L	6010B	0.2124	0.2	0	106	75-125				9/5/2008
LCS-42125	Potassium	mg/L	6010B	10.92	10	0	109	75-125				9/5/2008
LCS-42125	Sodium	mg/L	6010B	10.99	10	0	110	75-125				9/5/2008

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: ME
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-42125	Arsenic	mg/L	6020	< 0.00060				-				8/28/2008
MB-42125	Cadmium	mg/L	6020	< 0.00018				-				8/28/2008
MB-42125	Copper	mg/L	6020	< 0.00080				-				8/28/2008
MB-42125	Lead	mg/L	6020	< 0.00040				-				8/28/2008
MB-42125	Manganese	mg/L	6020	< 0.0012				-				8/28/2008
MB-42125	Selenium	mg/L	6020	< 0.00080				-				8/28/2008
MB-42125	Zinc	mg/L	6020	< 0.0050				-				8/28/2008
MB-42126	Iron	mg/L	6010B	< 0.050				-				9/5/2008
MB-42126	Manganese	mg/L	6010B	< 0.0050				-				9/5/2008
MB-42125	Aluminum	mg/L	6010B	< 0.10				-				9/5/2008
MB-42125	Boron	mg/L	6010B	< 0.50				-				9/5/2008
MB-42125	Calcium	mg/L	6010B	< 1.0				-				9/5/2008
MB-42125	Iron	mg/L	6010B	< 0.050				-				9/5/2008
MB-42125	Magnesium	mg/L	6010B	< 1.0				-				9/5/2008
MB-42125	Molybdenum	mg/L	6010B	< 0.040				-				9/5/2008
MB-42125	Potassium	mg/L	6010B	< 1.0				-				9/5/2008
MB-42125	Sodium	mg/L	6010B	< 1.0				-				9/5/2008

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: ME

SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L85972-01EMS	Arsenic	mg/L	6020	0.2170	0.2	0.000924	108	70-130				8/28/2008
L85972-01EMS	Cadmium	mg/L	6020	0.2036	0.2	0	102	70-130				8/28/2008
L85972-01EMS	Copper	mg/L	6020	0.1997	0.2	0.002185	98.8	70-130				8/28/2008
L85972-01EMS	Lead	mg/L	6020	0.2055	0.2	0.001106	102	70-130				8/28/2008
L85972-01EMS	Manganese	mg/L	6020	0.2513	0.2	0.05289	99.2	70-130				8/28/2008
L85972-01EMS	Selenium	mg/L	6020	0.1985	0.2	0.000591	99.0	70-130				8/28/2008
L85972-01EMS	Zinc	mg/L	6020	1.006	1	0	101	70-130				8/28/2008
L85972-01FMS	Iron	mg/L	6010B	2.490	1	1.4	109	75-125				9/5/2008
L85972-01FMS	Manganese	mg/L	6010B	0.4230	0.2	0.218	102	75-125				9/5/2008
L85972-01EMS	Aluminum	mg/L	6010B	1.028	1	0	103	75-125				9/5/2008
L85972-01EMS	Boron	mg/L	6010B	1.153	1	0.06632	109	75-125				9/5/2008
L85972-01EMS	Iron	mg/L	6010B	0.9922	1	0.04336	94.9	75-125				9/5/2008
L85972-01EMS	Magnesium	mg/L	6010B	21.71	10	12.49	92.2	75-125				9/5/2008
L85972-01EMS	Molybdenum	mg/L	6010B	0.2110	0.2	0	105	75-125				9/5/2008
L85972-01EMS	Potassium	mg/L	6010B	20.25	10	10.23	100	75-125				9/5/2008
L85972-01EMS	Calcium	mg/L	6010B	64.18	10	57.5	66.8	75-125			2	9/5/2008
L85972-01EMS	Sodium	mg/L	6010B	30.32	10	21.57	87.5	75-125				9/5/2008

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: ME

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L85972-01EMSD	Arsenic	mg/L	6020	0.2241	0.2	0.000924	112	70-130	3.22	20		8/28/2008
L85972-01EMSD	Cadmium	mg/L	6020	0.2090	0.2	0	104	70-130	2.62	20		8/28/2008
L85972-01EMSD	Copper	mg/L	6020	0.2053	0.2	0.002185	102	70-130	2.77	20		8/28/2008
L85972-01EMSD	Lead	mg/L	6020	0.2096	0.2	0.001106	104	70-130	1.99	20		8/28/2008
L85972-01EMSD	Manganese	mg/L	6020	0.2581	0.2	0.05289	103	70-130	2.69	20		8/28/2008
L85972-01EMSD	Selenium	mg/L	6020	0.2069	0.2	0.000591	103	70-130	4.11	20		8/28/2008
L85972-01EMSD	Zinc	mg/L	6020	1.037	1	0	104	70-130	3.03	20		8/28/2008
L85972-01FMSD	Iron	mg/L	6010B	2.440	1	1.4	104	75-125	2.03	20		9/5/2008
L85972-01FMSD	Manganese	mg/L	6010B	0.4220	0.2	0.218	102	75-125	0.237	20		9/5/2008
L85972-01EMSD	Aluminum	mg/L	6010B	1.076	1	0	108	75-125	4.56	20		9/5/2008
L85972-01EMSD	Boron	mg/L	6010B	1.193	1	0.06632	113	75-125	3.39	20		9/5/2008
L85972-01EMSD	Iron	mg/L	6010B	1.066	1	0.04336	102	75-125	7.18	20		9/5/2008
L85972-01EMSD	Magnesium	mg/L	6010B	22.53	10	12.49	100	75-125	3.73	20		9/5/2008
L85972-01EMSD	Molybdenum	mg/L	6010B	0.2123	0.2	0	106	75-125	0.614	20		9/5/2008
L85972-01EMSD	Potassium	mg/L	6010B	21.11	10	10.23	109	75-125	4.13	20		9/5/2008
L85972-01EMSD	Calcium	mg/L	6010B	67.41	10	57.5	99.2	75-125	4.91	20		9/5/2008
L85972-01EMSD	Sodium	mg/L	6010B	31.40	10	21.57	98.3	75-125	3.49	20		9/5/2008

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: WC

SampType: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L85933-06DDUP	TDS	mg/L	160.1	1776	0	1728		-	2.74	20		8/28/2008
L85972-05ADUP	TDS	mg/L	160.1	492.0	0	488		-	0.816	20		8/28/2008
L85962-02ADUP	TSS	mg/L	2540D	4.000	0	3		-	28.6	20	#	8/28/2008
L85972-02ADUP	TSS	mg/L	2540D	4.000	0	3		-	28.6	20	#	8/28/2008
L85973-03JDUP	TSS	mg/L	2540D	296.0	0	288		-	2.74	20		8/28/2008

- High RPD due to low analyte concentration. In this range, high RPDs are expected.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: WC

SampType: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R85943	Alkalinity,(As CaCO3)	mg/L	2320B	49880	50000	0	99.8	90-110				8/28/2008
LCS-R85971	Chloride	mg/L	300.0	5.465	5	0	109	90-110				8/28/2008
LCS-R85971	Phosphorus, Orthophosphate (as P	mg/L	300.0	5.316	5	0	106	90-110				8/28/2008
LCS-R85971	Sulfate	mg/L	300.0	5.446	5	0	109	90-110				8/28/2008
LCS-R85945	Acidity	mg/L	2310B	22.00	20	0	110	80-120				8/29/2008
LCS-42128	Ammonia (as N)	mg/L	350.1	1.033	1	0	103	90-110				8/29/2008
LCS-85907	Nitrite (as N)	mg/L	353.2	1.048	1	0	105	90-110				8/28/2008
LCS-R85915	Nitrate (as N)	mg/L	353.2	0.9678	1	0	96.8	90-110				8/28/2008
LCS-86268	Oil & Grease	mg/L	1664A	37.90	40	0	94.8	78-114				9/5/2008
LCS-R86006	TDS	mg/L	160.1	198.0	205	0	96.6	80-120				8/28/2008
LCS-R86007	TDS	mg/L	160.1	200.0	205	0	97.6	80-120				8/28/2008
LCS-R85965	TSS	mg/L	2540D	97.00	100	0	97.0	80-120				8/28/2008

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: WC
SampType: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R85943	Alkalinity,(As CaCO3)	mg/L	2320B	< 10				-				8/28/2008
MB-R85943	Bicarbonate (As CaCO3)	mg/L	2320B	< 10				-				8/28/2008
MB-R85943	Carbonate (As CaCO3)	mg/L	2320B	< 10				-				8/28/2008
MB-R85971	Chloride	mg/L	300.0	< 0.10				-				8/28/2008
MB-R85971	Phosphorus, Orthophosphate (as P	mg/L	300.0	< 0.10				-				8/28/2008
MB-R85971	Sulfate	mg/L	300.0	< 0.75				-				8/28/2008
MB-R85945	Acidity	mg/L	2310B	< 15				-				8/29/2008
MB-42128	Ammonia (as N)	mg/L	350.1	< 0.050				-				8/29/2008
MB-85907	Nitrite (as N)	mg/L	353.2	< 0.010				-				8/28/2008
MBLK-R85915	Nitrate (as N)	mg/L	353.2	< 0.010				-				8/28/2008
MB-86268	Oil & Grease	mg/L	1664A	< 3.0				-				9/5/2008
MB-R86006	TDS	mg/L	160.1	< 10				-				8/28/2008
MB-R86007	TDS	mg/L	160.1	< 10				-				8/28/2008
MB-R85965	TSS	mg/L	2540D	< 3.0				-				8/28/2008

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: WC
SampType: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L85972-01BMS	Alkalinity,(As CaCO3)	mg/L	2320B	285.0	100	184	101	80-120				8/28/2008
L85972-01BMS	Chloride	mg/L	300.0	126.6	100	24.39	102	90-110				8/28/2008
L85972-01BMS	Phosphorus, Orthophosphate (as P	mg/L	300.0	5.127	5.25	0	97.7	90-110				8/28/2008
L85972-01BMS	Sulfate	mg/L	300.0	14.19	5.25	8.728	104	90-110				8/28/2008
L85972-01BMS	Acidity	mg/L	2310B	48.00	50	0	96.0	80-120				8/29/2008
L85972-02DMS	Ammonia (as N)	mg/L	350.1	1.111	1	0.0904	102	90-110				8/29/2008
L85972-01BMS	Nitrite (as N)	mg/L	353.2	1.086	1	0	109	90-110				8/28/2008
L85972-01BMS	Nitrate (as N)	mg/L	353.2	0.9360	1	0.0092	92.7	90-110				8/28/2008

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: WC

SampType: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
L85972-01BMSD	Alkalinity,(As CaCO3)	mg/L	2320B	289.0	100	184	105	80-120	1.39	10		8/28/2008
L85972-01BMSD	Chloride	mg/L	300.0	126.2	100	24.39	102	90-110	0.324	20		8/28/2008
L85972-01BMSD	Phosphorus, Orthophosphate (as P	mg/L	300.0	5.139	5.25	0	97.9	90-110	0.233	20		8/28/2008
L85972-01BMSD	Sulfate	mg/L	300.0	14.18	5.25	8.728	104	90-110	0.127	20		8/28/2008
L85972-01BMSD	Acidity	mg/L	2310B	50.00	50	0	100	80-120	4.08	20		8/29/2008
L85972-02DMSD	Ammonia (as N)	mg/L	350.1	1.087	1	0.0904	99.6	90-110	2.18	10		8/29/2008
L85972-01BMSD	Nitrite (as N)	mg/L	353.2	1.084	1	0	108	90-110	0.184	10		8/28/2008
L85972-01BMSD	Nitrate (as N)	mg/L	353.2	0.9374	1	0.0092	92.8	90-110	0.149	10		8/28/2008

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Kyle F. Gross
Laboratory Director

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QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: WC

SampType: QCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCS-86268	Oil & Grease	mg/L	1664A	36.70	40	0	91.8	79-114				9/5/2008

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

Dept: WC
SampType: QCSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
QCSD-86268	Oil & Grease	mg/L	1664A	36.60	40	0	91.5	78-114	0.273	18		9/5/2008

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American West Analytical Labs

WORK ORDER Summary

27-Aug-08

Work Order L85972

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+; EDD report. HOK-DB SB

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L85972-01A	Aspen Spring	8/26/2008 3:50:00 PM	8/27/2008	9/11/2008	Aqueous	SS-W-2540F	ww - tss/tds/ss	1
				9/11/2008		TDS-W	ww - tss/tds/ss	1
				9/11/2008		TSS-W-2540D	ww - tss/tds/ss	1
L85972-01B				9/11/2008		2320B-ALK-W	aug 27 - wc	1
				9/11/2008		300.0-W	aug 27 - wc	1
				9/11/2008		ACIDITY-W-2310B	aug 27 - wc	1
				9/11/2008		NO2-W	aug 27 - wc	1
				9/11/2008		NO3-W	aug 27 - wc	1
				9/11/2008		PO4-O	aug 27 - wc	1
L85972-01C				9/11/2008		OGB-W	OGBFridge	1
L85972-01D				9/11/2008		NH3-W	aug 27 - nh3	1
				9/11/2008		NH3-W-PREP	aug 27 - nh3	1
L85972-01E				9/11/2008	Aqueous-Dissolved	3005A-Diss	aug 27 - dis met	1
				9/11/2008		6020-W-DISS	aug 27 - dis met	1
				9/11/2008		HARD	aug 27 - dis met	1
				9/11/2008		ICP-W-DIS	aug 27 - dis met	1
L85972-01F				9/11/2008	Aqueous	3005A-ICPMS	aug 27 - met	1
				9/11/2008		ICP-W	aug 27 - met	1
L85972-02A	Sulfur Spring	8/26/2008 5:15:00 PM		9/11/2008		SS-W-2540F	ww - tss/tds/ss	1
				9/11/2008		TDS-W	ww - tss/tds/ss	1
				9/11/2008		TSS-W-2540D	ww - tss/tds/ss	1
L85972-02B				9/11/2008		2320B-ALK-W	aug 27 - wc	1
				9/11/2008		300.0-W	aug 27 - wc	1
				9/11/2008		ACIDITY-W-2310B	aug 27 - wc	1
				9/11/2008		NO2-W	aug 27 - wc	1
				9/11/2008		NO3-W	aug 27 - wc	1
				9/11/2008		PO4-O	aug 27 - wc	1
L85972-02C				9/11/2008		OGB-W	OGBFridge	1

WORK ORDER Summary

27-Aug-08

Work Order L85972

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+; EDD report.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L85972-02D	Sulfur Spring	8/26/2008 5:15:00 PM	8/27/2008	9/11/2008	Aqueous	NH3-W	aug 27 - nh3	1
				9/11/2008		NH3-W-PREP	aug 27 - nh3	1
L85972-02E				9/11/2008	Aqueous-Dissolved	3005A-Diss	aug 27 - dis met	1
				9/11/2008		6020-W-DISS	aug 27 - dis met	1
				9/11/2008		HARD	aug 27 - dis met	1
				9/11/2008		ICP-W-DIS	aug 27 - dis met	1
L85972-02F				9/11/2008	Aqueous	3005A-ICPMS	aug 27 - met	1
				9/11/2008		ICP-W	aug 27 - met	1
L85972-03A	RES-1	8/26/2008 6:20:00 PM		9/11/2008		SS-W-2540F	ww - tss/tds/ss	1
				9/11/2008		TDS-W	ww - tss/tds/ss	1
				9/11/2008		TSS-W-2540D	ww - tss/tds/ss	1
L85972-03B				9/11/2008		2320B-ALK-W	aug 27 - wc	1
				9/11/2008		300.0-W	aug 27 - wc	1
				9/11/2008		ACIDITY-W-2310B	aug 27 - wc	1
				9/11/2008		NO2-W	aug 27 - wc	1
				9/11/2008		NO3-W	aug 27 - wc	1
				9/11/2008		PO4-O	aug 27 - wc	1
L85972-03C				9/11/2008		OGB-W	OGBFridge	1
L85972-03D				9/11/2008		NH3-W	aug 27 - nh3	1
				9/11/2008		NH3-W-PREP	aug 27 - nh3	1
L85972-03E				9/11/2008	Aqueous-Dissolved	3005A-Diss	aug 27 - dis met	1
				9/11/2008		6020-W-DISS	aug 27 - dis met	1
				9/11/2008		HARD	aug 27 - dis met	1
				9/11/2008		ICP-W-DIS	aug 27 - dis met	1
L85972-03F				9/11/2008	Aqueous	3005A-ICPMS	aug 27 - met	1
				9/11/2008		ICP-W	aug 27 - met	1
L85972-04A	Miller Outlet	8/26/2008 6:00:00 PM		9/11/2008		SS-W-2540F	ww - tss/tds/ss	1
				9/11/2008		TDS-W	ww - tss/tds/ss	1
				9/11/2008		TSS-W-2540D	ww - tss/tds/ss	1

WORK ORDER Summary

27-Aug-08

Work Order L85972

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+; EDD report.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L85972-04B	Miller Outlet	8/26/2008 6:00:00 PM	8/27/2008	9/11/2008	Aqueous	2320B-ALK-W	aug 27 - wc	1
				9/11/2008		300.0-W	aug 27 - wc	1
				9/11/2008		ACIDITY-W-2310B	aug 27 - wc	1
				9/11/2008		NO2-W	aug 27 - wc	1
				9/11/2008		NO3-W	aug 27 - wc	1
				9/11/2008		PO4-O	aug 27 - wc	1
L85972-04C				9/11/2008		OGB-W	OGBFridge	1
L85972-04D				9/11/2008		NH3-W	aug 27 - nh3	1
				9/11/2008		NH3-W-PREP	aug 27 - nh3	1
L85972-04E				9/11/2008	Aqueous-Dissolved	3005A-Diss	aug 27 - dis met	1
				9/11/2008		6020-W-DISS	aug 27 - dis met	1
				9/11/2008		HARD	aug 27 - dis met	1
				9/11/2008		ICP-W-DIS	aug 27 - dis met	1
L85972-04F				9/11/2008	Aqueous	3005A-ICPMS	aug 27 - met	1
				9/11/2008		ICP-W	aug 27 - met	1
L85972-05A	Mud Creek	8/26/2008 6:40:00 PM		9/11/2008		SS-W-2540F	ww - tss/tds/ss	1
				9/11/2008		TDS-W	ww - tss/tds/ss	1
				9/11/2008		TSS-W-2540D	ww - tss/tds/ss	1
L85972-05B				9/11/2008		2320B-ALK-W	aug 27 - wc	1
				9/11/2008		300.0-W	aug 27 - wc	1
				9/11/2008		ACIDITY-W-2310B	aug 27 - wc	1
				9/11/2008		NO2-W	aug 27 - wc	1
				9/11/2008		NO3-W	aug 27 - wc	1
				9/11/2008		PO4-O	aug 27 - wc	1
L85972-05C				9/11/2008		OGB-W	OGBFridge	1
L85972-05D				9/11/2008		NH3-W	aug 27 - nh3	1
				9/11/2008		NH3-W-PREP	aug 27 - nh3	1
L85972-05E				9/11/2008	Aqueous-Dissolved	3005A-Diss	aug 27 - dis met	1
				9/11/2008		6020-W-DISS	aug 27 - dis met	1

WORK ORDER Summary

27-Aug-08

Work Order L85972

Client ID: CAR300 **QC Level:** 2+

Project: Scofield Baseline **Location:** **Contact:** Brad Lindsay

Comments: QCLevel: 2+; EDD report.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Storage	
L85972-05E	Mud Creek	8/26/2008 6:40:00 PM	8/27/2008	9/11/2008	Aqueous-Dissolved	HARD	aug 27 - dis met	1
				9/11/2008		ICP-W-DIS	aug 27 - dis met	1
L85972-05F				9/11/2008	Aqueous	3005A-ICPMS	aug 27 - met	1
				9/11/2008		ICP-W	aug 27 - met	1

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE (City) CO (State) 81413 (Zip)

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 85972

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 3 ✓	QC LEVEL 1 2 2+ 3 3+ 4	COMMENTS
ASPEN SPRING	8-26-08/15:50	W	6	✓		
SULFUR SPRING	/ 17:15					
RES-1	/ 18:20					
MILLER OUTLET	/ 18:00					
MUD CREEK	/ 18:40					

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes: on ice

3 Temperature 1.9°

4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:

5 Properly Preserved (Y) N
Notes:

6 Received Within Holding Times (Y) N
Notes:

COC Tape Was:

1 Present on Outer Package Y (N) NA

2 Unbroken on Outer Package Y N (NA)

3 Present on Sample Y (N) NA

4 Unbroken on Sample Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME: BRAD LINDSAY	Time: 17:00	PRINT NAME: Samantha Broadhead
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME

Special Instructions:

DID NOT FIELD FILTER

PLEASE MAIL RESULTS

& E-MAIL .XLS & .PDF

THANKS

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

LABORATORY MEASUREMENTS

*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 85972

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH	✓															
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline

Dear Brad Lindsay:

Lab Set ID: 1006480

American West Analytical Laboratories received 5 sample(s) on 6/25/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit.

Thank You,

Approved by: _____
Laboratory Director or designee

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYTICAL REPORT

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-001
Client Sample ID: Aspen Spring
Collection Date: 6/23/2010 1820h
Received Date: 6/25/2010 935h

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	6/25/2010 1540h	6/28/2010 1522h	SW6010C	0.10	**4.8**	
Manganese	mg/L	6/25/2010 1540h	6/25/2010 2216h	SW6020A	0.0012	**0.15**	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-002
Client Sample ID: Sulfur Spring
Collection Date: 6/23/2010 1930h
Received Date: 6/25/2010 935h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	6/25/2010 1540h	6/28/2010 1537h	SW6010C	0.10	< 0.10	
Manganese	mg/L	6/25/2010 1540h	6/25/2010 2305h	SW6020A	0.0012	**0.029**	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-003
Client Sample ID: RES-1
Collection Date: 6/23/2010 1955h
Received Date: 6/25/2010 935h

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	6/25/2010 1540h	6/28/2010 1541h	SW6010C	0.10	< 0.10	
Manganese	mg/L	6/25/2010 1540h	6/25/2010 2311h	SW6020A	0.0012	**0.027**	

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-004
Client Sample ID: Miller Outlet
Collection Date: 6/23/2010 2030h
Received Date: 6/25/2010 935h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	6/25/2010 1540h	6/28/2010 1545h	SW6010C	0.10	**1.4**	
Manganese	mg/L	6/25/2010 1540h	6/25/2010 2317h	SW6020A	0.0012	**0.075**	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-005
Client Sample ID: Mud Creek
Collection Date: 6/23/2010 2100h
Received Date: 6/25/2010 935h

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	6/25/2010 1540h	6/28/2010 1549h	SW6010C	0.10	**0.28**	
Manganese	mg/L	6/25/2010 1540h	6/25/2010 2323h	SW6020A	0.0012	**0.023**	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-001
Client Sample ID: Aspen Spring
Collection Date: 6/23/2010 1820h
Received Date: 6/25/2010 935h

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Salt Lake City, Utah
84115

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Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	6/25/2010 1538h	6/28/2010 1822h	SW6010C	0.10	< 0.10	
Arsenic	mg/L	6/25/2010 1538h	6/28/2010 2256h	SW6020A	0.00060	**0.0034**	
Boron	mg/L	6/25/2010 1538h	6/28/2010 1822h	SW6010C	0.50	< 0.50	
Cadmium	mg/L	6/25/2010 1538h	6/28/2010 2256h	SW6020A	0.00018	< 0.00018	
Calcium	mg/L	6/25/2010 1538h	6/28/2010 1822h	SW6010C	1.0	**44**	
Copper	mg/L	6/25/2010 1538h	6/28/2010 2256h	SW6020A	0.00080	**0.00095**	
Iron	mg/L	6/25/2010 1538h	6/28/2010 1822h	SW6010C	0.10	**1.1**	
Lead	mg/L	6/25/2010 1538h	6/28/2010 2256h	SW6020A	0.00040	< 0.00040	
Magnesium	mg/L	6/25/2010 1538h	6/28/2010 1822h	SW6010C	1.0	**9.1**	
Manganese	mg/L	6/25/2010 1538h	6/28/2010 2256h	SW6020A	0.0012	**0.0066**	
Molybdenum	mg/L	6/25/2010 1538h	6/28/2010 1822h	SW6010C	0.020	< 0.020	
Potassium	mg/L	6/25/2010 1538h	6/28/2010 1822h	SW6010C	1.0	**12**	
Selenium	mg/L	6/25/2010 1538h	6/28/2010 2256h	SW6020A	0.00080	**0.0013**	
Sodium	mg/L	6/25/2010 1538h	6/28/2010 1822h	SW6010C	1.0	**5.8**	
Zinc	mg/L	6/25/2010 1538h	6/28/2010 2256h	SW6020A	0.0050	< 0.0050	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-002
Client Sample ID: Sulfur Spring
Collection Date: 6/23/2010 1930h
Received Date: 6/25/2010 935h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	6/25/2010 1538h	6/28/2010 1830h	SW6010C	0.10	< 0.10	
Arsenic	mg/L	6/25/2010 1538h	6/28/2010 2302h	SW6020A	0.00060	< 0.00060	
Boron	mg/L	6/25/2010 1538h	6/28/2010 1830h	SW6010C	0.50	< 0.50	
Cadmium	mg/L	6/25/2010 1538h	6/28/2010 2302h	SW6020A	0.00018	< 0.00018	
Calcium	mg/L	6/25/2010 1538h	6/28/2010 1811h	SW6010C	10	**86**	
Copper	mg/L	6/25/2010 1538h	6/28/2010 2302h	SW6020A	0.00080	< 0.00080	
Iron	mg/L	6/25/2010 1538h	6/28/2010 1830h	SW6010C	0.10	< 0.10	
Lead	mg/L	6/25/2010 1538h	6/28/2010 2302h	SW6020A	0.00040	< 0.00040	
Magnesium	mg/L	6/25/2010 1538h	6/28/2010 1830h	SW6010C	1.0	**35**	1
Manganese	mg/L	6/25/2010 1538h	6/28/2010 2302h	SW6020A	0.0012	**0.030**	
Molybdenum	mg/L	6/25/2010 1538h	6/28/2010 1830h	SW6010C	0.020	< 0.020	
Potassium	mg/L	6/25/2010 1538h	6/28/2010 1830h	SW6010C	1.0	**5.0**	
Selenium	mg/L	6/25/2010 1538h	6/28/2010 2302h	SW6020A	0.00080	< 0.00080	
Sodium	mg/L	6/25/2010 1538h	6/28/2010 1830h	SW6010C	1.0	**8.5**	
Zinc	mg/L	6/25/2010 1538h	6/28/2010 2302h	SW6020A	0.0050	< 0.0050	

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.
Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-003
Client Sample ID: RES-1
Collection Date: 6/23/2010 1955h
Received Date: 6/25/2010 935h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	6/25/2010 1538h	6/28/2010 1727h	SW6010C	0.10	< 0.10	
Arsenic	mg/L	6/25/2010 1538h	6/28/2010 2333h	SW6020A	0.00060	**0.00071**	
Boron	mg/L	6/25/2010 1538h	6/28/2010 1727h	SW6010C	0.50	< 0.50	
Cadmium	mg/L	6/25/2010 1538h	6/28/2010 2333h	SW6020A	0.00018	< 0.00018	
Calcium	mg/L	6/25/2010 1538h	6/28/2010 1727h	SW6010C	1.0	**44**	
Copper	mg/L	6/25/2010 1538h	6/28/2010 2333h	SW6020A	0.00080	**0.0039**	
Iron	mg/L	6/25/2010 1538h	6/28/2010 1727h	SW6010C	0.10	< 0.10	
Lead	mg/L	6/25/2010 1538h	6/28/2010 2333h	SW6020A	0.00040	< 0.00040	
Magnesium	mg/L	6/25/2010 1538h	6/28/2010 1727h	SW6010C	1.0	**16**	
Manganese	mg/L	6/25/2010 1538h	6/28/2010 2333h	SW6020A	0.0012	**0.0069**	
Molybdenum	mg/L	6/25/2010 1538h	6/28/2010 1727h	SW6010C	0.020	< 0.020	
Potassium	mg/L	6/25/2010 1538h	6/28/2010 1727h	SW6010C	1.0	**2.0**	
Selenium	mg/L	6/25/2010 1538h	6/28/2010 2333h	SW6020A	0.00080	< 0.00080	
Sodium	mg/L	6/25/2010 1538h	6/28/2010 1727h	SW6010C	1.0	**11**	
Zinc	mg/L	6/25/2010 1538h	6/28/2010 2333h	SW6020A	0.0050	**0.019**	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-004
Client Sample ID: Miller Outlet
Collection Date: 6/23/2010 2030h
Received Date: 6/25/2010 935h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	6/25/2010 1538h	6/28/2010 1731h	SW6010C	0.10	< 0.10	
Arsenic	mg/L	6/25/2010 1538h	6/28/2010 2339h	SW6020A	0.00060	**0.00071**	
Boron	mg/L	6/25/2010 1538h	6/28/2010 1731h	SW6010C	0.50	< 0.50	
Cadmium	mg/L	6/25/2010 1538h	6/28/2010 2339h	SW6020A	0.00018	< 0.00018	
Calcium	mg/L	6/25/2010 1538h	6/28/2010 1642h	SW6010C	10	**66**	
Copper	mg/L	6/25/2010 1538h	6/28/2010 2339h	SW6020A	0.00080	**0.0014**	
Iron	mg/L	6/25/2010 1538h	6/28/2010 1731h	SW6010C	0.10	< 0.10	
Lead	mg/L	6/25/2010 1538h	6/28/2010 2339h	SW6020A	0.00040	< 0.00040	
Magnesium	mg/L	6/25/2010 1538h	6/28/2010 1731h	SW6010C	1.0	**16**	
Manganese	mg/L	6/25/2010 1538h	6/28/2010 2339h	SW6020A	0.0012	**0.0013**	
Molybdenum	mg/L	6/25/2010 1538h	6/28/2010 1731h	SW6010C	0.020	< 0.020	
Potassium	mg/L	6/25/2010 1538h	6/28/2010 1731h	SW6010C	1.0	**2.3**	
Selenium	mg/L	6/25/2010 1538h	6/28/2010 2339h	SW6020A	0.00080	< 0.00080	
Sodium	mg/L	6/25/2010 1538h	6/28/2010 1731h	SW6010C	1.0	**6.5**	
Zinc	mg/L	6/25/2010 1538h	6/28/2010 2339h	SW6020A	0.0050	< 0.0050	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-005
Client Sample ID: Mud Creek
Collection Date: 6/23/2010 2100h
Received Date: 6/25/2010 935h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	6/25/2010 1538h	6/28/2010 1735h	SW6010C	0.10	< 0.10	
Arsenic	mg/L	6/25/2010 1538h	6/28/2010 2345h	SW6020A	0.00060	< 0.00060	
Boron	mg/L	6/25/2010 1538h	6/28/2010 1735h	SW6010C	0.50	< 0.50	
Cadmium	mg/L	6/25/2010 1538h	6/28/2010 2345h	SW6020A	0.00018	< 0.00018	
Calcium	mg/L	6/25/2010 1538h	6/28/2010 1735h	SW6010C	1.0	**50**	
Copper	mg/L	6/25/2010 1538h	6/28/2010 2345h	SW6020A	0.00080	**0.0011**	
Iron	mg/L	6/25/2010 1538h	6/28/2010 1735h	SW6010C	0.10	< 0.10	
Lead	mg/L	6/25/2010 1538h	6/28/2010 2345h	SW6020A	0.00040	< 0.00040	
Magnesium	mg/L	6/25/2010 1538h	6/28/2010 1735h	SW6010C	1.0	**23**	
Manganese	mg/L	6/25/2010 1538h	6/28/2010 2345h	SW6020A	0.0012	**0.010**	
Molybdenum	mg/L	6/25/2010 1538h	6/28/2010 1735h	SW6010C	0.020	< 0.020	
Potassium	mg/L	6/25/2010 1538h	6/28/2010 1735h	SW6010C	1.0	**4.2**	
Selenium	mg/L	6/25/2010 1538h	6/28/2010 2345h	SW6020A	0.00080	< 0.00080	
Sodium	mg/L	6/25/2010 1538h	6/28/2010 1735h	SW6010C	1.0	**24**	
Zinc	mg/L	6/25/2010 1538h	6/28/2010 2345h	SW6020A	0.0050	< 0.0050	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-001
Client Sample ID: Aspen Spring
Collection Date: 6/23/2010 1820h
Received Date: 6/25/2010 935h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		6/28/2010 820h	A2310B	15	< 15	
Alkalinity (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	**150**	
Ammonia (as N)	mg/L	6/28/2010 1638h	6/29/2010 852h	E350.1	0.050	**0.15**	
Bicarbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	**150**	
Carbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	10	< 10	
Chloride	mg/L		6/29/2010 2206h	E300.0	1.0	**18**	
Hardness (as CaCO3)	mg/L		6/28/2010 000h	A2340B	10	**150**	
Nitrate (as N)	mg/L		6/25/2010 1533h	E353.2	0.010	< 0.010	
Nitrite (as N)	mg/L		6/25/2010 1533h	E353.2	0.010	**0.021**	
Oil & Grease	mg/L		6/30/2010 1314h	E1664A	3.0	< 3.0	
pH @ 25° C	pH Units		6/25/2010 1830h	A4500-H+B	1.00	**7.71**	H
Phosphate, Total Ortho (as P)	mg/L		6/25/2010 1218h	E365.1	0.050	< 0.050	1
Settleable Solids	mL/L		6/25/2010 1120h	A2540F	0.10	< 0.10	
Sulfate	mg/L		6/29/2010 2206h	E300.0	7.5	**9.9**	
Total Dissolved Solids	mg/L		6/25/2010 1400h	A2540C	20	**220**	
Total Suspended Solids	mg/L		6/25/2010 1630h	A2540D	3.0	**13**	

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Project: Scofield Baseline
Lab Sample ID: 1006480-002
Client Sample ID: Sulfur Spring
Collection Date: 6/23/2010 1930h
Received Date: 6/25/2010 935h

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		6/28/2010 820h	A2310B	15	< 15	
Alkalinity (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	40	**350**	
Ammonia (as N)	mg/L	6/28/2010 1638h	6/29/2010 855h	E350.1	0.050	**0.21**	
Bicarbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	40	**350**	
Carbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	10	< 10	
Chloride	mg/L		6/29/2010 2315h	E300.0	1.0	**6.5**	
Hardness (as CaCO3)	mg/L		6/28/2010 000h	A2340B	100	**360**	
Nitrate (as N)	mg/L		6/25/2010 1540h	E353.2	0.010	< 0.010	
Nitrite (as N)	mg/L		6/25/2010 1540h	E353.2	0.010	< 0.010	
Oil & Grease	mg/L		6/30/2010 1314h	E1664A	3.0	< 3.0	
pH @ 25° C	pH Units		6/25/2010 1830h	A4500-H+B	1.00	**7.30**	H
Phosphate, Total Ortho (as P)	mg/L		6/25/2010 1220h	E365.1	0.050	< 0.050	
Settleable Solids	mL/L		6/25/2010 1120h	A2540F	0.10	< 0.10	
Sulfate	mg/L		6/29/2010 2315h	E300.0	7.5	**44**	
Total Dissolved Solids	mg/L		6/25/2010 1400h	A2540C	20	**370**	
Total Suspended Solids	mg/L		6/25/2010 1630h	A2540D	3.0	< 3.0	

H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-003
Client Sample ID: RES-1
Collection Date: 6/23/2010 1955h
Received Date: 6/25/2010 935h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		6/28/2010 820h	A2310B	15	< 15	
Alkalinity (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	**170**	
Ammonia (as N)	mg/L	6/28/2010 1638h	6/29/2010 856h	E350.1	0.050	**0.089**	
Bicarbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	**160**	
Carbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	< 20	
Chloride	mg/L		6/29/2010 2339h	E300.0	1.0	**8.3**	
Hardness (as CaCO3)	mg/L		6/28/2010 000h	A2340B	10	**180**	
Nitrate (as N)	mg/L		6/25/2010 1541h	E353.2	0.010	< 0.010	
Nitrite (as N)	mg/L		6/25/2010 1541h	E353.2	0.010	< 0.010	
Oil & Grease	mg/L		6/30/2010 1314h	E1664A	3.0	< 3.0	
pH @ 25° C	pH Units		6/25/2010 1830h	A4500-H+B	1.00	**8.50**	H
Phosphate, Total Ortho (as P)	mg/L		6/25/2010 1221h	E365.1	0.050	< 0.050	
Settleable Solids	mL/L		6/25/2010 1120h	A2540F	0.10	< 0.10	
Sulfate	mg/L		6/29/2010 2339h	E300.0	7.5	**30**	
Total Dissolved Solids	mg/L		6/25/2010 1400h	A2540C	20	**200**	
Total Suspended Solids	mg/L		6/25/2010 1630h	A2540D	3.0	**11**	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1006480-004
Client Sample ID: Miller Outlet
Collection Date: 6/23/2010 2030h
Received Date: 6/25/2010 935h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

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QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		6/28/2010 820h	A2310B	15	< 15	
Alkalinity (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	**210**	
Ammonia (as N)	mg/L	6/28/2010 1638h	6/29/2010 858h	E350.1	0.050	**0.084**	
Bicarbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	**210**	
Carbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	10	< 10	
Chloride	mg/L		6/30/2010 002h	E300.0	1.0	**10**	
Hardness (as CaCO3)	mg/L		6/28/2010 000h	A2340B	100	**230**	
Nitrate (as N)	mg/L		6/25/2010 1549h	E353.2	0.010	**0.048**	
Nitrite (as N)	mg/L		6/25/2010 1549h	E353.2	0.010	< 0.010	
Oil & Grease	mg/L		6/30/2010 1314h	E1664A	3.0	< 3.0	
pH @ 25° C	pH Units		6/25/2010 1830h	A4500-H+B	1.00	**8.29**	H
Phosphate, Total Ortho (as P)	mg/L		6/25/2010 1222h	E365.1	0.050	< 0.050	
Settleable Solids	mL/L		6/25/2010 1120h	A2540F	0.10	**0.20**	
Sulfate	mg/L		6/30/2010 002h	E300.0	7.5	**22**	
Total Dissolved Solids	mg/L		6/25/2010 1400h	A2540C	20	**240**	
Total Suspended Solids	mg/L		6/25/2010 1630h	A2540D	3.0	**86**	

H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Project: Scofield Baseline
Lab Sample ID: 1006480-005
Client Sample ID: Mud Creek
Collection Date: 6/23/2010 2100h
Received Date: 6/25/2010 935h

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		6/28/2010 820h	A2310B	15	< 15	
Alkalinity (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	**200**	
Ammonia (as N)	mg/L	6/28/2010 1638h	6/29/2010 859h	E350.1	0.050	**0.12**	
Bicarbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	**190**	
Carbonate (as CaCO3)	mg/L		6/28/2010 1000h	A2320B	20	< 20	
Chloride	mg/L		6/30/2010 112h	E300.0	1.0	**13**	
Hardness (as CaCO3)	mg/L		6/28/2010 000h	A2340B	10	**220**	
Nitrate (as N)	mg/L		6/25/2010 1550h	E353.2	0.010	**0.17**	
Nitrite (as N)	mg/L		6/25/2010 1550h	E353.2	0.010	< 0.010	
Oil & Grease	mg/L		6/30/2010 1314h	E1664A	3.0	< 3.0	
pH @ 25° C	pH Units		6/25/2010 1830h	A4500-H+B	1.00	**8.49**	H
Phosphate, Total Ortho (as P)	mg/L		6/25/2010 1223h	E365.1	0.050	< 0.050	
Settleable Solids	mL/L		6/25/2010 1120h	A2540F	0.10	< 0.10	
Sulfate	mg/L		6/30/2010 112h	E300.0	7.5	**69**	
Total Dissolved Solids	mg/L		6/25/2010 1400h	A2540C	20	**300**	
Total Suspended Solids	mg/L		6/25/2010 1630h	A2540D	3.0	**29**	

H - Sample was received outside of the holding time.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1006480
Project: Scofield Baseline

Dept: ME
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-7235	Aluminum	mg/L	SW6010C	0.97	1.000	0	97.5	75-125				6/28/2010
LCS-7235	Boron	mg/L	SW6010C	0.96	1.000	0	96.4	75-125				6/28/2010
LCS-7235	Calcium	mg/L	SW6010C	9.8	10.00	0	97.6	75-125				6/28/2010
LCS-7235	Iron	mg/L	SW6010C	0.96	1.000	0	96.2	75-125				6/28/2010
LCS-7235	Magnesium	mg/L	SW6010C	9.5	10.00	0	94.9	75-125				6/28/2010
LCS-7235	Molybdenum	mg/L	SW6010C	0.19	0.2000	0	92.7	75-125				6/28/2010
LCS-7235	Potassium	mg/L	SW6010C	9.8	10.00	0	98.3	75-125				6/28/2010
LCS-7235	Sodium	mg/L	SW6010C	9.3	10.00	0	92.8	75-125				6/28/2010
LCS-7236	Iron	mg/L	SW6010C	1.0	1.000	0	101	75-125				6/28/2010
LCS-7235	Arsenic	mg/L	SW6020A	0.20	0.2000	0	100	85-115				6/28/2010
LCS-7235	Cadmium	mg/L	SW6020A	0.20	0.2000	0	99.8	85-115				6/28/2010
LCS-7235	Copper	mg/L	SW6020A	0.20	0.2000	0	100	85-115				6/28/2010
LCS-7235	Lead	mg/L	SW6020A	0.20	0.2000	0	101	85-115				6/28/2010
LCS-7235	Manganese	mg/L	SW6020A	0.20	0.2000	0	101	85-115				6/28/2010
LCS-7235	Selenium	mg/L	SW6020A	0.20	0.2000	0	99.5	85-115				6/28/2010
LCS-7235	Zinc	mg/L	SW6020A	1.0	1.000	0	100	85-115				6/28/2010
LCS-7236	Manganese	mg/L	SW6020A	0.20	0.2000	0	99.0	85-115				6/25/2010

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1006480
Project: Scofield Baseline

Dept: ME
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-7235	Aluminum	mg/L	SW6010C	< 0.10				-				6/28/2010
MB-7235	Boron	mg/L	SW6010C	< 0.50				-				6/28/2010
MB-7235	Calcium	mg/L	SW6010C	< 1.0				-				6/28/2010
MB-7235	Iron	mg/L	SW6010C	< 0.10				-				6/28/2010
MB-7235	Magnesium	mg/L	SW6010C	< 1.0				-				6/28/2010
MB-7235	Molybdenum	mg/L	SW6010C	< 0.020				-				6/28/2010
MB-7235	Potassium	mg/L	SW6010C	< 1.0				-				6/28/2010
MB-7235	Sodium	mg/L	SW6010C	< 1.0				-				6/28/2010
MB-7236	Iron	mg/L	SW6010C	< 0.10				-				6/28/2010
MB-7235	Arsenic	mg/L	SW6020A	< 0.00060				-				6/28/2010
MB-7235	Cadmium	mg/L	SW6020A	< 0.00018				-				6/28/2010
MB-7235	Copper	mg/L	SW6020A	< 0.00080				-				6/28/2010
MB-7235	Lead	mg/L	SW6020A	< 0.00040				-				6/28/2010
MB-7235	Manganese	mg/L	SW6020A	< 0.0012				-				6/28/2010
MB-7235	Selenium	mg/L	SW6020A	< 0.00080				-				6/28/2010
MB-7235	Zinc	mg/L	SW6020A	< 0.0050				-				6/28/2010
MB-7236	Manganese	mg/L	SW6020A	< 0.0012				-				6/25/2010

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1006480
Project: Scofield Baseline

Dept: ME
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1006480-002EMS	Aluminum	mg/L	SW6010C	1.0	1.000	0	99.8	75-125				6/28/2010
1006480-002EMS	Boron	mg/L	SW6010C	1.1	1.000	0.04776	107	75-125				6/28/2010
1006480-002EMS	Iron	mg/L	SW6010C	1.0	1.000	0	100	75-125				6/28/2010
1006480-002EMS	Magnesium	mg/L	SW6010C	42	10.00	34.55	72.6	75-125			[1]	6/28/2010
1006480-002EMS	Molybdenum	mg/L	SW6010C	0.20	0.2000	0	101	75-125				6/28/2010
1006480-002EMS	Potassium	mg/L	SW6010C	15	10.00	5.021	97.5	75-125				6/28/2010
1006480-002EMS	Sodium	mg/L	SW6010C	17	10.00	8.465	89.5	75-125				6/28/2010
1006480-002EMS	Calcium	mg/L	SW6010C	96	10.00	85.79	102	75-125				6/28/2010
1006480-001FMS	Iron	mg/L	SW6010C	6.0	1.000	4.809	118	75-125				6/28/2010
1006480-002EMS	Arsenic	mg/L	SW6020A	0.20	0.2000	0.0003180	102	70-130				6/28/2010
1006480-002EMS	Cadmium	mg/L	SW6020A	0.20	0.2000	0.00003000	99.7	70-130				6/28/2010
1006480-002EMS	Copper	mg/L	SW6020A	0.21	0.2000	0.0006360	103	70-130				6/28/2010
1006480-002EMS	Lead	mg/L	SW6020A	0.20	0.2000	0	97.9	70-130				6/28/2010
1006480-002EMS	Manganese	mg/L	SW6020A	0.23	0.2000	0.03044	99.4	70-130				6/28/2010
1006480-002EMS	Selenium	mg/L	SW6020A	0.20	0.2000	0.0001680	100	70-130				6/28/2010
1006480-002EMS	Zinc	mg/L	SW6020A	1.0	1.000	0	100	70-130				6/28/2010
1006480-001FMS	Manganese	mg/L	SW6020A	0.35	0.2000	0.1457	102	70-130				6/25/2010

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1006480
Project: Scofield Baseline

Dept: ME
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1006480-002EMSD	Aluminum	mg/L	SW6010C	1.0	1.000	0	101	75-125	1.44	20		6/28/2010
1006480-002EMSD	Boron	mg/L	SW6010C	1.1	1.000	0.04776	109	75-125	1.76	20		6/28/2010
1006480-002EMSD	Iron	mg/L	SW6010C	1.0	1.000	0	101	75-125	0.749	20		6/28/2010
1006480-002EMSD	Magnesium	mg/L	SW6010C	43	10.00	34.55	83.4	75-125	2.54	20		6/28/2010
1006480-002EMSD	Molybdenum	mg/L	SW6010C	0.20	0.2000	0	101	75-125	0.163	20		6/28/2010
1006480-002EMSD	Potassium	mg/L	SW6010C	15	10.00	5.021	101	75-125	2.47	20		6/28/2010
1006480-002EMSD	Sodium	mg/L	SW6010C	18	10.00	8.465	93.5	75-125	2.24	20		6/28/2010
1006480-002EMSD	Calcium	mg/L	SW6010C	98	10.00	85.79	125	75-125	2.38	20		6/28/2010
1006480-001FMSD	Iron	mg/L	SW6010C	5.7	1.000	4.809	90.8	75-125	4.66	20		6/28/2010
1006480-002EMSD	Arsenic	mg/L	SW6020A	0.20	0.2000	0.0003180	101	70-130	0.614	20		6/28/2010
1006480-002EMSD	Cadmium	mg/L	SW6020A	0.20	0.2000	0.00003000	99.1	70-130	0.590	20		6/28/2010
1006480-002EMSD	Copper	mg/L	SW6020A	0.21	0.2000	0.0006360	103	70-130	0.0825	20		6/28/2010
1006480-002EMSD	Lead	mg/L	SW6020A	0.20	0.2000	0	97.8	70-130	0.122	20		6/28/2010
1006480-002EMSD	Manganese	mg/L	SW6020A	0.23	0.2000	0.03044	99.6	70-130	0.183	20		6/28/2010
1006480-002EMSD	Selenium	mg/L	SW6020A	0.20	0.2000	0.0001680	102	70-130	1.87	20		6/28/2010
1006480-002EMSD	Zinc	mg/L	SW6020A	1.0	1.000	0	99.7	70-130	0.533	20		6/28/2010
1006480-001FMSD	Manganese	mg/L	SW6020A	0.35	0.2000	0.1457	101	70-130	0.256	20		6/25/2010

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1006480
Project: Scofield Baseline

Dept: WC
QC Type: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1006480-001BDUP	pH @ 25° C	pH Units	A4500-H+B	7.74		7.710		-	0.388	5	H	6/25/2010
1006475-005ADUP	Total Dissolved Solids	mg/L	A2540C	3,700		3,720		-	0.750	20		6/25/2010
1006480-005ADUP	Total Dissolved Solids	mg/L	A2540C	290		296.0		-	1.36	20		6/25/2010
1006480-002ADUP	Total Suspended Solids	mg/L	A2540D	< 3.0		2.000		-	0	20		6/25/2010
1006497-001ADUP	Total Suspended Solids	mg/L	A2540D	39		38.00		-	2.60	20		6/25/2010

H - Sample was received outside of the holding time.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1006480
Project: Scofield Baseline

Dept: WC
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R15964	Chloride	mg/L	E300.0	4.8	5.000	0	96.7	90-110				6/29/2010
LCS-R15964	Sulfate	mg/L	E300.0	5.2	5.000	0	103	90-110				6/29/2010
LCS-R15883	Acidity	mg/L	A2310B	52	50.00	0	104	80-120				6/28/2010
LCS-R15888	Alkalinity (as CaCO3)	mg/L	A2320B	51,000	50,000	0	102	90-110				6/28/2010
LCS-7255	Ammonia (as N)	mg/L	E350.1	1.0	1.000	0	104	90-110				6/29/2010
LCS-R15860	Nitrite (as N)	mg/L	E353.2	1.0	1.000	0	105	90-110				6/25/2010
LCS-R15861	Nitrate (as N)	mg/L	E353.2	1.1	1.000	0	105	90-110				6/25/2010
LCS-R16017	Oil & Grease	mg/L	E1664A	40	40.00	2.500	93.3	78-114				6/30/2010
LCS-R15876	pH @ 25° C	pH Units	A4500-H+B	8.96	9.000	0	99.6	98-102				6/25/2010
LCS-R15848	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.90	1.000	0	90.3	90-110				6/25/2010
LCS-R15923	Total Dissolved Solids	mg/L	A2540C	190	205.0	0	93.7	80-120				6/25/2010
LCS-R15886	Total Suspended Solids	mg/L	A2540D	98	100.0	0	98.0	80-120				6/25/2010

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1006480
Project: Scofield Baseline

Dept: WC
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R15964	Chloride	mg/L	E300.0	< 0.10				-				6/29/2010
MB-R15964	Sulfate	mg/L	E300.0	< 0.75				-				6/29/2010
MB-R15883	Acidity	mg/L	A2310B	< 15				-				6/28/2010
MB-R15888	Alkalinity (as CaCO3)	mg/L	A2320B	< 10				-				6/28/2010
MB-R15888	Bicarbonate (as CaCO3)	mg/L	A2320B	< 10				-				6/28/2010
MB-R15888	Carbonate (as CaCO3)	mg/L	A2320B	< 10				-				6/28/2010
MB-7255	Ammonia (as N)	mg/L	E350.1	< 0.050				-				6/29/2010
MB-R15860	Nitrite (as N)	mg/L	E353.2	< 0.010				-				6/25/2010
MB-R15861	Nitrate (as N)	mg/L	E353.2	< 0.010				-				6/25/2010
MB-R16017	Oil & Grease	mg/L	E1664A	< 3.0				-				6/30/2010
MB-R15848	Phosphate, Total Ortho (as P)	mg/L	E365.1	< 0.050				-				6/25/2010
MB-R15923	Total Dissolved Solids	mg/L	A2540C	< 10				-				6/25/2010
MB-R15886	Total Suspended Solids	mg/L	A2540D	< 3.0				-				6/25/2010

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1006480
Project: Scofield Baseline

Dept: WC
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1006496-003DMS	Chloride	mg/L	E300.0	670	500.0	175.3	99.4	90-110				6/29/2010
1006443-001GMS	Chloride	mg/L	E300.0	1,200	500.0	705.2	100	90-110				6/29/2010
1006480-001BMS	Chloride	mg/L	E300.0	67	50.00	18.21	98.1	90-110				6/29/2010
1006480-001BMS	Sulfate	mg/L	E300.0	60	50.00	9.878	99.4	90-110				6/29/2010
1006480-002BMS	Acidity	mg/L	A2310B	50	50.00	0	100	80-120				6/28/2010
1006480-001BMS	Alkalinity (as CaCO3)	mg/L	A2320B	270	100.0	153.0	114	80-120				6/28/2010
1006496-003DMS	Alkalinity (as CaCO3)	mg/L	A2320B	610	200.0	415.0	98.5	80-120				6/28/2010
1006480-001DMS	Ammonia (as N)	mg/L	E350.1	1.1	1.000	0.1466	99.2	90-110				6/29/2010
1006480-001BMS	Nitrite (as N)	mg/L	E353.2	1.1	1.000	0.02090	108	90-110				6/25/2010
1006480-001BMS	Nitrate (as N)	mg/L	E353.2	1.1	1.000	0	107	90-110				6/25/2010
1006480-001BMS	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.87	1.000	0.02430	84.9	90-110			1	6/25/2010

1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1006480
Project: Scofield Baseline

Dept: WC
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1006496-003DMSD	Chloride	mg/L	E300.0	670	500.0	175.3	99.1	90-110	0.259	20		6/29/2010
1006443-001GMSD	Chloride	mg/L	E300.0	1,200	500.0	705.2	98.6	90-110	0.600	20		6/29/2010
1006480-001BMSD	Chloride	mg/L	E300.0	67	50.00	18.21	98.3	90-110	0.174	20		6/29/2010
1006480-001BMSD	Sulfate	mg/L	E300.0	60	50.00	9.878	99.4	90-110	0.00336	20		6/29/2010
1006480-002BMSD	Acidity	mg/L	A2310B	50	50.00	0	100	80-120	0	0		6/28/2010
1006480-001BMSD	Alkalinity (as CaCO3)	mg/L	A2320B	270	100.0	153.0	114	80-120	0	10		6/28/2010
1006496-003DMSD	Alkalinity (as CaCO3)	mg/L	A2320B	620	200.0	415.0	100	80-120	0.489	10		6/28/2010
1006480-001DMSD	Ammonia (as N)	mg/L	E350.1	1.2	1.000	0.1466	105	90-110	4.63	10		6/29/2010
1006480-001BMSD	Nitrite (as N)	mg/L	E353.2	1.1	1.000	0.02090	105	90-110	3.06	10		6/25/2010
1006480-001BMSD	Nitrate (as N)	mg/L	E353.2	1.0	1.000	0	104	90-110	3.45	10		6/25/2010
1006480-001BMSD	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.84	1.000	0.02430	82.0	90-110	3.38	10	[1]	6/25/2010

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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American West Analytical Laboratories

WORK ORDER Summary

25-Jun-10

Work Order: 1006480
WO Type: Project

Client ID:	CAR300	**Contact:**	Brad Lindsay
Project ID:	CAR300-Scofield Baseline	**PM:**	
Project:	Scofield Baseline	**QC Level:**	LEVEL II+
ChkList Completed On:		**Completed By:**	
ChkList Reviewed On:		**Reviewed By:**	
WO Reviewed On:		**Reviewed By:**	

COMMENTS :
QC 2+, EDD. Footnote report, pH received outside of hold;

DB

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1006480-001A	Aspen Spring	6/23/2010 6:20:00 PM	6/25/2010 9:35:00 AM	7/12/2010	Aqueous	SS-W-2540F	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TDS-W-2540C	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TSS-W-2540D	☐	☐	☐	☐	ww - ss/tss/tds
1006480-001B				7/12/2010		300.0-W	☐	☐	☑	☐	DF - wc
	SEL Analytes: CL SO4										
				7/12/2010		ACIDITY-W-2310B	☐	☐	☐	☐	DF - wc
				7/12/2010		ALK-W-2320B	☐	☐	☑	☐	DF - wc
	SEL Analytes: ALK ALKB ALKC										
				7/12/2010		NO2-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		NO3-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		PH-4500H+B	☐	☐	☐	☐	DF - wc
				7/12/2010		PO4-O-365.1	☐	☐	☐	☐	DF - wc
1006480-001C				7/12/2010		OGB-W-1664A	☐	☐	☐	☐	ogb
1006480-001D				7/12/2010		NH3-W-350.1	☐	☐	☐	☐	DF - nh3
				7/12/2010		NH3-W-PR	☐	☐	☐	☐	DF - nh3
1006480-001E				7/12/2010		3005A-DIS-PR	☐	☐	☐	☐	DF - dis met
				7/12/2010		6010C-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AL B CA FE MG MO K NA										
				7/12/2010		6020-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AS CD CU PB MN SE ZN										
				7/12/2010		HARD-2340B	☐	☐	☐	☐	DF - dis met
1006480-001F				7/12/2010		3005A-ICPMS-PR	☐	☐	☐	☐	DF - total met

WORK ORDER Summary

25-Jun-10

Work Order: 1006480
WO Type: Project

Client ID:	CAR300	**Contact:**	Brad Lindsay
Project ID:	CAR300-Scofield Baseline	**PM:**	
Project:	Scofield Baseline	**QC Level:**	LEVEL II+
ChkList Completed On:		**Completed By**	
ChkList Reviewed On:		**Reviewed By:**	
WO Reviewed On:		**Reviewed By:**	

COMMENTS :
QC 2+, EDD. Footnote report, pH received outside of hold;

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1006480-001F	Aspen Spring	6/23/2010 6:20:00 PM	6/25/2010 9:35:00 AM	7/12/2010	Aqueous	6010C-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: FE										
				7/12/2010		6020-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: MN										
1006480-002A	Sulfur Spring	6/23/2010 7:30:00 PM		7/12/2010		SS-W-2540F	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TDS-W-2540C	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TSS-W-2540D	☐	☐	☐	☐	ww - ss/tss/tds
1006480-002B				7/12/2010		300.0-W	☐	☐	☑	☐	DF - wc
	SEL Analytes: CL SO4										
				7/12/2010		ACIDITY-W-2310B	☐	☐	☐	☐	DF - wc
				7/12/2010		ALK-W-2320B	☐	☐	☑	☐	DF - wc
	SEL Analytes: ALK ALKB ALKC										
				7/12/2010		NO2-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		NO3-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		PH-4500H+B	☐	☐	☐	☐	DF - wc
				7/12/2010		PO4-O-365.1	☐	☐	☐	☐	DF - wc
1006480-002C				7/12/2010		OGB-W-1664A	☐	☐	☐	☐	ogb
1006480-002D				7/12/2010		NH3-W-350.1	☐	☐	☐	☐	DF - nh3
				7/12/2010		NH3-W-PR	☐	☐	☐	☐	DF - nh3
1006480-002E				7/12/2010		3005A-DIS-PR	☐	☐	☐	☐	DF - dis met
				7/12/2010		6010C-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AL B CA FE MG MO K NA										
				7/12/2010		6020-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AS CD CU PB MN SE ZN										

WORK ORDER Summary

25-Jun-10

Work Order: 1006480

WO Type: Project

Client ID:	CAR300	**Contact:**	Brad Lindsay
Project ID:	CAR300-Scofield Baseline	**PM:**	
Project:	Scofield Baseline	**QC Level:**	LEVEL II+
ChkList Completed On:		**Completed By**	
ChkList Reviewed On:		**Reviewed By:**	
WO Reviewed On:		**Reviewed By:**	

COMMENTS :

QC 2+, EDD. Footnote report, pH received outside of hold;

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1006480-002E	Sulfur Spring	6/23/2010 7:30:00 PM	6/25/2010 9:35:00 AM	7/12/2010	Aqueous	HARD-2340B	☐	☐	☐	☐	DF - dis met
1006480-002F				7/12/2010		3005A-ICPMS-PR	☐	☐	☐	☐	DF - total met
				7/12/2010		6010C-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: FE										
				7/12/2010		6020-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: MN										
1006480-003A	RES-1	6/23/2010 7:55:00 PM		7/12/2010		SS-W-2540F	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TDS-W-2540C	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TSS-W-2540D	☐	☐	☐	☐	ww - ss/tss/tds
1006480-003B				7/12/2010		300.0-W	☐	☐	☑	☐	DF - wc
	SEL Analytes: CL SO4										
				7/12/2010		ACIDITY-W-2310B	☐	☐	☐	☐	DF - wc
				7/12/2010		ALK-W-2320B	☐	☐	☑	☐	DF - wc
	SEL Analytes: ALK ALKB ALKC										
				7/12/2010		NO2-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		NO3-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		PH-4500H+B	☐	☐	☐	☐	DF - wc
				7/12/2010		PO4-O-365.1	☐	☐	☐	☐	DF - wc
1006480-003C				7/12/2010		OGB-W-1664A	☐	☐	☐	☐	ogb
1006480-003D				7/12/2010		NH3-W-350.1	☐	☐	☐	☐	DF - nh3
				7/12/2010		NH3-W-PR	☐	☐	☐	☐	DF - nh3
1006480-003E				7/12/2010		3005A-DIS-PR	☐	☐	☐	☐	DF - dis met
				7/12/2010		6010C-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AL B CA FE MG MO K NA										

WORK ORDER Summary

25-Jun-10

Work Order: 1006480
WO Type: Project

Client ID:	CAR300	**Contact:**	Brad Lindsay
Project ID:	CAR300-Scofield Baseline	**PM:**	
Project:	Scofield Baseline	**QC Level:**	LEVEL II+
ChkList Completed On:		**Completed By**	
ChkList Reviewed On:		**Reviewed By:**	
WO Reviewed On:		**Reviewed By:**	

COMMENTS :
QC 2+, EDD. Footnote report, pH received outside of hold;

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1006480-003E	RES-1	6/23/2010 7:55:00 PM	6/25/2010 9:35:00 AM	7/12/2010	Aqueous	6020-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AS CD CU PB MN SE ZN										
				7/12/2010		HARD-2340B	☐	☐	☐	☐	DF - dis met
1006480-003F				7/12/2010		3005A-ICPMS-PR	☐	☐	☐	☐	DF - total met
				7/12/2010		6010C-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: FE										
				7/12/2010		6020-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: MN										
1006480-004A	Miller Outlet	6/23/2010 8:30:00 PM		7/12/2010		SS-W-2540F	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TDS-W-2540C	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TSS-W-2540D	☐	☐	☐	☐	ww - ss/tss/tds
1006480-004B				7/12/2010		300.0-W	☐	☐	☑	☐	DF - wc
	SEL Analytes: CL SO4										
				7/12/2010		ACIDITY-W-2310B	☐	☐	☐	☐	DF - wc
				7/12/2010		ALK-W-2320B	☐	☐	☑	☐	DF - wc
	SEL Analytes: ALK ALKB ALKC										
				7/12/2010		NO2-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		NO3-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		PH-4500H+B	☐	☐	☐	☐	DF - wc
				7/12/2010		PO4-O-365.1	☐	☐	☐	☐	DF - wc
1006480-004C				7/12/2010		OGB-W-1664A	☐	☐	☐	☐	ogb
1006480-004D				7/12/2010		NH3-W-350.1	☐	☐	☐	☐	DF - nh3
				7/12/2010		NH3-W-PR	☐	☐	☐	☐	DF - nh3
1006480-004E				7/12/2010		3005A-DIS-PR	☐	☐	☐	☐	DF - dis met

WORK ORDER Summary

25-Jun-10

Work Order: 1006480
WO Type: Project

Client ID:	CAR300	**Contact:**	Brad Lindsay
Project ID:	CAR300-Scofield Baseline	**PM:**	
Project:	Scofield Baseline	**QC Level:**	LEVEL II+
ChkList Completed On:		**Completed By**	
ChkList Reviewed On:		**Reviewed By:**	
WO Reviewed On:		**Reviewed By:**	

COMMENTS :
QC 2+, EDD. Footnote report, pH received outside of hold;

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1006480-004E	Miller Outlet	6/23/2010 8:30:00 PM	6/25/2010 9:35:00 AM	7/12/2010	Aqueous	6010C-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AL B CA FE MG MO K NA										
				7/12/2010		6020-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AS CD CU PB MN SE ZN										
				7/12/2010		HARD-2340B	☐	☐	☐	☐	DF - dis met
1006480-004F				7/12/2010		3005A-ICPMS-PR	☐	☐	☐	☐	DF - total met
				7/12/2010		6010C-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: FE										
				7/12/2010		6020-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: MN										
1006480-005A	Mud Creek	6/23/2010 9:00:00 PM		7/12/2010		SS-W-2540F	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TDS-W-2540C	☐	☐	☐	☐	ww - ss/tss/tds
				7/12/2010		TSS-W-2540D	☐	☐	☐	☐	ww - ss/tss/tds
1006480-005B				7/12/2010		300.0-W	☐	☐	☑	☐	DF - wc
	SEL Analytes: CL SO4										
				7/12/2010		ACIDITY-W-2310B	☐	☐	☐	☐	DF - wc
				7/12/2010		ALK-W-2320B	☐	☐	☑	☐	DF - wc
	SEL Analytes: ALK ALKB ALKC										
				7/12/2010		NO2-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		NO3-W-353.2	☐	☐	☐	☐	DF - wc
				7/12/2010		PH-4500H+B	☐	☐	☐	☐	DF - wc
				7/12/2010		PO4-O-365.1	☐	☐	☐	☐	DF - wc
1006480-005C				7/12/2010		OGB-W-1664A	☐	☐	☐	☐	ogb
1006480-005D				7/12/2010		NH3-W-350.1	☐	☐	☐	☐	DF - nh3

WORK ORDER Summary

25-Jun-10

Work Order: 1006480
WO Type: Project

Client ID:	CAR300	**Contact:**	Brad Lindsay
Project ID:	CAR300-Scofield Baseline	**PM:**	
Project:	Scofield Baseline	**QC Level:**	LEVEL II+
ChkList Completed On:		**Completed By**	
ChkList Reviewed On:		**Reviewed By:**	
WO Reviewed On:		**Reviewed By:**	

COMMENTS :
QC 2+, EDD. Footnote report, pH received outside of hold;

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1006480-005D	Mud Creek	6/23/2010 9:00:00 PM	6/25/2010 9:35:00 AM	7/12/2010	Aqueous	NH3-W-PR	☐	☐	☐	☐	DF - nh3
1006480-005E				7/12/2010		3005A-DIS-PR	☐	☐	☐	☐	DF - dis met
				7/12/2010		6010C-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AL B CA FE MG MO K NA										
				7/12/2010		6020-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AS CD CU PB MN SE ZN										
				7/12/2010		HARD-2340B	☐	☐	☐	☐	DF - dis met
1006480-005F				7/12/2010		3005A-ICPMS-PR	☐	☐	☐	☐	DF - total met
				7/12/2010		6010C-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: FE										
				7/12/2010		6020-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: MN										

Client CARBON RESOURCES c/o ROCK LOGIC
Address PO BOX 544
CEDAREDGE CO 81413
City State Zip
Phone 435-851-9044 Fax
Contact BRAD LINDSAY
E-mail ROCKLOGIC CONSULTING@GMAIL.com
Project Name SUFIELD BASELINE
Project Number/P.O.#
Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah
84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 1006480
Page of

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TABLE 3 ATTACHED	PH								COMMENTS
ASPEN SPRING	6/03/10 / 18:20	W	6	✓	✓								
SULFUR SPRING	/ 19:30			✓	✓								
RES-1	/ 19:55			✓	✓								
MILLER OUTLET	/ 20:30			✓	✓								
MUD CREEK	/ 21:00			✓	✓								

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS
2 Ambient or (Chilled)
Notes:
3 Temperature 4.10
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Notes:
6 Received Within Holding Times
Y (N)
Notes: pH out of hold

COC Tape Was:
1 Present on Outer Package
(Y) N NA
2 Unbroken on Outer Package
(Y) N NA
3 Present on Sample
Y (N) NA
4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature
PRINT NAME BRAD LINDSAY	Time 15:30	PRINT NAME UPS
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date	Received By: Signature
PRINT NAME	Time	PRINT NAME
Relinquished By: Signature	Date 6/5/10	Received By: Signature
PRINT NAME	Time 935	PRINT NAME Elma Haywood

Special Instructions:
FILTER FOR DISSOLVED METALS

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 1006480

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate														~		
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN
WEST
ANALYTICAL
LABORATORIES

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Toll Free (888) 263-8686
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email: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline

Dear Brad Lindsay: Lab Set ID: 1007245

American West Analytical Laboratories received 1 sample(s) on 7/16/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1007245-001
Client Sample ID: CR-10-11
Collection Date: 7/15/2010 0600h
Received Date: 7/16/2010 0945h

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	7/19/2010 1727h	7/21/2010 1746h	SW6010C	0.100	**0.648**	
Manganese	mg/L	7/19/2010 1727h	7/20/2010 1908h	SW6020A	0.00120	**0.00801**	

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, UT
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801)263-8687
email: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1007245-001
Client Sample ID: CR-10-11
Collection Date: 7/15/2010 0600h
Received Date: 7/16/2010 0945h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, UT
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801)263-8687
email: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	7/16/2010 1825h	7/20/2010 1627h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	7/16/2010 1825h	7/19/2010 0202h	SW6020A	0.000600	< 0.000600	
Boron	mg/L	7/16/2010 1825h	7/20/2010 1627h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	7/16/2010 1825h	7/19/2010 0202h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	7/16/2010 1825h	7/20/2010 1558h	SW6010C	10.0	**77.9**	[2]
Copper	mg/L	7/16/2010 1825h	7/19/2010 0202h	SW6020A	0.000800	< 0.000800	
Iron	mg/L	7/16/2010 1825h	7/20/2010 1627h	SW6010C	0.100	< 0.100	
Lead	mg/L	7/16/2010 1825h	7/19/2010 0202h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	7/16/2010 1825h	7/20/2010 1627h	SW6010C	1.00	**11.9**	
Manganese	mg/L	7/16/2010 1825h	7/19/2010 0202h	SW6020A	0.00120	**0.00213**	
Molybdenum	mg/L	7/16/2010 1825h	7/20/2010 1758h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	7/16/2010 1825h	7/20/2010 1627h	SW6010C	1.00	< 1.00	
Selenium	mg/L	7/16/2010 1825h	7/19/2010 0202h	SW6020A	0.000800	**0.00206**	
Sodium	mg/L	7/16/2010 1825h	7/20/2010 1627h	SW6010C	1.00	**11.4**	
Zinc	mg/L	7/16/2010 1825h	7/19/2010 0202h	SW6020A	0.00500	**0.0113**	

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.
Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1007245-001
Client Sample ID: CR-10-11
Collection Date: 7/15/2010 0600h
Received Date: 7/16/2010 0945h

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463 West 3600 South
Salt Lake City, UT
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801)263-8687
email: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		7/19/2010 0540h	A2310B	15.0	**50.0**	
Alkalinity (as CaCO3)	mg/L		7/19/2010 0610h	A2320B	20.0	**212**	
Ammonia (as N)	mg/L	7/28/2010 1510h	7/29/2010 0923h	E350.1	0.0500	< 0.0500	
Bicarbonate (as CaCO3)	mg/L		7/19/2010 0610h	A2320B	20.0	**212**	
Carbonate (as CaCO3)	mg/L		7/19/2010 0610h	A2320B	10.0	< 10.0	
Chloride	mg/L		7/16/2010 1719h	E300.0	1.00	**14.2**	
Hardness (as CaCO3)	mg/L		7/20/2010	A2340B	100	**243**	
Nitrate (as N)	mg/L		7/16/2010 1732h	E353.2	0.100	**2.54**	
Nitrite (as N)	mg/L		7/16/2010 1711h	E353.2	0.0100	< 0.0100	
Phosphate, Total Ortho (as P)	mg/L		7/16/2010 1535h	E365.1	0.0500	**0.0584**	[1]
Sulfate	mg/L		7/16/2010 1719h	E300.0	7.50	**27.4**	
Total Dissolved Solids	mg/L		7/16/2010 1330h	A2540C	20.0	**288**	

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: ME
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-7500	Aluminum	mg/L	SW6010C	1.01	1.000	0	101	75-125				7/20/2010
LCS-7500	Boron	mg/L	SW6010C	1.01	1.000	0	101	75-125				7/20/2010
LCS-7500	Calcium	mg/L	SW6010C	10.1	10.00	0	101	75-125				7/20/2010
LCS-7500	Iron	mg/L	SW6010C	0.975	1.000	0	97.5	75-125				7/20/2010
LCS-7500	Magnesium	mg/L	SW6010C	9.96	10.00	0	99.6	75-125				7/20/2010
LCS-7500	Molybdenum	mg/L	SW6010C	0.208	0.2000	0	104	75-125				7/20/2010
LCS-7500	Potassium	mg/L	SW6010C	10.2	10.00	0	102	75-125				7/20/2010
LCS-7500	Sodium	mg/L	SW6010C	10.1	10.00	0	101	75-125				7/20/2010
LCS-7525	Iron	mg/L	SW6010C	1.09	1.000	0	109	75-125				7/21/2010
LCS-7500	Arsenic	mg/L	SW6020A	0.200	0.2000	0	100	85-115				7/19/2010
LCS-7500	Cadmium	mg/L	SW6020A	0.201	0.2000	0	101	85-115				7/19/2010
LCS-7500	Copper	mg/L	SW6020A	0.198	0.2000	0.0003770	98.6	85-115				7/19/2010
LCS-7500	Lead	mg/L	SW6020A	0.200	0.2000	0	100	85-115				7/19/2010
LCS-7500	Manganese	mg/L	SW6020A	0.201	0.2000	0	100	85-115				7/19/2010
LCS-7500	Selenium	mg/L	SW6020A	0.197	0.2000	0	98.3	85-115				7/19/2010
LCS-7500	Zinc	mg/L	SW6020A	1.01	1.000	0	101	85-115				7/19/2010
LCS-7525	Arsenic	mg/L	SW6020A	0.201	0.2000	0	101	85-115				7/20/2010
LCS-7525	Cadmium	mg/L	SW6020A	0.201	0.2000	0	101	85-115				7/20/2010
LCS-7525	Lead	mg/L	SW6020A	0.203	0.2000	0	102	85-115				7/20/2010
LCS-7525	Manganese	mg/L	SW6020A	0.203	0.2000	0	101	85-115				7/20/2010
LCS-7525	Selenium	mg/L	SW6020A	0.200	0.2000	0	99.8	85-115				7/20/2010
LCS-7525	Zinc	mg/L	SW6020A	1.01	1.000	0	101	85-115				7/20/2010

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Salt Lake City, UT 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: ME
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-7500	Aluminum	mg/L	SW6010C	< 0.100				-				7/20/2010
MB-7500	Boron	mg/L	SW6010C	< 0.500				-				7/20/2010
MB-7500	Calcium	mg/L	SW6010C	< 1.00				-				7/20/2010
MB-7500	Iron	mg/L	SW6010C	< 0.100				-				7/20/2010
MB-7500	Magnesium	mg/L	SW6010C	< 1.00				-				7/20/2010
MB-7500	Molybdenum	mg/L	SW6010C	< 0.0200				-				7/20/2010
MB-7500	Potassium	mg/L	SW6010C	< 1.00				-				7/20/2010
MB-7500	Sodium	mg/L	SW6010C	< 1.00				-				7/20/2010
MB-7525	Iron	mg/L	SW6010C	< 0.100				-				7/21/2010
MB-7500	Arsenic	mg/L	SW6020A	< 0.000600				-				7/19/2010
MB-7500	Cadmium	mg/L	SW6020A	< 0.000180				-				7/19/2010
MB-7500	Copper	mg/L	SW6020A	< 0.000800				-				7/19/2010
MB-7500	Lead	mg/L	SW6020A	< 0.000400				-				7/19/2010
MB-7500	Manganese	mg/L	SW6020A	< 0.00120				-				7/19/2010
MB-7500	Selenium	mg/L	SW6020A	< 0.000800				-				7/19/2010
MB-7500	Zinc	mg/L	SW6020A	< 0.00500				-				7/19/2010
MB-7525	Arsenic	mg/L	SW6020A	< 0.000600				-				7/20/2010
MB-7525	Cadmium	mg/L	SW6020A	< 0.000180				-				7/20/2010
MB-7525	Lead	mg/L	SW6020A	< 0.000400				-				7/20/2010
MB-7525	Manganese	mg/L	SW6020A	< 0.00120				-				7/20/2010
MB-7525	Selenium	mg/L	SW6020A	< 0.000800				-				7/20/2010
MB-7525	Zinc	mg/L	SW6020A	< 0.00500				-				7/20/2010

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: ME
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007245-001CMS	Aluminum	mg/L	SW6010C	0.897	1.000	0	89.7	75-125				7/20/2010
1007245-001CMS	Boron	mg/L	SW6010C	1.16	1.000	0.04860	111	75-125				7/20/2010
1007245-001CMS	Iron	mg/L	SW6010C	1.06	1.000	0	106	75-125				7/20/2010
1007245-001CMS	Magnesium	mg/L	SW6010C	22.5	10.00	11.90	106	75-125				7/20/2010
1007245-001CMS	Potassium	mg/L	SW6010C	12.2	10.00	0.9660	112	75-125				7/20/2010
1007245-001CMS	Sodium	mg/L	SW6010C	22.2	10.00	11.40	108	75-125				7/20/2010
1007245-001CMS	Calcium	mg/L	SW6010C	90.6	10.00	77.90	127	75-125			2	7/20/2010
1007245-001CMS	Molybdenum	mg/L	SW6010C	0.203	0.2000	0	101	75-125				7/20/2010
1007230-019AMS	Iron	mg/L	SW6010C	386	10.00	384.0	20.0	75-125			2	7/21/2010
1007245-001DMS	Iron	mg/L	SW6010C	1.78	1.000	0.6480	113	75-125				7/21/2010
1007232-001AMS	Zinc	mg/L	SW6020A	1.35	1.000	0.3742	97.8	70-130				7/19/2010
1007245-001CMS	Arsenic	mg/L	SW6020A	0.200	0.2000	0.0004450	99.9	70-130				7/19/2010
1007245-001CMS	Cadmium	mg/L	SW6020A	0.202	0.2000	0	101	70-130				7/19/2010
1007245-001CMS	Copper	mg/L	SW6020A	0.195	0.2000	0.0007930	97.3	70-130				7/19/2010
1007245-001CMS	Lead	mg/L	SW6020A	0.204	0.2000	0.0001090	102	70-130				7/19/2010
1007245-001CMS	Manganese	mg/L	SW6020A	0.204	0.2000	0.002132	101	70-130				7/19/2010
1007245-001CMS	Selenium	mg/L	SW6020A	0.199	0.2000	0.002057	98.6	70-130				7/19/2010
1007245-001CMS	Zinc	mg/L	SW6020A	1.00	1.000	0.01130	98.9	70-130				7/19/2010
1007245-001DMS	Arsenic	mg/L	SW6020A	0.198	0.2000	0.0006200	98.8	70-130				7/20/2010
1007245-001DMS	Cadmium	mg/L	SW6020A	0.201	0.2000	0	100	70-130				7/20/2010
1007245-001DMS	Lead	mg/L	SW6020A	0.201	0.2000	0.0005700	100	70-130				7/20/2010
1007245-001DMS	Manganese	mg/L	SW6020A	0.206	0.2000	0.008008	99.0	70-130				7/20/2010
1007245-001DMS	Selenium	mg/L	SW6020A	0.200	0.2000	0.001574	99.1	70-130				7/20/2010
1007245-001DMS	Zinc	mg/L	SW6020A	1.01	1.000	0.01288	99.3	70-130				7/20/2010

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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: ME
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007230-019AMS	Manganese	mg/L	SW6020A	4,130	2.000	4,209	-3,990	70-130			[2]	7/20/2010
1007230-019AMS	Zinc	mg/L	SW6020A	411	10.00	411.0	-4.41	70-130			[2]	7/20/2010

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: ME
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007245-001CMSD	Aluminum	mg/L	SW6010C	0.963	1.000	0	96.3	75-125	7.10	20		7/20/2010
1007245-001CMSD	Boron	mg/L	SW6010C	1.16	1.000	0.04860	111	75-125	0	20		7/20/2010
1007245-001CMSD	Iron	mg/L	SW6010C	1.05	1.000	0	105	75-125	0.948	20		7/20/2010
1007245-001CMSD	Magnesium	mg/L	SW6010C	22.2	10.00	11.90	103	75-125	1.34	20		7/20/2010
1007245-001CMSD	Potassium	mg/L	SW6010C	12.2	10.00	0.9660	112	75-125	0	20		7/20/2010
1007245-001CMSD	Sodium	mg/L	SW6010C	21.9	10.00	11.40	105	75-125	1.36	20		7/20/2010
1007245-001CMSD	Calcium	mg/L	SW6010C	90.3	10.00	77.90	124	75-125	0.332	20		7/20/2010
1007245-001CMSD	Molybdenum	mg/L	SW6010C	0.203	0.2000	0	101	75-125	0.126	20		7/20/2010
1007230-019AMSD	Iron	mg/L	SW6010C	381	10.00	384.0	-30.0	75-125	1.30	20	2	7/21/2010
1007245-001DMSD	Iron	mg/L	SW6010C	1.78	1.000	0.6480	113	75-125	0	20		7/21/2010
1007232-001AMSD	Zinc	mg/L	SW6020A	1.38	1.000	0.3742	101	70-130	1.96	20		7/19/2010
1007245-001CMSD	Arsenic	mg/L	SW6020A	0.199	0.2000	0.0004450	99.5	70-130	0.437	20		7/19/2010
1007245-001CMSD	Cadmium	mg/L	SW6020A	0.201	0.2000	0	100	70-130	0.594	20		7/19/2010
1007245-001CMSD	Copper	mg/L	SW6020A	0.193	0.2000	0.0007930	96.2	70-130	1.20	20		7/19/2010
1007245-001CMSD	Lead	mg/L	SW6020A	0.202	0.2000	0.0001090	101	70-130	0.922	20		7/19/2010
1007245-001CMSD	Manganese	mg/L	SW6020A	0.203	0.2000	0.002132	100	70-130	0.744	20		7/19/2010
1007245-001CMSD	Selenium	mg/L	SW6020A	0.202	0.2000	0.002057	99.9	70-130	1.27	20		7/19/2010
1007245-001CMSD	Zinc	mg/L	SW6020A	0.996	1.000	0.01130	98.4	70-130	0.507	20		7/19/2010
1007245-001DMSD	Arsenic	mg/L	SW6020A	0.201	0.2000	0.0006200	100	70-130	1.37	20		7/20/2010
1007245-001DMSD	Cadmium	mg/L	SW6020A	0.202	0.2000	0	101	70-130	0.419	20		7/20/2010
1007245-001DMSD	Lead	mg/L	SW6020A	0.202	0.2000	0.0005700	101	70-130	0.350	20		7/20/2010
1007245-001DMSD	Manganese	mg/L	SW6020A	0.208	0.2000	0.008008	99.8	70-130	0.692	20		7/20/2010
1007245-001DMSD	Selenium	mg/L	SW6020A	0.199	0.2000	0.001574	98.7	70-130	0.421	20		7/20/2010
1007245-001DMSD	Zinc	mg/L	SW6020A	1.01	1.000	0.01288	100	70-130	0.735	20		7/20/2010

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: ME
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007230-019AMSD	Manganese	mg/L	SW6020A	4,080	2.000	4,209	-6,280	70-130	1.11	20	2	7/20/2010
1007230-019AMSD	Zinc	mg/L	SW6020A	408	10.00	411.0	-28.6	70-130	0.592	20	2	7/20/2010

2 - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, UT 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: WC
QC Type: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007213-001EDUP	Total Dissolved Solids	mg/L	A2540C	620		620.0		-	0	5		7/16/2010
1007245-001EDUP	Total Dissolved Solids	mg/L	A2540C	304		288.0		-	5.41	5		7/16/2010

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(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: WC
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R16444	Chloride	mg/L	E300.0	4.75	5.000	0	95.0	90-110				7/16/2010
LCS-R16444	Sulfate	mg/L	E300.0	5.04	5.000	0	101	90-110				7/16/2010
LCS-R16439	Acidity	mg/L	A2310B	50.0	50.00	0	100	80-120				7/19/2010
LCS-R16440	Alkalinity (as CaCO3)	mg/L	A2320B	49,900	50,000	0	99.8	90-110				7/19/2010
LCS-7611	Ammonia (as N)	mg/L	E350.1	0.910	1.000	0	91.0	90-110				7/27/2010
LCS-7666	Ammonia (as N)	mg/L	E350.1	0.946	1.000	0	94.6	90-110				7/29/2010
LCS-R16431	Nitrite (as N)	mg/L	E353.2	1.03	1.000	0	103	90-110				7/16/2010
LCS-R16430	Nitrate (as N)	mg/L	E353.2	0.995	1.000	0	99.5	90-110				7/16/2010
LCS-R16422	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.901	1.000	0	90.1	90-110				7/16/2010
LCS-R16479	Total Dissolved Solids	mg/L	A2540C	200	205.0	0	97.6	80-120				7/16/2010

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: WC
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R16444	Chloride	mg/L	E300.0	< 0.100				-				7/16/2010
MB-R16444	Sulfate	mg/L	E300.0	< 0.750				-				7/16/2010
MB-R16439	Acidity	mg/L	A2310B	< 15.0				-				7/19/2010
MB-R16440	Alkalinity (as CaCO3)	mg/L	A2320B	< 10.0				-				7/19/2010
MB-R16440	Bicarbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				7/19/2010
MB-R16440	Carbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				7/19/2010
MB-7611	Ammonia (as N)	mg/L	E350.1	< 0.0500				-				7/27/2010
MB-7666	Ammonia (as N)	mg/L	E350.1	< 0.0500				-				7/29/2010
MB-R16431	Nitrite (as N)	mg/L	E353.2	< 0.0100				-				7/16/2010
MB-R16430	Nitrate (as N)	mg/L	E353.2	< 0.0100				-				7/16/2010
MB-R16422	Phosphate, Total Ortho (as P)	mg/L	E365.1	< 0.0500				-				7/16/2010
MB-R16479	Total Dissolved Solids	mg/L	A2540C	< 10.0				-				7/16/2010

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463 West 3600 South
Salt Lake City, UT 84115
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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: WC
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007245-001AMS	Chloride	mg/L	E300.0	62.7	50.00	14.22	96.9	90-110				7/16/2010
1007245-001AMS	Sulfate	mg/L	E300.0	75.4	50.00	27.38	96.0	90-110				7/16/2010
1007245-001AMS	Acidity	mg/L	A2310B	102	50.00	50.00	104	80-120				7/19/2010
1007213-001AMS	Acidity	mg/L	A2310B	50.0	50.00	0	100	80-120				7/19/2010
1007245-001AMS	Alkalinity (as CaCO3)	mg/L	A2320B	313	100.0	212.0	101	80-120				7/19/2010
1007251-002AMS	Alkalinity (as CaCO3)	mg/L	A2320B	320	100.0	222.0	98.0	80-120				7/19/2010
1007310-005AMS	Ammonia (as N)	mg/L	E350.1	11.4	1.000	10.15	130	90-110			2	7/27/2010
1007311-005AMS	Ammonia (as N)	mg/L	E350.1	15.1	1.000	12.98	210	90-110			2	7/27/2010
1007245-001BMS	Ammonia (as N)	mg/L	E350.1	0.902	1.000	0	90.2	90-110				7/29/2010
1007396-005AMS	Ammonia (as N)	mg/L	E350.1	6.96	1.000	4.895	206	90-110			1	7/29/2010
1007245-001AMS	Nitrite (as N)	mg/L	E353.2	0.972	1.000	0	97.2	90-110				7/16/2010
1007245-001AMS	Nitrate (as N)	mg/L	E353.2	13.5	10.00	2.544	110	90-110				7/16/2010
1007245-001AMS	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.923	1.000	0.05840	86.5	90-110			1	7/16/2010

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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463 West 3600 South
Salt Lake City, UT 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007245
Project: Scofield Baseline

Dept: WC
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007245-001AMSD	Chloride	mg/L	E300.0	62.5	50.00	14.22	96.5	90-110	0.286	20		7/16/2010
1007245-001AMSD	Sulfate	mg/L	E300.0	75.3	50.00	27.38	95.8	90-110	0.125	20		7/16/2010
1007245-001AMSD	Acidity	mg/L	A2310B	100	50.00	50.00	100	80-120	1.98	0		7/19/2010
1007213-001AMSD	Acidity	mg/L	A2310B	54.0	50.00	0	108	80-120	7.69	0		7/19/2010
1007245-001AMSD	Alkalinity (as CaCO3)	mg/L	A2320B	312	100.0	212.0	100	80-120	0.320	10		7/19/2010
1007251-002AMSD	Alkalinity (as CaCO3)	mg/L	A2320B	322	100.0	222.0	100	80-120	0.623	10		7/19/2010
1007310-005AMSD	Ammonia (as N)	mg/L	E350.1	11.3	1.000	10.15	115	90-110	1.31	10	[2]	7/27/2010
1007311-005AMSD	Ammonia (as N)	mg/L	E350.1	15.0	1.000	12.98	197	90-110	0.920	10	[2]	7/27/2010
1007245-001BMSD	Ammonia (as N)	mg/L	E350.1	0.931	1.000	0	93.1	90-110	3.22	10		7/29/2010
1007396-005AMSD	Ammonia (as N)	mg/L	E350.1	6.98	1.000	4.895	209	90-110	0.346	10	[1]	7/29/2010
1007245-001AMSD	Nitrite (as N)	mg/L	E353.2	0.980	1.000	0	98.0	90-110	0.738	10		7/16/2010
1007245-001AMSD	Nitrate (as N)	mg/L	E353.2	13.3	10.00	2.544	108	90-110	1.53	10		7/16/2010
1007245-001AMSD	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.970	1.000	0.05840	91.1	90-110	4.91	10		7/16/2010

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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American West Analytical Laboratories

WORK ORDER Summary

16-Jul-10

Work Order: 1007245

WO Type: Project

Client ID:	CAR300	**Contact:**	Brad Lindsay
Project ID:	CAR300-Scofield Baseline	**PM:**	
Project:	Scofield Baseline	**QC Level:**	LEVEL II+
ChkList Completed On:		**Completed By**	
ChkList Reviewed On:		**Reviewed By:**	
WO Reviewed On:		**Reviewed By:**	

COMMENTS : QC 2+, EDD; DB

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1007245-001A	CR-10-11	7/15/2010 6:00:00 AM	7/16/2010 9:45:00 AM	8/2/2010	Aqueous	300.0-W	☐	☐	☑	☐	DF - wc
	SEL Analytes: CL SO4										
				8/2/2010		ACIDITY-W-2310B	☐	☐	☐	☐	DF - wc
				8/2/2010		ALK-W-2320B	☐	☐	☑	☐	DF - wc
	SEL Analytes: ALK ALKB ALKC										
				8/2/2010		NO2-W-353.2	☐	☐	☐	☐	DF - wc
				8/2/2010		NO3-W-353.2	☐	☐	☐	☐	DF - wc
				8/2/2010		PO4-O-365.1	☐	☐	☐	☐	DF - wc
1007245-001B				8/2/2010		NH3-W-350.1	☐	☐	☐	☐	DF - nh3
				8/2/2010		NH3-W-PR	☐	☐	☐	☐	DF - nh3
1007245-001C				8/2/2010		3005A-DIS-PR	☐	☐	☐	☐	DF - dis met
				8/2/2010		6010C-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AL B CA FE MG MO K NA										
				8/2/2010		6020-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AS CD CU PB MN SE ZN										
				8/2/2010		HARD-2340B	☐	☐	☐	☐	DF - dis met
1007245-001D				8/2/2010		3005A-ICPMS-PR	☐	☐	☐	☐	DF - total met
				8/2/2010		6010C-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: FE										
				8/2/2010		6020-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: MN										
1007245-001E				8/2/2010		TDS-W-2540C	☐	☐	☐	☐	ww - tds

Client Carbon Resources & Rockies

Address P.O. Box 594

Cedaredge CO 81413
City State Zip

Phone 435-859-9044 Fax

Contact Brad Lindsay

E-mail rockiesconsulting@gmail.com

Project Name Seaford Baseline

Project Number/P.O.#

Sampler Name Greg Hunt

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115

CHAIN OF CUSTODY

(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

Lab Sample Set # 1007245

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix (Ground Water)	Number of Containers (Total)	TESTS REQUIRED: Table 4	TESTS REQUIRED: Uncid'd of as Fe	COMMENTS
CR-10-11	7-15-10 @ 6:00			X		

QC LEVEL: 1 2 2+ 3 3+ 4

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered (UPS)
2 Ambient or Chilled (on ice)
3 Temperature 14°
4 Received Broken/Leaking (Improperly Sealed) Y (N)
5 Properly Preserved Y N; Checked at Bench Y N
6 Received Within Holding Times (Y) N

Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y (N) NA
4 Unbroken on Sample Y N (NA)

Discrepancies Between Sample Labels and COC Record? Y N

Notes:

Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME Greg Hunt	Time 14:45	PRINT NAME UPS	Time
Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME	Time	PRINT NAME	Time
Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME	Time	PRINT NAME	Time DBT 7/16/10
Relinquished By: Signature	Date	Received By: Signature	Date 7/15/10
PRINT NAME	Time	PRINT NAME Denise Brunn	Time 9:45

Special Instructions:

PLEASE FILTER

Table 4: Ground-Water Monitoring Parameters
Minimum Requirements and Recommendations
Baseline, Operational, and Postmining

			FIELD MEASUREMENTS	REPORTED AS
+	*	-	Water level or Flow	Depth, Flow
+	*	-	pH	Standard units
+	*	-	Specific Conductivity	umhos/cm @ 25° C
	*	-	Temperature	°C

			LABORATORY MEASUREMENTS	REPORTED AS
+	*	-	Total Dissolved Solids	mg/l
	*	-	Total Hardness ($CaCO_3$)	mg/l
	*	-	Total Alkalinity	mg/l
		-	Acidity	mg/l
		-	Aluminum (Dissolved)	mg/l
		-	Arsenic (Dissolved)	mg/l
		-	Boron (Dissolved)	mg/l
	*	-	Carbonate	mg/l
	*	-	Bicarbonate	mg/l
		-	Cadmium (Dissolved)	mg/l
	*	-	Calcium (Dissolved)	mg/l
	*	-	Chloride	mg/l
		-	Copper (Dissolved)	mg/l
	*	-	Iron (Dissolved)	mg/l
+	*	-	Iron (Total)	mg/l
		-	Lead (Dissolved)	mg/l
	*	-	Magnesium (Dissolved)	mg/l
	*	-	Manganese (Dissolved)	mg/l
+	*	-	Manganese (Total)	mg/l
		-	Molybdenum (Dissolved)	mg/l
		-	Ammonia	mg/l
		-	Nitrates	mg/l
		-	Nitrites	mg/l
	*	-	Potassium (Dissolved)	mg/l
		-	Phosphate (Ortho)	mg/l
		-	Selenium (Dissolved)	mg/l
	*	-	Sodium (Dissolved)	mg/l
	*	-	Sulfate	mg/l
		-	Zinc (Dissolved)	mg/l
	*	-	Cations	meq/l
	*	-	Anions	meq/l

\+ Parameters required for Baseline monitoring.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Postmining monitoring

Sample Set: 1007245

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL																
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline

Dear Brad Lindsay:

Lab Set ID: 1007213

American West Analytical Laboratories received 1 sample(s) on 7/15/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYTICAL REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1007213-001
Client Sample ID: CR-10-12
Collection Date: 7/13/2010 2030h
Received Date: 7/15/2010 955h

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	7/15/2010 1339h	7/15/2010 1628h	SW6010C	0.100	**44.8**	[2]
Manganese	mg/L	7/15/2010 1339h	7/15/2010 2219h	SW6020A	0.00600	**0.559**	

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Scofield Baseline
Lab Sample ID: 1007213-001
Client Sample ID: CR-10-12
Collection Date: 7/13/2010 2030h
Received Date: 7/15/2010 955h

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	7/15/2010 1346h	7/16/2010 1643h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	7/15/2010 1346h	7/15/2010 1945h	SW6020A	0.000600	< 0.000600	
Boron	mg/L	7/15/2010 1346h	7/16/2010 1643h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	7/15/2010 1346h	7/15/2010 1945h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	7/15/2010 1346h	7/16/2010 1718h	SW6010C	10.0	**99.9**	
Copper	mg/L	7/15/2010 1346h	7/15/2010 1945h	SW6020A	0.000800	< 0.000800	
Iron	mg/L	7/15/2010 1346h	7/16/2010 1643h	SW6010C	0.100	< 0.100	
Lead	mg/L	7/15/2010 1346h	7/15/2010 1945h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	7/15/2010 1346h	7/16/2010 1643h	SW6010C	1.00	**8.96**	
Manganese	mg/L	7/15/2010 1346h	7/15/2010 1945h	SW6020A	0.00120	< 0.00120	
Molybdenum	mg/L	7/15/2010 1346h	7/16/2010 1643h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	7/15/2010 1346h	7/16/2010 1643h	SW6010C	1.00	**1.20**	
Selenium	mg/L	7/15/2010 1346h	7/15/2010 1945h	SW6020A	0.000800	**0.00120**	
Sodium	mg/L	7/15/2010 1346h	7/16/2010 1643h	SW6010C	1.00	**16.1**	
Zinc	mg/L	7/15/2010 1346h	7/15/2010 1945h	SW6020A	0.00500	< 0.00500	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Project: Scofield Baseline
Lab Sample ID: 1007213-001
Client Sample ID: CR-10-12
Collection Date: 7/13/2010 2030h
Received Date: 7/15/2010 955h

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		7/19/2010 540h	A2310B	15.0	< 15.0	
Alkalinity (as CaCO3)	mg/L		7/16/2010 800h	A2320B	20.0	**175**	
Ammonia (as N)	mg/L	7/15/2010 1414h	7/19/2010 1350h	E350.1	0.0500	< 0.0500	
Bicarbonate (as CaCO3)	mg/L		7/16/2010 800h	A2320B	20.0	**175**	
Carbonate (as CaCO3)	mg/L		7/16/2010 800h	A2320B	10.0	< 10.0	
Chloride	mg/L		7/15/2010 1813h	E300.0	1.00	**21.8**	
Hardness (as CaCO3)	mg/L		7/16/2010	A2340B	100	**286**	
Nitrate (as N)	mg/L		7/15/2010 1258h	E353.2	0.100	**6.70**	
Nitrite (as N)	mg/L		7/15/2010 1239h	E353.2	0.0100	**0.180**	
Phosphate, Total Ortho (as P)	mg/L		7/15/2010 1130h	E365.1	0.0500	**0.379**	
Sulfate	mg/L		7/15/2010 1813h	E300.0	7.50	**73.9**	
Total Dissolved Solids	mg/L		7/16/2010 1330h	A2540C	100	**620**	

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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Salt Lake City, Utah 84115
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007213
Project: Scofield Baseline

Dept: ME
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-7476	Aluminum	mg/L	SW6010C	0.978	1.000	0	97.8	75-125				7/16/2010
LCS-7476	Boron	mg/L	SW6010C	1.02	1.000	0	102	75-125				7/16/2010
LCS-7476	Calcium	mg/L	SW6010C	10.1	10.00	0	101	75-125				7/16/2010
LCS-7476	Iron	mg/L	SW6010C	0.965	1.000	0	96.5	75-125				7/16/2010
LCS-7476	Magnesium	mg/L	SW6010C	9.96	10.00	0	99.6	75-125				7/16/2010
LCS-7476	Molybdenum	mg/L	SW6010C	0.195	0.2000	0	97.4	75-125				7/16/2010
LCS-7476	Potassium	mg/L	SW6010C	9.96	10.00	0	99.6	75-125				7/16/2010
LCS-7476	Sodium	mg/L	SW6010C	9.95	10.00	0	99.5	75-125				7/16/2010
LCS-7474	Iron	mg/L	SW6010C	1.09	1.000	0	109	75-125				7/15/2010
LCS-7476	Arsenic	mg/L	SW6020A	0.203	0.2000	0	101	85-115				7/15/2010
LCS-7476	Cadmium	mg/L	SW6020A	0.205	0.2000	0	102	85-115				7/15/2010
LCS-7476	Copper	mg/L	SW6020A	0.204	0.2000	0.0004490	102	85-115				7/15/2010
LCS-7476	Lead	mg/L	SW6020A	0.202	0.2000	0	101	85-115				7/15/2010
LCS-7476	Manganese	mg/L	SW6020A	0.203	0.2000	0	102	85-115				7/15/2010
LCS-7476	Selenium	mg/L	SW6020A	0.199	0.2000	0	99.7	85-115				7/15/2010
LCS-7476	Zinc	mg/L	SW6020A	1.01	1.000	0	101	85-115				7/15/2010
LCS-7474	Manganese	mg/L	SW6020A	0.200	0.2000	0	100	85-115				7/15/2010

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007213
Project: Scofield Baseline

Dept: ME
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-7476	Aluminum	mg/L	SW6010C	< 0.100				-				7/16/2010
MB-7476	Boron	mg/L	SW6010C	< 0.500				-				7/16/2010
MB-7476	Calcium	mg/L	SW6010C	< 1.00				-				7/16/2010
MB-7476	Iron	mg/L	SW6010C	< 0.100				-				7/16/2010
MB-7476	Magnesium	mg/L	SW6010C	< 1.00				-				7/16/2010
MB-7476	Molybdenum	mg/L	SW6010C	< 0.0200				-				7/16/2010
MB-7476	Potassium	mg/L	SW6010C	< 1.00				-				7/16/2010
MB-7476	Sodium	mg/L	SW6010C	< 1.00				-				7/16/2010
MB-7474	Iron	mg/L	SW6010C	< 0.100				-				7/15/2010
MB-7476	Arsenic	mg/L	SW6020A	< 0.000600				-				7/15/2010
MB-7476	Cadmium	mg/L	SW6020A	< 0.000180				-				7/15/2010
MB-7476	Copper	mg/L	SW6020A	< 0.000800				-				7/15/2010
MB-7476	Lead	mg/L	SW6020A	< 0.000400				-				7/15/2010
MB-7476	Manganese	mg/L	SW6020A	< 0.00120				-				7/15/2010
MB-7476	Selenium	mg/L	SW6020A	< 0.000800				-				7/15/2010
MB-7476	Zinc	mg/L	SW6020A	< 0.00500				-				7/15/2010
MB-7474	Manganese	mg/L	SW6020A	< 0.00120				-				7/15/2010

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007213
Project: Scofield Baseline

Dept: ME
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007213-001CMS	Aluminum	mg/L	SW6010C	1.06	1.000	0	106	75-125				7/16/2010
1007213-001CMS	Boron	mg/L	SW6010C	1.19	1.000	0.01850	117	75-125				7/16/2010
1007213-001CMS	Iron	mg/L	SW6010C	1.04	1.000	0	104	75-125				7/16/2010
1007213-001CMS	Magnesium	mg/L	SW6010C	19.3	10.00	8.956	104	75-125				7/16/2010
1007213-001CMS	Molybdenum	mg/L	SW6010C	0.213	0.2000	0	107	75-125				7/16/2010
1007213-001CMS	Potassium	mg/L	SW6010C	11.9	10.00	1.198	107	75-125				7/16/2010
1007213-001CMS	Sodium	mg/L	SW6010C	26.0	10.00	16.09	99.1	75-125				7/16/2010
1007213-001CMS	Calcium	mg/L	SW6010C	108	10.00	99.85	85.4	75-125				7/16/2010
1007213-001DMS	Iron	mg/L	SW6010C	44.9	1.000	44.80	10.0	75-125			2	7/15/2010
1007213-001CMS	Arsenic	mg/L	SW6020A	0.201	0.2000	0.0004410	100	70-130				7/15/2010
1007213-001CMS	Cadmium	mg/L	SW6020A	0.199	0.2000	0	99.6	70-130				7/15/2010
1007213-001CMS	Copper	mg/L	SW6020A	0.198	0.2000	0.0007820	98.8	70-130				7/15/2010
1007213-001CMS	Lead	mg/L	SW6020A	0.199	0.2000	0	99.3	70-130				7/15/2010
1007213-001CMS	Manganese	mg/L	SW6020A	0.201	0.2000	0.0005250	100	70-130				7/15/2010
1007213-001CMS	Selenium	mg/L	SW6020A	0.200	0.2000	0.001199	99.4	70-130				7/15/2010
1007213-001CMS	Zinc	mg/L	SW6020A	0.986	1.000	0	98.6	70-130				7/15/2010
1007213-001DMS	Manganese	mg/L	SW6020A	0.745	0.2000	0.5586	93.2	70-130				7/15/2010

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007213
Project: Scofield Baseline

Dept: ME
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007213-001CMSD	Aluminum	mg/L	SW6010C	1.04	1.000	0	104	75-125	1.18	20		7/16/2010
1007213-001CMSD	Boron	mg/L	SW6010C	1.19	1.000	0.01850	118	75-125	0.263	20		7/16/2010
1007213-001CMSD	Iron	mg/L	SW6010C	1.05	1.000	0	105	75-125	1.06	20		7/16/2010
1007213-001CMSD	Magnesium	mg/L	SW6010C	19.7	10.00	8.956	107	75-125	1.69	20		7/16/2010
1007213-001CMSD	Molybdenum	mg/L	SW6010C	0.216	0.2000	0	108	75-125	1.37	20		7/16/2010
1007213-001CMSD	Potassium	mg/L	SW6010C	11.9	10.00	1.198	107	75-125	0.109	20		7/16/2010
1007213-001CMSD	Sodium	mg/L	SW6010C	26.3	10.00	16.09	102	75-125	1.06	20		7/16/2010
1007213-001CMSD	Calcium	mg/L	SW6010C	110	10.00	99.85	105	75-125	1.84	20		7/16/2010
1007213-001DMSD	Iron	mg/L	SW6010C	44.9	1.000	44.80	10.0	75-125	0	20	[2]	7/15/2010
1007213-001CMSD	Arsenic	mg/L	SW6020A	0.200	0.2000	0.0004410	99.8	70-130	0.244	20		7/15/2010
1007213-001CMSD	Cadmium	mg/L	SW6020A	0.200	0.2000	0	100	70-130	0.576	20		7/15/2010
1007213-001CMSD	Copper	mg/L	SW6020A	0.197	0.2000	0.0007820	98.2	70-130	0.694	20		7/15/2010
1007213-001CMSD	Lead	mg/L	SW6020A	0.199	0.2000	0	99.3	70-130	0.00604	20		7/15/2010
1007213-001CMSD	Manganese	mg/L	SW6020A	0.201	0.2000	0.0005250	100	70-130	0.167	20		7/15/2010
1007213-001CMSD	Selenium	mg/L	SW6020A	0.202	0.2000	0.001199	101	70-130	1.14	20		7/15/2010
1007213-001CMSD	Zinc	mg/L	SW6020A	0.987	1.000	0	98.7	70-130	0.169	20		7/15/2010
1007213-001DMSD	Manganese	mg/L	SW6020A	0.743	0.2000	0.5586	92.3	70-130	0.257	20		7/15/2010

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007213
Project: Scofield Baseline

Dept: WC
QC Type: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007213-001EDUP	Total Dissolved Solids	mg/L	A2540C	620		620.0		-	0	5		7/16/2010
1007245-001EDUP	Total Dissolved Solids	mg/L	A2540C	304		288.0		-	5.41	5		7/16/2010

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Salt Lake City, Utah 84115
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007213
Project: Scofield Baseline

Dept: WC
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R16407	Chloride	mg/L	E300.0	4.70	5.000	0	94.0	90-110				7/15/2010
LCS-R16407	Sulfate	mg/L	E300.0	5.09	5.000	0	102	90-110				7/15/2010
LCS-R16439	Acidity	mg/L	A2310B	50.0	50.00	0	100	80-120				7/19/2010
LCS-R16405	Alkalinity (as CaCO3)	mg/L	A2320B	49,900	50,000	0	99.8	90-110				7/16/2010
LCS-7478	Ammonia (as N)	mg/L	E350.1	0.938	1.000	0	93.8	90-110				7/19/2010
LCS-R16376	Nitrite (as N)	mg/L	E353.2	1.05	1.000	0	105	90-110				7/15/2010
LCS-R16377	Nitrate (as N)	mg/L	E353.2	1.05	1.000	0	105	90-110				7/15/2010
LCS-R16374	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.913	1.000	0	91.3	90-110				7/15/2010
LCS-R16479	Total Dissolved Solids	mg/L	A2540C	200	205.0	0	97.6	80-120				7/16/2010

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007213
Project: Scofield Baseline

Dept: WC
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R16407	Chloride	mg/L	E300.0	< 0.100				-				7/15/2010
MB-R16407	Sulfate	mg/L	E300.0	< 0.750				-				7/15/2010
MB-R16439	Acidity	mg/L	A2310B	< 15.0				-				7/19/2010
MB-R16405	Alkalinity (as CaCO3)	mg/L	A2320B	< 10.0				-				7/16/2010
MB-R16405	Bicarbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				7/16/2010
MB-R16405	Carbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				7/16/2010
MB-7478	Ammonia (as N)	mg/L	E350.1	< 0.0500				-				7/19/2010
MB-R16376	Nitrite (as N)	mg/L	E353.2	< 0.0100				-				7/15/2010
MB-R16377	Nitrate (as N)	mg/L	E353.2	< 0.0100				-				7/15/2010
MB-R16374	Phosphate, Total Ortho (as P)	mg/L	E365.1	< 0.0500				-				7/15/2010
MB-R16479	Total Dissolved Solids	mg/L	A2540C	< 10.0				-				7/16/2010

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007213
Project: Scofield Baseline

Dept: WC
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007213-001AMS	Chloride	mg/L	E300.0	70.4	50.00	21.76	97.3	90-110				7/15/2010
1007213-001AMS	Sulfate	mg/L	E300.0	120	50.00	73.89	92.2	90-110				7/15/2010
1007245-001AMS	Acidity	mg/L	A2310B	102	50.00	50.00	104	80-120				7/19/2010
1007213-001AMS	Acidity	mg/L	A2310B	50.0	50.00	0	100	80-120				7/19/2010
1007213-001AMS	Alkalinity (as CaCO3)	mg/L	A2320B	277	100.0	175.0	102	80-120				7/16/2010
1007231-001BMS	Alkalinity (as CaCO3)	mg/L	A2320B	317	100.0	221.0	96.0	80-120				7/16/2010
1007210-003AMS	Ammonia (as N)	mg/L	E350.1	1.02	1.000	0.06140	95.8	90-110				7/19/2010
1007213-001BMS	Ammonia (as N)	mg/L	E350.1	0.955	1.000	0	95.5	90-110				7/19/2010
1007213-001AMS	Nitrite (as N)	mg/L	E353.2	1.20	1.000	0.1805	102	90-110				7/15/2010
1007213-001AMS	Nitrate (as N)	mg/L	E353.2	17.7	10.00	6.702	110	90-110				7/15/2010
1007213-001AMS	Phosphate, Total Ortho (as P)	mg/L	E365.1	1.40	1.000	0.3786	102	90-110				7/15/2010

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1007213
Project: Scofield Baseline

Dept: WC
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1007213-001AMSD	Chloride	mg/L	E300.0	70.3	50.00	21.76	97.1	90-110	0.0910	20		7/15/2010
1007213-001AMSD	Sulfate	mg/L	E300.0	120	50.00	73.89	91.6	90-110	0.239	20		7/15/2010
1007245-001AMSD	Acidity	mg/L	A2310B	100	50.00	50.00	100	80-120	1.98	0		7/19/2010
1007213-001AMSD	Acidity	mg/L	A2310B	54.0	50.00	0	108	80-120	7.69	0		7/19/2010
1007213-001AMSD	Alkalinity (as CaCO3)	mg/L	A2320B	273	100.0	175.0	98.0	80-120	1.45	10		7/16/2010
1007231-001BMSD	Alkalinity (as CaCO3)	mg/L	A2320B	319	100.0	221.0	98.0	80-120	0.629	10		7/16/2010
1007210-003AMSD	Ammonia (as N)	mg/L	E350.1	1.05	1.000	0.06140	98.9	90-110	2.98	10		7/19/2010
1007213-001BMSD	Ammonia (as N)	mg/L	E350.1	0.989	1.000	0	98.9	90-110	3.44	10		7/19/2010
1007213-001AMSD	Nitrite (as N)	mg/L	E353.2	1.15	1.000	0.1805	96.8	90-110	4.53	10		7/15/2010
1007213-001AMSD	Nitrate (as N)	mg/L	E353.2	17.8	10.00	6.702	111	90-110	0.273	10	[1]	7/15/2010
1007213-001AMSD	Phosphate, Total Ortho (as P)	mg/L	E365.1	1.38	1.000	0.3786	101	90-110	1.16	10		7/15/2010

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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American West Analytical Laboratories

WORK ORDER Summary

15-Jul-10

Work Order: 1007213

WO Type: Project

Client ID:	CAR300	**Contact:**	Brad Lindsay
Project ID:	CAR300-Scofield Baseline	**PM:**	
Project:	Scofield Baseline	**QC Level:**	LEVEL II+
ChkList Completed On:		**Completed By**	
ChkList Reviewed On:		**Reviewed By:**	
WO Reviewed On:		**Reviewed By:**	HKB

COMMENTS : QC 2+, EDD; DB

Sample ID	Client Sample ID	Date Collected	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
1007213-001A	CR-10-12	7/13/2010 8:30:00 PM	7/15/2010 9:55:00 AM	7/29/2010	Aqueous	300.0-W	☐	☐	☑	☐	DF - wc
	SEL Analytes: CL SO4										
				7/29/2010		ACIDITY-W-2310B	☐	☐	☐	☐	DF - wc
				7/29/2010		ALK-W-2320B	☐	☐	☑	☐	DF - wc
	SEL Analytes: ALK ALKB ALKC										
				7/29/2010		NO2-W-353.2	☐	☐	☐	☐	DF - wc
				7/29/2010		NO3-W-353.2	☐	☐	☐	☐	DF - wc
				7/29/2010		PO4-O-365.1	☐	☐	☐	☐	DF - wc
1007213-001B				7/29/2010		NH3-W-350.1	☐	☐	☐	☐	DF - nh3
				7/29/2010		NH3-W-PR	☐	☐	☐	☐	DF - nh3
1007213-001C				7/29/2010		3005A-DIS-PR	☐	☐	☐	☐	DF - dis met
				7/29/2010		6010C-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AL B CA FE MG MO K NA										
				7/29/2010		6020-DIS	☐	☐	☑	☐	DF - dis met
	SEL Analytes: AS CD CU PB MN SE ZN										
				7/29/2010		HARD-2340B	☐	☐	☐	☐	DF - dis met
1007213-001D				7/29/2010		3005A-ICPMS-PR	☐	☐	☐	☐	DF - total met
				7/29/2010		6010C-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: FE										
				7/29/2010		6020-W	☐	☐	☑	☐	DF - total met
	SEL Analytes: MN										
1007213-001E				7/29/2010		TDS-W-2540C	☐	☐	☐	☐	ww - tds

Client Carbon Resources & Rock Logic

Address P.O. Box 544

Cedaredge, CO 81413
City State Zip

Phone 435 851-9044 Fax

Contact Brad Lindsay

E-mail RockLogicConsulting@gmail.com

Project Name Scofield Baseline

Project Number/P.O.# —

Sampler Name Greg Hunt

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115

(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 1007213

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

Please indicate tests needed below

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Table 4 + Included on PR											COMMENTS
CR-10-12	7-13-10	GW	5	✓											
	@ 2013O														

Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME Greg Hunt	Time 16:45	PRINT NAME
Relinquished By: *Signature*	Date	Received By: *Signature* UPS
PRINT NAME	Time	PRINT NAME

Relinquished By: *Signature*	Date	Received By: *Signature*
PRINT NAME	Time	PRINT NAME
Relinquished By: *Signature*	Date 7/15/10	Received By: *Signature* Denise Brown
PRINT NAME	Time 9:55	PRINT NAME Denise Brown

Special Instructions:

PLEASE FILTER

*Table 4 per Brad Gikes-
DB 7/16/10

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS DB 7/15/10
2 Ambient or Chilled
Notes: on ice
3 Temperature 14.3°
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Notes:
6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y (N) NA
4 Unbroken on Sample Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

Table 4: Ground-Water Monitoring Parameters
Minimum Requirements and Recommendations
Baseline, Operational, and Postmining

			FIELD MEASUREMENTS	REPORTED AS
+	*	-	Water level or Flow	Depth, Flow
+	*	-	pH	Standard units
+	*	-	Specific Conductivity	umhos/cm @ 25° C
	*	-	Temperature	°C

			LABORATORY MEASUREMENTS	REPORTED AS
+	*	-	Total Dissolved Solids	mg/l
	*	-	Total Hardness ($CaCO_3$)	mg/l
	*	-	Total Alkalinity	mg/l
		-	Acidity	mg/l
		-	Aluminum (Dissolved)	mg/l
		-	Arsenic (Dissolved)	mg/l
		-	Boron (Dissolved)	mg/l
	*	-	Carbonate	mg/l
	*	-	Bicarbonate	mg/l
		-	Cadmium (Dissolved)	mg/l
	*	-	Calcium (Dissolved)	mg/l
	*	-	Chloride	mg/l
		-	Copper (Dissolved)	mg/l
	*	-	Iron (Dissolved)	mg/l
+	*	-	Iron (Total)	mg/l
		-	Lead (Dissolved)	mg/l
	*	-	Magnesium (Dissolved)	mg/l
	*	-	Manganese (Dissolved)	mg/l
+	*	-	Manganese (Total)	mg/l
		-	Molybdenum (Dissolved)	mg/l
		-	Ammonia	mg/l
		-	Nitrates	mg/l
		-	Nitrites	mg/l
	*	-	Potassium (Dissolved)	mg/l
		-	Phosphate (Ortho)	mg/l
		-	Selenium (Dissolved)	mg/l
	*	-	Sodium (Dissolved)	mg/l
	*	-	Sulfate	mg/l
		-	Zinc (Dissolved)	mg/l
	*	-	Cations	meq/l
	*	-	Anions	meq/l

\+ Parameters required for Baseline monitoring.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Postmining monitoring

Sample Set: 1007213

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL																
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

Denise Bruun

To: rocklogicconsulting@gmail.com
Subject: AWAL Lab Set 1007213 - Scofield Baseline
Attachments: 1007231 - COC and Attached Table 4.pdf

Brad,

Attached is a copy of the Chain of Custody and the attached Table 4 we received with your samples on 7-15-10. As you can see on the chain of custody, it says to use Table 3. However, it was Table 4 that we prepared bottles for and which was attached to your chain of custody. We are assuming you want the analysis for Table 4, but if you really do need Table 3, please let us know as soon as possible so we can send more sample bottles for the volume we don't have.

Thank You,

Denise Bruun
Customer Service Representative

American West Analytical Labs
463 West 3600 South
Salt Lake City, UT 84115

801.263.8686 FAX 801.263.8687
www.awal-labs.com

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Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Kinney #2 Baseline

Dear Brad Lindsay: Lab Set ID: 1009035

American West Analytical Laboratories received 2 sample(s) on 9/2/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Kinney #2 Baseline
Lab Sample ID: 1009035-001
Client Sample ID: CR-10-11
Collection Date: 8/31/2010 1730h
Received Date: 9/2/2010 1030h

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463 West 3600 South
Salt Lake City, Utah
84115

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	9/5/2010 1211h	9/8/2010 1722h	SW6010C	0.100	**22.7**	
Manganese	mg/L	9/5/2010 1211h	9/6/2010 0513h	SW6020A	0.00120	**0.437**	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Kinney #2 Baseline
Lab Sample ID: 1009035-002
Client Sample ID: CR-10-12
Collection Date: 8/31/2010 1830h
Received Date: 9/2/2010 1030h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	9/5/2010 1211h	9/8/2010 1737h	SW6010C	0.100	**3.01**	
Manganese	mg/L	9/5/2010 1211h	9/6/2010 0542h	SW6020A	0.00120	**0.0287**	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Kinney #2 Baseline
Lab Sample ID: 1009035-001
Client Sample ID: CR-10-11
Collection Date: 8/31/2010 1730h
Received Date: 9/2/2010 1030h

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Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	9/3/2010 1334h	9/14/2010 1618h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	9/3/2010 1334h	9/6/2010 0407h	SW6020A	0.000600	< 0.000600	
Boron	mg/L	9/3/2010 1334h	9/14/2010 1618h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	9/3/2010 1334h	9/6/2010 0407h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	9/3/2010 1334h	9/14/2010 1544h	SW6010C	10.0	**82.3**	2
Copper	mg/L	9/3/2010 1334h	9/6/2010 0407h	SW6020A	0.000800	**0.00140**	
Iron	mg/L	9/3/2010 1334h	9/14/2010 1618h	SW6010C	0.100	< 0.100	
Lead	mg/L	9/3/2010 1334h	9/6/2010 0407h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	9/3/2010 1334h	9/14/2010 1618h	SW6010C	1.00	**12.4**	
Manganese	mg/L	9/3/2010 1334h	9/6/2010 0407h	SW6020A	0.00120	**0.0182**	
Molybdenum	mg/L	9/3/2010 1334h	9/14/2010 1618h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	9/3/2010 1334h	9/14/2010 1618h	SW6010C	1.00	**1.27**	
Selenium	mg/L	9/3/2010 1334h	9/6/2010 0407h	SW6020A	0.000800	**0.00130**	
Sodium	mg/L	9/3/2010 1334h	9/14/2010 1618h	SW6010C	1.00	**11.5**	
Zinc	mg/L	9/3/2010 1334h	9/6/2010 0407h	SW6020A	0.00500	**0.00958**	

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.
Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Kinney #2 Baseline
Lab Sample ID: 1009035-002
Client Sample ID: CR-10-12
Collection Date: 8/31/2010 1830h
Received Date: 9/2/2010 1030h

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463 West 3600 South
Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	9/3/2010 1334h	9/14/2010 1633h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	9/3/2010 1334h	9/6/2010 0436h	SW6020A	0.000600	< 0.000600	
Boron	mg/L	9/3/2010 1334h	9/14/2010 1633h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	9/3/2010 1334h	9/6/2010 0436h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	9/3/2010 1334h	9/14/2010 1556h	SW6010C	10.0	**66.2**	
Copper	mg/L	9/3/2010 1334h	9/6/2010 0436h	SW6020A	0.000800	< 0.000800	
Iron	mg/L	9/3/2010 1334h	9/14/2010 1633h	SW6010C	0.100	< 0.100	
Lead	mg/L	9/3/2010 1334h	9/6/2010 0436h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	9/3/2010 1334h	9/14/2010 1633h	SW6010C	1.00	**6.10**	
Manganese	mg/L	9/3/2010 1334h	9/6/2010 0436h	SW6020A	0.00120	**0.00212**	
Molybdenum	mg/L	9/3/2010 1334h	9/14/2010 1633h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	9/3/2010 1334h	9/14/2010 1633h	SW6010C	1.00	**1.04**	
Selenium	mg/L	9/3/2010 1334h	9/6/2010 0436h	SW6020A	0.000800	**0.000870**	
Sodium	mg/L	9/3/2010 1334h	9/14/2010 1633h	SW6010C	1.00	**25.7**	
Zinc	mg/L	9/3/2010 1334h	9/6/2010 0436h	SW6020A	0.00500	< 0.00500	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Kinney #2 Baseline
Lab Sample ID: 1009035-001
Client Sample ID: CR-10-11
Collection Date: 8/31/2010 1730h
Received Date: 9/2/2010 1030h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		9/3/2010 1030h	A2310B	15.0	**46.0**	
Alkalinity (as CaCO3)	mg/L		9/3/2010 0920h	A2320B	20.0	**214**	
Ammonia (as N)	mg/L	9/10/2010 1605h	9/14/2010 0830h	E350.1	0.0500	< 0.0500	
Bicarbonate (as CaCO3)	mg/L		9/3/2010 0920h	A2320B	20.0	**214**	
Carbonate (as CaCO3)	mg/L		9/3/2010 0920h	A2320B	10.0	< 10.0	
Chloride	mg/L		9/2/2010 2053h	E300.0	0.500	**14.7**	
Hardness (as CaCO3)	mg/L		9/14/2010	A2340B	10.0	**257**	
Nitrate (as N)	mg/L		9/2/2010 1347h	E353.2	0.100	**2.54**	1
Nitrite (as N)	mg/L		9/2/2010 1327h	E353.2	0.0100	**0.0828**	
Oil & Grease	mg/L		9/7/2010 1431h	E1664A	3.00	< 3.00	
Phosphate, Total Ortho (as P)	mg/L		9/2/2010 1238h	E365.1	0.0500	**0.225**	
Settleable Solids	mL/L		9/2/2010 1210h	A2540F	0.100	**6.50**	
Sulfate	mg/L		9/2/2010 2053h	E300.0	3.75	**28.3**	
Total Dissolved Solids	mg/L		9/2/2010 1400h	A2540C	50.0	**470**	
Total Suspended Solids	mg/L		9/2/2010 1545h	A2540D	30.0	**2,690**	

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project: Kinney #2 Baseline
Lab Sample ID: 1009035-002
Client Sample ID: CR-10-12
Collection Date: 8/31/2010 1830h
Received Date: 9/2/2010 1030h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		9/3/2010 1030h	A2310B	15.0	< 15.0	
Alkalinity (as CaCO3)	mg/L		9/3/2010 0920h	A2320B	20.0	**175**	
Ammonia (as N)	mg/L	9/10/2010 1605h	9/14/2010 0834h	E350.1	0.0500	< 0.0500	
Bicarbonate (as CaCO3)	mg/L		9/3/2010 0920h	A2320B	20.0	**175**	
Carbonate (as CaCO3)	mg/L		9/3/2010 0920h	A2320B	10.0	< 10.0	
Chloride	mg/L		9/2/2010 2203h	E300.0	0.500	**18.8**	
Hardness (as CaCO3)	mg/L		9/14/2010	A2340B	10.0	**191**	
Nitrate (as N)	mg/L		9/2/2010 1351h	E353.2	0.100	**5.17**	
Nitrite (as N)	mg/L		9/2/2010 1333h	E353.2	0.0100	**0.0426**	
Oil & Grease	mg/L		9/7/2010 1431h	E1664A	3.00	< 3.00	
Phosphate, Total Ortho (as P)	mg/L		9/2/2010 1241h	E365.1	0.0500	**0.0907**	
Settleable Solids	mL/L		9/2/2010 1210h	A2540F	0.100	< 0.100	
Sulfate	mg/L		9/2/2010 2203h	E300.0	3.75	**37.1**	
Total Dissolved Solids	mg/L		9/2/2010 1400h	A2540C	20.0	**308**	@
Total Suspended Solids	mg/L		9/2/2010 1545h	A2540D	3.00	**95.0**	

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009035
Project: Kinney #2 Baseline

Dept: ME
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-8314	Aluminum	mg/L	SW6010C	1.00	1.000	0	100	80-120				9/14/2010
LCS-8314	Boron	mg/L	SW6010C	1.02	1.000	0	102	80-120				9/14/2010
LCS-8314	Calcium	mg/L	SW6010C	9.95	10.00	0	99.5	80-120				9/14/2010
LCS-8314	Iron	mg/L	SW6010C	1.01	1.000	0	101	80-120				9/14/2010
LCS-8314	Magnesium	mg/L	SW6010C	10.4	10.00	0	104	80-120				9/14/2010
LCS-8314	Molybdenum	mg/L	SW6010C	0.194	0.2000	0	97.0	80-120				9/14/2010
LCS-8314	Potassium	mg/L	SW6010C	10.3	10.00	0	103	80-120				9/14/2010
LCS-8314	Sodium	mg/L	SW6010C	9.98	10.00	0	99.8	80-120				9/14/2010
LCS-8325	Calcium	mg/L	SW6010C	11.4	10.00	0	114	80-120				9/8/2010
LCS-8325	Iron	mg/L	SW6010C	1.06	1.000	0	106	80-120				9/8/2010
LCS-8325	Magnesium	mg/L	SW6010C	11.1	10.00	0	111	80-120				9/8/2010
LCS-8325	Potassium	mg/L	SW6010C	10.8	10.00	0	108	80-120				9/8/2010
LCS-8325	Sodium	mg/L	SW6010C	10.2	10.00	0	102	80-120				9/8/2010
LCS-8314	Arsenic	mg/L	SW6020A	0.205	0.2000	0	103	85-115				9/6/2010
LCS-8314	Cadmium	mg/L	SW6020A	0.200	0.2000	0	99.8	85-115				9/6/2010
LCS-8314	Copper	mg/L	SW6020A	0.201	0.2000	0	100	85-115				9/6/2010
LCS-8314	Lead	mg/L	SW6020A	0.200	0.2000	0	99.9	85-115				9/6/2010
LCS-8314	Manganese	mg/L	SW6020A	0.202	0.2000	0	101	85-115				9/6/2010
LCS-8314	Selenium	mg/L	SW6020A	0.199	0.2000	0.0001510	99.2	85-115				9/6/2010
LCS-8314	Zinc	mg/L	SW6020A	0.998	1.000	0	99.8	85-115				9/6/2010
LCS-8325	Lead	mg/L	SW6020A	0.201	0.2000	0	100	85-115				9/6/2010
LCS-8325	Manganese	mg/L	SW6020A	0.203	0.2000	0	102	85-115				9/6/2010

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009035
Project: Kinney #2 Baseline

Dept: ME
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-8314	Aluminum	mg/L	SW6010C	< 0.100				-				9/14/2010
MB-8314	Boron	mg/L	SW6010C	< 0.500				-				9/14/2010
MB-8314	Calcium	mg/L	SW6010C	< 1.00				-				9/14/2010
MB-8314	Iron	mg/L	SW6010C	< 0.100				-				9/14/2010
MB-8314	Magnesium	mg/L	SW6010C	< 1.00				-				9/14/2010
MB-8314	Molybdenum	mg/L	SW6010C	< 0.0200				-				9/14/2010
MB-8314	Potassium	mg/L	SW6010C	< 1.00				-				9/14/2010
MB-8314	Sodium	mg/L	SW6010C	< 1.00				-				9/14/2010
MB-8325	Calcium	mg/L	SW6010C	< 1.00				-				9/8/2010
MB-8325	Iron	mg/L	SW6010C	< 0.100				-				9/8/2010
MB-8325	Magnesium	mg/L	SW6010C	< 1.00				-				9/8/2010
MB-8325	Potassium	mg/L	SW6010C	< 1.00				-				9/8/2010
MB-8325	Sodium	mg/L	SW6010C	< 1.00				-				9/8/2010
MB-8314	Arsenic	mg/L	SW6020A	< 0.000600				-				9/6/2010
MB-8314	Cadmium	mg/L	SW6020A	< 0.000180				-				9/6/2010
MB-8314	Copper	mg/L	SW6020A	< 0.000800				-				9/6/2010
MB-8314	Lead	mg/L	SW6020A	< 0.000400				-				9/6/2010
MB-8314	Manganese	mg/L	SW6020A	< 0.00120				-				9/6/2010
MB-8314	Selenium	mg/L	SW6020A	< 0.000800				-				9/6/2010
MB-8314	Zinc	mg/L	SW6020A	< 0.00500				-				9/6/2010
MB-8325	Lead	mg/L	SW6020A	< 0.000400				-				9/6/2010
MB-8325	Manganese	mg/L	SW6020A	< 0.00120				-				9/6/2010

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009035
Project: Kinney #2 Baseline

Dept: ME
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009035-001EMS	Aluminum	mg/L	SW6010C	1.07	1.000	0	107	75-125				9/14/2010
1009035-001EMS	Boron	mg/L	SW6010C	1.20	1.000	0.03100	117	75-125				9/14/2010
1009035-001EMS	Iron	mg/L	SW6010C	1.02	1.000	0	102	75-125				9/14/2010
1009035-001EMS	Magnesium	mg/L	SW6010C	23.2	10.00	12.40	108	75-125				9/14/2010
1009035-001EMS	Molybdenum	mg/L	SW6010C	0.208	0.2000	0	104	75-125				9/14/2010
1009035-001EMS	Potassium	mg/L	SW6010C	12.1	10.00	1.270	108	75-125				9/14/2010
1009035-001EMS	Sodium	mg/L	SW6010C	21.9	10.00	11.50	104	75-125				9/14/2010
1009035-001EMS	Calcium	mg/L	SW6010C	95.1	10.00	82.33	128	75-125			[2]	9/14/2010
1009035-001FMS	Iron	mg/L	SW6010C	23.6	1.000	22.70	90.0	75-125				9/8/2010
1009035-001FMS	Potassium	mg/L	SW6010C	19.2	10.00	6.790	124	75-125				9/8/2010
1009035-001FMS	Sodium	mg/L	SW6010C	22.0	10.00	11.60	104	75-125				9/8/2010
1009035-001FMS	Calcium	mg/L	SW6010C	141	10.00	133.0	80.0	75-125				9/8/2010
1009035-001FMS	Magnesium	mg/L	SW6010C	29.3	10.00	18.60	107	75-125				9/8/2010
1009035-001EMS	Arsenic	mg/L	SW6020A	0.207	0.2000	0.0005070	103	75-125				9/6/2010
1009035-001EMS	Cadmium	mg/L	SW6020A	0.200	0.2000	0.00005300	100	75-125				9/6/2010
1009035-001EMS	Copper	mg/L	SW6020A	0.196	0.2000	0.001398	97.3	75-125				9/6/2010
1009035-001EMS	Lead	mg/L	SW6020A	0.204	0.2000	0	102	75-125				9/6/2010
1009035-001EMS	Manganese	mg/L	SW6020A	0.220	0.2000	0.01820	101	75-125				9/6/2010
1009035-001EMS	Selenium	mg/L	SW6020A	0.200	0.2000	0.001295	99.1	75-125				9/6/2010
1009035-001EMS	Zinc	mg/L	SW6020A	1.01	1.000	0.009585	100	75-125				9/6/2010
1009035-001FMS	Lead	mg/L	SW6020A	0.219	0.2000	0.02460	97.4	75-125				9/6/2010
1009035-001FMS	Manganese	mg/L	SW6020A	0.591	0.2000	0.4372	77.1	75-125				9/6/2010

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009035
Project: Kinney #2 Baseline

Dept: ME
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009035-001EMSD	Aluminum	mg/L	SW6010C	1.03	1.000	0	103	75-125	3.81	20		9/14/2010
1009035-001EMSD	Boron	mg/L	SW6010C	1.18	1.000	0.03100	115	75-125	1.68	20		9/14/2010
1009035-001EMSD	Iron	mg/L	SW6010C	1.01	1.000	0	101	75-125	0.985	20		9/14/2010
1009035-001EMSD	Magnesium	mg/L	SW6010C	22.7	10.00	12.40	103	75-125	2.18	20		9/14/2010
1009035-001EMSD	Molybdenum	mg/L	SW6010C	0.204	0.2000	0	102	75-125	1.94	20		9/14/2010
1009035-001EMSD	Potassium	mg/L	SW6010C	11.8	10.00	1.270	105	75-125	2.51	20		9/14/2010
1009035-001EMSD	Sodium	mg/L	SW6010C	21.4	10.00	11.50	99.0	75-125	2.31	20		9/14/2010
1009035-001EMSD	Calcium	mg/L	SW6010C	89.5	10.00	82.33	71.2	75-125	6.16	20	[2]	9/14/2010
1009035-001FMSD	Iron	mg/L	SW6010C	23.5	1.000	22.70	80.0	75-125	0.425	20		9/8/2010
1009035-001FMSD	Potassium	mg/L	SW6010C	18.9	10.00	6.790	121	75-125	1.57	20		9/8/2010
1009035-001FMSD	Sodium	mg/L	SW6010C	22.1	10.00	11.60	105	75-125	0.454	20		9/8/2010
1009035-001FMSD	Calcium	mg/L	SW6010C	141	10.00	133.0	80.0	75-125	0	20		9/8/2010
1009035-001FMSD	Magnesium	mg/L	SW6010C	30.2	10.00	18.60	116	75-125	3.03	20		9/8/2010
1009035-001EMSD	Arsenic	mg/L	SW6020A	0.209	0.2000	0.0005070	104	75-125	0.750	20		9/6/2010
1009035-001EMSD	Cadmium	mg/L	SW6020A	0.200	0.2000	0.00005300	100	75-125	0.0829	20		9/6/2010
1009035-001EMSD	Copper	mg/L	SW6020A	0.198	0.2000	0.001398	98.5	75-125	1.16	20		9/6/2010
1009035-001EMSD	Lead	mg/L	SW6020A	0.198	0.2000	0	98.8	75-125	3.15	20		9/6/2010
1009035-001EMSD	Manganese	mg/L	SW6020A	0.220	0.2000	0.01820	101	75-125	0.255	20		9/6/2010
1009035-001EMSD	Selenium	mg/L	SW6020A	0.204	0.2000	0.001295	101	75-125	2.21	20		9/6/2010
1009035-001EMSD	Zinc	mg/L	SW6020A	1.01	1.000	0.009585	99.8	75-125	0.254	20		9/6/2010
1009035-001FMSD	Lead	mg/L	SW6020A	0.221	0.2000	0.02460	98.4	75-125	0.882	20		9/6/2010
1009035-001FMSD	Manganese	mg/L	SW6020A	0.608	0.2000	0.4372	85.6	75-125	2.84	20		9/6/2010

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009035
Project: Kinney #2 Baseline

Dept: WC
QC Type: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1008598-005HDUP	Total Dissolved Solids	mg/L	A2540C	724		756.0		-	4.32	5		9/2/2010
1009035-002ADUP	Total Dissolved Solids	mg/L	A2540C	292		308.0		-	5.33	5	@	9/2/2010
1008577-002ADUP	Total Suspended Solids	mg/L	A2540D	270		270.0		-	0	5		9/2/2010
1009022-002ADUP	Total Suspended Solids	mg/L	A2540D	< 3.00		1.000		-	0	5		9/2/2010
1009035-002ADUP	Total Suspended Solids	mg/L	A2540D	96.0		95.00		-	1.05	5		9/2/2010

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009035
Project: Kinney #2 Baseline

Dept: WC
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R18092	Chloride	mg/L	E300.0	4.89	5.000	0	97.8	90-110				9/2/2010
LCS-R18092	Sulfate	mg/L	E300.0	5.28	5.000	0	106	90-110				9/2/2010
LCS-R18100	Acidity	mg/L	A2310B	50.0	50.00	0	100	80-120				9/3/2010
LCS-R18095	Alkalinity (as CaCO3)	mg/L	A2320B	52,500	50,000	0	105	90-110				9/3/2010
LCS-8409	Ammonia (as N)	mg/L	E350.1	0.921	1.000	0	92.1	90-110				9/14/2010
LCS-R18051	Nitrite (as N)	mg/L	E353.2	1.08	1.000	0	108	90-110				9/2/2010
LCS-R18053	Nitrate (as N)	mg/L	E353.2	1.00	1.000	0	100	90-110				9/2/2010
LCS-R18192	Oil & Grease	mg/L	E1664A	39.8	40.00	2.800	92.5	78-114				9/7/2010
LCS-R18043	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.964	1.000	0	96.4	90-110				9/2/2010
LCS-R18144	Total Dissolved Solids	mg/L	A2540C	202	205.0	0	98.5	80-120				9/2/2010
LCS-R18094	Total Suspended Solids	mg/L	A2540D	102	100.0	0	102	80-120				9/2/2010

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009035
Project: Kinney #2 Baseline

Dept: WC
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R18092	Chloride	mg/L	E300.0	< 0.100				-				9/2/2010
MB-R18092	Sulfate	mg/L	E300.0	< 0.750				-				9/2/2010
MB-R18100	Acidity	mg/L	A2310B	< 15.0				-				9/3/2010
MB-R18095	Alkalinity (as CaCO3)	mg/L	A2320B	< 10.0				-				9/3/2010
MB-R18095	Bicarbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				9/3/2010
MB-R18095	Carbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				9/3/2010
MB-8409	Ammonia (as N)	mg/L	E350.1	< 0.0500				-				9/14/2010
MB-R18051	Nitrite (as N)	mg/L	E353.2	< 0.0100				-				9/2/2010
MB-R18053	Nitrate (as N)	mg/L	E353.2	< 0.0100				-				9/2/2010
MB-R18192	Oil & Grease	mg/L	E1664A	< 3.00				-				9/7/2010
MB-R18043	Phosphate, Total Ortho (as P)	mg/L	E365.1	< 0.0500				-				9/2/2010
MB-R18144	Total Dissolved Solids	mg/L	A2540C	< 10.0				-				9/2/2010
MB-R18094	Total Suspended Solids	mg/L	A2540D	< 3.00				-				9/2/2010

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009035
Project: Kinney #2 Baseline

Dept: WC
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009003-001CMS	Chloride	mg/L	E300.0	59.7	50.00	10.35	98.7	90-110				9/2/2010
1009003-001CMS	Sulfate	mg/L	E300.0	74.5	50.00	24.50	100	90-110				9/2/2010
1008598-005DMS	Chloride	mg/L	E300.0	126	50.00	80.02	92.9	90-110				9/2/2010
1008598-005DMS	Sulfate	mg/L	E300.0	85.7	50.00	36.25	99.0	90-110				9/2/2010
1009035-001BMS	Chloride	mg/L	E300.0	39.1	25.00	14.71	97.6	90-110				9/2/2010
1009035-001BMS	Sulfate	mg/L	E300.0	53.0	25.00	28.26	99.1	90-110				9/2/2010
1009035-002BMS	Acidity	mg/L	A2310B	48.0	50.00	0	96.0	80-120				9/3/2010
1009035-001BMS	Alkalinity (as CaCO3)	mg/L	A2320B	317	100.0	214.0	103	80-120				9/3/2010
1009035-001DMS	Ammonia (as N)	mg/L	E350.1	0.953	1.000	0	95.3	90-110				9/14/2010
1009035-001BMS	Nitrite (as N)	mg/L	E353.2	1.18	1.000	0.08280	110	90-110				9/2/2010
1009035-001BMS	Nitrate (as N)	mg/L	E353.2	13.9	10.00	2.538	114	90-110			[1]	9/2/2010
1009035-001BMS	Phosphate, Total Ortho (as P)	mg/L	E365.1	1.23	1.000	0.2251	100	90-110				9/2/2010

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009035
Project: Kinney #2 Baseline

Dept: WC
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009003-001CMSD	Chloride	mg/L	E300.0	59.3	50.00	10.35	97.9	90-110	0.689	20		9/2/2010
1009003-001CMSD	Sulfate	mg/L	E300.0	74.5	50.00	24.50	100	90-110	0.0174	20		9/2/2010
1008598-005DMSD	Chloride	mg/L	E300.0	126	50.00	80.02	91.9	90-110	0.397	20		9/2/2010
1008598-005DMSD	Sulfate	mg/L	E300.0	85.3	50.00	36.25	98.1	90-110	0.492	20		9/2/2010
1009035-001BMSD	Chloride	mg/L	E300.0	39.1	25.00	14.71	97.6	90-110	0.0460	20		9/2/2010
1009035-001BMSD	Sulfate	mg/L	E300.0	53.0	25.00	28.26	99.1	90-110	0.0207	20		9/2/2010
1009035-002BMSD	Acidity	mg/L	A2310B	52.0	50.00	0	104	80-120	8.00	0		9/3/2010
1009035-001BMSD	Alkalinity (as CaCO3)	mg/L	A2320B	322	100.0	214.0	108	80-120	1.56	10		9/3/2010
1009035-001DMSD	Ammonia (as N)	mg/L	E350.1	0.981	1.000	0	98.1	90-110	2.94	10		9/14/2010
1009035-001BMSD	Nitrite (as N)	mg/L	E353.2	1.12	1.000	0.08280	104	90-110	4.68	10		9/2/2010
1009035-001BMSD	Nitrate (as N)	mg/L	E353.2	12.9	10.00	2.538	104	90-110	7.37	10		9/2/2010
1009035-001BMSD	Phosphate, Total Ortho (as P)	mg/L	E365.1	1.28	1.000	0.2251	105	90-110	4.15	10		9/2/2010

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American West Analytical Laboratories

WORK ORDER Summary

Work Order: 1009035

Client: Carbon Resources
Client ID: CAR300
Project: Kinney #2 Baseline
Comments: QC 2+, EDD;

Contact: Brad Lindsay
QC Level: LEVEL II+

WO Type: Project

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009035-001A	CR-10-11	8/31/2010 5:30:00 PM	9/2/2010 10:30:00 AM	9/16/2010	Aqueous	SS-W-2540F	☐	ww - ss/tss	1
				9/16/2010		TDS-W-2540C	☐	ww - ss/tss	
				9/16/2010		TSS-W-2540D	☐	ww - ss/tss	
1009035-001B				9/16/2010		300.0-W	☑	DF - wc	
	SEL Analytes: CL SO4								
				9/16/2010		ACIDITY-W-2310B	☐	DF - wc	
				9/16/2010		ALK-W-2320B	☑	DF - wc	
	SEL Analytes: ALK ALKB ALKC								
				9/16/2010		NO2-W-353.2	☐	DF - wc	
				9/16/2010		NO3-W-353.2	☐	DF - wc	
				9/16/2010		PO4-O-365.1	☐	DF - wc	
1009035-001C				9/16/2010		OGB-W-1664A	☐	ogb	
1009035-001D				9/16/2010		NH3-W-350.1	☐	DF - nh3	
				9/16/2010		NH3-W-PR	☐	DF - nh3	
1009035-001E				9/16/2010		3005A-DIS-PR	☐	DF - dis met	
				9/16/2010		6010C-DIS	☑	DF - dis met	
	SEL Analytes: AL B CA FE MG MO K NA								
				9/16/2010		6020-DIS	☑	DF - dis met	
	SEL Analytes: AS CD CU PB MN SE ZN								
				9/16/2010		HARD-2340B	☐	DF - dis met	
1009035-001F				9/16/2010		3005A-ICPMS-PR	☐	DF - total met	
				9/16/2010		6010C-W	☑	DF - total met	
	SEL Analytes: FE								

WORK ORDER Summary

Work Order: 1009035

Client: Carbon Resources
Client ID: CAR300
Project: Kinney #2 Baseline
Comments: QC 2+, EDD;

Contact: Brad Lindsay
QC Level: LEVEL II+

WO Type: Project

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009035-001F	CR-10-11	8/31/2010 5:30:00 PM	9/2/2010 10:30:00 AM	9/16/2010	Aqueous	6020-W	☑	DF - total met	1
	SEL Analytes: MN								
1009035-002A	CR-10-12	8/31/2010 6:30:00 PM		9/16/2010		SS-W-2540F	☐	ww - ss/tss	
				9/16/2010		TDS-W-2540C	☐	ww - ss/tss	
				9/16/2010		TSS-W-2540D	☐	ww - ss/tss	
1009035-002B				9/16/2010		300.0-W	☑	DF - wc	
	SEL Analytes: CL SO4								
				9/16/2010		ACIDITY-W-2310B	☐	DF - wc	
				9/16/2010		ALK-W-2320B	☑	DF - wc	
	SEL Analytes: ALK ALKB ALKC								
				9/16/2010		NO2-W-353.2	☐	DF - wc	
				9/16/2010		NO3-W-353.2	☐	DF - wc	
				9/16/2010		PO4-O-365.1	☐	DF - wc	
1009035-002C				9/16/2010		OGB-W-1664A	☐	ogb	
1009035-002D				9/16/2010		NH3-W-350.1	☐	DF - nh3	
				9/16/2010		NH3-W-PR	☐	DF - nh3	
1009035-002E				9/16/2010		3005A-DIS-PR	☐	DF - dis met	
				9/16/2010		6010C-DIS	☑	DF - dis met	
	SEL Analytes: AL B CA FE MG MO K NA								
				9/16/2010		6020-DIS	☑	DF - dis met	
	SEL Analytes: AS CD CU PB MN SE ZN								
				9/16/2010		HARD-2340B	☐	DF - dis met	
1009035-002F				9/16/2010		3005A-ICPMS-PR	☐	DF - total met	
				9/16/2010		6010C-W	☑	DF - total met	
	SEL Analytes: FE								

WORK ORDER Summary

Work Order: 1009035

Client: Carbon Resources
Client ID: CAR300
Project: Kinney #2 Baseline
Comments: QC 2+, EDD;

Contact: Brad Lindsay
QC Level: LEVEL II+

WO Type: Project

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009035-002F	CR-10-12	8/31/2010 6:30:00 PM	9/2/2010 10:30:00 AM	9/16/2010	Aqueous	6020-W	☑	DF - total met	1
	SEL Analytes: MN								

Client Rock Logic

Address P.O. Box 544

Cedaredge CO 81413
City State Zip

Phone 970-856-3401 Fax

Contact Brad Lindsay

E-mail Lindsaybra1@gmail.com

Project Name Kinney #2 Baseline

Project Number/P.O.#

Sampler Name G.L. Hunt

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115

(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 1009035

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day Standard

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TESTS REQUIRED: Table 3 on File	QC LEVEL	COMMENTS
CR-10-11	8-31-10 17:30	GW	6	✓	1 2 2+ 3 3+ 4	
CR-10-12	8-31-10 18:30	GW	6	✓		

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes: ice

3 Temperature 5.3

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y N (NA)

4 Unbroken on Sample
Y N (NA)

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME Greg Hunt	Time 11:30	PRINT NAME	Time
Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME	Time	PRINT NAME	Time
Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME	Time	PRINT NAME	Time
Relinquished By: Signature	Date	Received By: Signature	Date 9/2/10
PRINT NAME	Time	PRINT NAME Elma Hayward	Time 1033

Special Instructions:

Please filter

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C
		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 1009035

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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ANALYTICAL
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84115

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline / Ground Water Monitoring

Dear Brad Lindsay: Lab Set ID: 1009511

American West Analytical Laboratories received 2 sample(s) on 9/29/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Ground Water Monitoring
Lab Sample ID: 1009511-001
Client Sample ID: CR-10-12
Collection Date: 9/28/2010 1100h
Received Date: 9/29/2010 0802h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	9/30/2010 1324h	10/5/2010 1603h	SW6010C	0.100	**9.38**	[2]
Manganese	mg/L	9/30/2010 1324h	9/30/2010 2101h	SW6020A	0.00120	**0.0961**	

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Ground Water Monitoring
Lab Sample ID: 1009511-002
Client Sample ID: CR-10-11
Collection Date: 9/28/2010 1415h
Received Date: 9/29/2010 0802h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	9/30/2010 1324h	10/5/2010 1614h	SW6010C	0.100	**0.815**	
Manganese	mg/L	9/30/2010 1324h	9/30/2010 2142h	SW6020A	0.00120	**0.0162**	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Ground Water Monitoring
Lab Sample ID: 1009511-001
Client Sample ID: CR-10-12
Collection Date: 9/28/2010 1100h
Received Date: 9/29/2010 0802h

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	9/30/2010 1321h	10/6/2010 1836h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	9/30/2010 1321h	10/1/2010 2131h	SW6020A	0.000600	< 0.000600	
Boron	mg/L	9/30/2010 1321h	10/6/2010 1836h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	9/30/2010 1321h	10/1/2010 2131h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	9/30/2010 1321h	10/6/2010 1721h	SW6010C	10.0	**82.4**	
Copper	mg/L	9/30/2010 1321h	10/1/2010 2131h	SW6020A	0.000800	< 0.000800	
Iron	mg/L	9/30/2010 1321h	10/6/2010 1836h	SW6010C	0.100	< 0.100	
Lead	mg/L	9/30/2010 1321h	10/1/2010 2131h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	9/30/2010 1321h	10/6/2010 1836h	SW6010C	1.00	**7.38**	
Manganese	mg/L	9/30/2010 1321h	10/1/2010 2131h	SW6020A	0.00120	**0.00212**	
Molybdenum	mg/L	9/30/2010 1321h	10/6/2010 1836h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	9/30/2010 1321h	10/6/2010 1836h	SW6010C	1.00	**1.01**	
Selenium	mg/L	9/30/2010 1321h	10/1/2010 2131h	SW6020A	0.000800	< 0.000800	
Sodium	mg/L	9/30/2010 1321h	10/6/2010 1836h	SW6010C	1.00	**16.0**	
Zinc	mg/L	9/30/2010 1321h	10/1/2010 2131h	SW6020A	0.00500	< 0.00500	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Ground Water Monitoring
Lab Sample ID: 1009511-002
Client Sample ID: CR-10-11
Collection Date: 9/28/2010 1415h
Received Date: 9/29/2010 0802h

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84115

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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	9/30/2010 1321h	10/6/2010 1847h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	9/30/2010 1321h	10/1/2010 2150h	SW6020A	0.000600	< 0.000600	
Boron	mg/L	9/30/2010 1321h	10/6/2010 1847h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	9/30/2010 1321h	10/1/2010 2150h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	9/30/2010 1321h	10/6/2010 1733h	SW6010C	10.0	**78.1**	
Copper	mg/L	9/30/2010 1321h	10/1/2010 2150h	SW6020A	0.000800	< 0.000800	
Iron	mg/L	9/30/2010 1321h	10/6/2010 1847h	SW6010C	0.100	< 0.100	
Lead	mg/L	9/30/2010 1321h	10/1/2010 2150h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	9/30/2010 1321h	10/6/2010 1847h	SW6010C	1.00	**11.0**	
Manganese	mg/L	9/30/2010 1321h	10/1/2010 2150h	SW6020A	0.00120	< 0.00120	
Molybdenum	mg/L	9/30/2010 1321h	10/6/2010 1847h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	9/30/2010 1321h	10/6/2010 1847h	SW6010C	1.00	**1.12**	
Selenium	mg/L	9/30/2010 1321h	10/1/2010 2150h	SW6020A	0.000800	**0.00119**	
Sodium	mg/L	9/30/2010 1321h	10/6/2010 1847h	SW6010C	1.00	**10.2**	
Zinc	mg/L	9/30/2010 1321h	10/1/2010 2150h	SW6020A	0.00500	< 0.00500	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Ground Water Monitoring
Lab Sample ID: 1009511-001
Client Sample ID: CR-10-12
Collection Date: 9/28/2010 1100h
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		9/30/2010 1110h	A2310B	15.0	< 15.0	
Alkalinity (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**177**	
Ammonia (as N)	mg/L	10/1/2010 1019h	10/4/2010 0845h	E350.1	0.0500	< 0.0500	
Bicarbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**177**	
Carbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	10.0	< 10.0	
Chloride	mg/L		10/1/2010 1955h	E300.0	10.0	**27.2**	
Hardness (as CaCO3)	mg/L		10/6/2010	A2340B	10.0	**236**	
Nitrate (as N)	mg/L		9/29/2010 1521h	E353.2	0.0100	**0.679**	1
Nitrite (as N)	mg/L		9/29/2010 1501h	E353.2	0.0100	**0.0237**	
Phosphate, Total Ortho (as P)	mg/L		9/29/2010 1604h	E365.1	0.0500	**0.0720**	1
Sulfate	mg/L		10/10/2010 2113h	E300.0	750	**11,500**	
Total Dissolved Solids	mg/L		10/1/2010 1330h	A2540C	10.0	**390**	

1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Ground Water Monitoring
Lab Sample ID: 1009511-002
Client Sample ID: CR-10-11
Collection Date: 9/28/2010 1415h
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Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		9/30/2010 1110h	A2310B	15.0	< 15.0	
Alkalinity (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**217**	
Ammonia (as N)	mg/L	10/1/2010 1019h	10/4/2010 0841h	E350.1	0.0500	< 0.0500	
Bicarbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**217**	
Carbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	10.0	< 10.0	
Chloride	mg/L		10/1/2010 2104h	E300.0	10.0	**20.8**	
Hardness (as CaCO3)	mg/L		10/6/2010	A2340B	10.0	**240**	
Nitrate (as N)	mg/L		9/29/2010 1525h	E353.2	0.100	**2.68**	
Nitrite (as N)	mg/L		9/29/2010 1514h	E353.2	0.0100	< 0.0100	
Phosphate, Total Ortho (as P)	mg/L		9/29/2010 1610h	E365.1	0.0500	< 0.0500	
Sulfate	mg/L		10/10/2010 2136h	E300.0	750	**11,700**	
Total Dissolved Solids	mg/L		10/1/2010 1330h	A2540C	10.0	**306**	

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: ME
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-8751	Aluminum	mg/L	SW6010C	0.950	1.000	0	95.0	80-120				10/6/2010
LCS-8751	Boron	mg/L	SW6010C	0.968	1.000	0	96.8	80-120				10/6/2010
LCS-8751	Calcium	mg/L	SW6010C	9.09	10.00	0	90.9	80-120				10/6/2010
LCS-8751	Iron	mg/L	SW6010C	0.945	1.000	0	94.5	80-120				10/6/2010
LCS-8751	Magnesium	mg/L	SW6010C	9.39	10.00	0	93.9	80-120				10/6/2010
LCS-8751	Molybdenum	mg/L	SW6010C	0.183	0.2000	0	91.4	80-120				10/6/2010
LCS-8751	Potassium	mg/L	SW6010C	9.71	10.00	0	97.1	80-120				10/6/2010
LCS-8751	Sodium	mg/L	SW6010C	9.44	10.00	0	94.4	80-120				10/6/2010
LCS-8752	Iron	mg/L	SW6010C	1.06	1.000	0	106	80-120				10/5/2010
LCS-8751	Arsenic	mg/L	SW6020A	0.200	0.2000	0	100	85-115				10/1/2010
LCS-8751	Cadmium	mg/L	SW6020A	0.200	0.2000	0	99.9	85-115				10/1/2010
LCS-8751	Copper	mg/L	SW6020A	0.201	0.2000	0	101	85-115				10/1/2010
LCS-8751	Lead	mg/L	SW6020A	0.200	0.2000	0	100	85-115				10/1/2010
LCS-8751	Manganese	mg/L	SW6020A	0.202	0.2000	0	101	85-115				10/1/2010
LCS-8751	Selenium	mg/L	SW6020A	0.204	0.2000	0	102	85-115				10/1/2010
LCS-8751	Zinc	mg/L	SW6020A	1.01	1.000	0	101	85-115				10/1/2010
LCS-8752	Arsenic	mg/L	SW6020A	0.200	0.2000	0	99.9	85-115				9/30/2010
LCS-8752	Cadmium	mg/L	SW6020A	0.199	0.2000	0	99.7	85-115				9/30/2010
LCS-8752	Copper	mg/L	SW6020A	0.201	0.2000	0	100	85-115				9/30/2010
LCS-8752	Lead	mg/L	SW6020A	0.200	0.2000	0	100	85-115				9/30/2010
LCS-8752	Manganese	mg/L	SW6020A	0.200	0.2000	0	99.8	85-115				9/30/2010
LCS-8752	Selenium	mg/L	SW6020A	0.202	0.2000	0	101	85-115				9/30/2010
LCS-8752	Zinc	mg/L	SW6020A	1.01	1.000	0	101	85-115				9/30/2010

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: ME
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-8751	Aluminum	mg/L	SW6010C	< 0.100				-				10/6/2010
MB-8751	Boron	mg/L	SW6010C	< 0.500				-				10/6/2010
MB-8751	Calcium	mg/L	SW6010C	< 1.00				-				10/6/2010
MB-8751	Iron	mg/L	SW6010C	< 0.100				-				10/6/2010
MB-8751	Magnesium	mg/L	SW6010C	< 1.00				-				10/6/2010
MB-8751	Molybdenum	mg/L	SW6010C	< 0.0200				-				10/6/2010
MB-8751	Potassium	mg/L	SW6010C	< 1.00				-				10/6/2010
MB-8751	Sodium	mg/L	SW6010C	< 1.00				-				10/6/2010
MB-8752	Iron	mg/L	SW6010C	< 0.100				-				10/5/2010
MB-8751	Arsenic	mg/L	SW6020A	< 0.000600				-				10/1/2010
MB-8751	Cadmium	mg/L	SW6020A	< 0.000180				-				10/1/2010
MB-8751	Copper	mg/L	SW6020A	< 0.000800				-				10/1/2010
MB-8751	Lead	mg/L	SW6020A	< 0.000400				-				10/1/2010
MB-8751	Manganese	mg/L	SW6020A	< 0.00120				-				10/1/2010
MB-8751	Selenium	mg/L	SW6020A	< 0.000800				-				10/1/2010
MB-8751	Zinc	mg/L	SW6020A	< 0.00500				-				10/1/2010
MB-8752	Arsenic	mg/L	SW6020A	< 0.000600				-				9/30/2010
MB-8752	Cadmium	mg/L	SW6020A	< 0.000180				-				9/30/2010
MB-8752	Copper	mg/L	SW6020A	< 0.000800				-				9/30/2010
MB-8752	Lead	mg/L	SW6020A	< 0.000400				-				9/30/2010
MB-8752	Manganese	mg/L	SW6020A	< 0.00120				-				9/30/2010
MB-8752	Selenium	mg/L	SW6020A	< 0.000800				-				9/30/2010
MB-8752	Zinc	mg/L	SW6020A	< 0.00500				-				9/30/2010

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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: ME
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001EMS	Aluminum	mg/L	SW6010C	0.986	1.000	0	98.6	75-125				10/6/2010
1009508-001EMS	Boron	mg/L	SW6010C	1.23	1.000	0.1526	108	75-125				10/6/2010
1009508-001EMS	Iron	mg/L	SW6010C	0.998	1.000	0	99.8	75-125				10/6/2010
1009508-001EMS	Magnesium	mg/L	SW6010C	42.0	10.00	33.17	88.2	75-125				10/6/2010
1009508-001EMS	Molybdenum	mg/L	SW6010C	0.195	0.2000	0	97.3	75-125				10/6/2010
1009508-001EMS	Potassium	mg/L	SW6010C	16.4	10.00	6.373	100	75-125				10/6/2010
1009511-001DMS	Aluminum	mg/L	SW6010C	0.866	1.000	0	86.6	75-125				10/6/2010
1009511-001DMS	Boron	mg/L	SW6010C	0.955	1.000	0.01937	93.6	75-125				10/6/2010
1009511-001DMS	Iron	mg/L	SW6010C	0.875	1.000	0	87.5	75-125				10/6/2010
1009511-001DMS	Magnesium	mg/L	SW6010C	15.9	10.00	7.380	84.8	75-125				10/6/2010
1009511-001DMS	Molybdenum	mg/L	SW6010C	0.169	0.2000	0	84.7	75-125				10/6/2010
1009511-001DMS	Potassium	mg/L	SW6010C	9.77	10.00	1.011	87.6	75-125				10/6/2010
1009511-001DMS	Sodium	mg/L	SW6010C	24.4	10.00	16.03	83.3	75-125				10/6/2010
1009508-001EMS	Calcium	mg/L	SW6010C	63.1	10.00	53.40	96.9	75-125				10/6/2010
1009508-001EMS	Sodium	mg/L	SW6010C	53.5	10.00	43.17	103	75-125				10/6/2010
1009511-001DMS	Calcium	mg/L	SW6010C	91.4	10.00	82.42	89.4	75-125				10/6/2010
1009508-001FMS	Iron	mg/L	SW6010C	1.27	1.000	0.2070	106	75-125				10/5/2010
1009511-001EMS	Iron	mg/L	SW6010C	10.8	1.000	9.380	142	75-125			2	10/5/2010
1009508-001EMS	Arsenic	mg/L	SW6020A	0.201	0.2000	0.0004450	100	75-125				10/1/2010
1009508-001EMS	Cadmium	mg/L	SW6020A	0.200	0.2000	0	100	75-125				10/1/2010
1009508-001EMS	Copper	mg/L	SW6020A	0.195	0.2000	0	97.5	75-125				10/1/2010
1009508-001EMS	Lead	mg/L	SW6020A	0.203	0.2000	0	101	75-125				10/1/2010
1009508-001EMS	Manganese	mg/L	SW6020A	0.206	0.2000	0.006622	99.7	75-125				10/1/2010
1009508-001EMS	Selenium	mg/L	SW6020A	0.202	0.2000	0.0005100	101	75-125				10/1/2010

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: ME
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001EMS	Zinc	mg/L	SW6020A	1.01	1.000	0	101	75-125				10/1/2010
1009511-001DMS	Arsenic	mg/L	SW6020A	0.201	0.2000	0.0004980	100	75-125				10/1/2010
1009511-001DMS	Cadmium	mg/L	SW6020A	0.197	0.2000	0.00008100	98.5	75-125				10/1/2010
1009511-001DMS	Copper	mg/L	SW6020A	0.201	0.2000	0.0004650	100	75-125				10/1/2010
1009511-001DMS	Lead	mg/L	SW6020A	0.201	0.2000	0	100	75-125				10/1/2010
1009511-001DMS	Manganese	mg/L	SW6020A	0.204	0.2000	0.002118	101	75-125				10/1/2010
1009511-001DMS	Selenium	mg/L	SW6020A	0.201	0.2000	0.0006810	100	75-125				10/1/2010
1009511-001DMS	Zinc	mg/L	SW6020A	0.990	1.000	0	99.0	75-125				10/1/2010
1009522-001BMS	Manganese	mg/L	SW6020A	0.223	0.2000	0.02429	99.4	75-125				10/1/2010
1009508-001FMS	Manganese	mg/L	SW6020A	0.220	0.2000	0.02004	99.9	75-125				9/30/2010
1009511-001EMS	Manganese	mg/L	SW6020A	0.297	0.2000	0.09608	101	75-125				9/30/2010
1009533-001FMS	Arsenic	mg/L	SW6020A	0.287	0.2000	0.09053	98.2	75-125				9/30/2010
1009533-001FMS	Cadmium	mg/L	SW6020A	0.195	0.2000	0.0002780	97.4	75-125				9/30/2010
1009533-001FMS	Copper	mg/L	SW6020A	0.203	0.2000	0.002522	100	75-125				9/30/2010
1009533-001FMS	Lead	mg/L	SW6020A	0.200	0.2000	0	100	75-125				9/30/2010
1009533-001FMS	Manganese	mg/L	SW6020A	1.81	0.2000	1.663	74.6	75-125			2	9/30/2010
1009533-001FMS	Selenium	mg/L	SW6020A	0.210	0.2000	0.007680	101	75-125				9/30/2010
1009533-001FMS	Zinc	mg/L	SW6020A	1.04	1.000	0.02531	101	75-125				9/30/2010

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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463 West 3600 South
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: ME
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001EMSD	Aluminum	mg/L	SW6010C	0.970	1.000	0	97.0	75-125	1.67	20		10/6/2010
1009508-001EMSD	Boron	mg/L	SW6010C	1.22	1.000	0.1526	107	75-125	1.08	20		10/6/2010
1009508-001EMSD	Iron	mg/L	SW6010C	0.962	1.000	0	96.2	75-125	3.61	20		10/6/2010
1009508-001EMSD	Magnesium	mg/L	SW6010C	40.8	10.00	33.17	75.8	75-125	3.00	20		10/6/2010
1009508-001EMSD	Molybdenum	mg/L	SW6010C	0.193	0.2000	0	96.3	75-125	1.09	20		10/6/2010
1009508-001EMSD	Potassium	mg/L	SW6010C	15.9	10.00	6.373	95.7	75-125	2.86	20		10/6/2010
1009511-001DMSD	Aluminum	mg/L	SW6010C	0.969	1.000	0	96.9	75-125	11.2	20		10/6/2010
1009511-001DMSD	Boron	mg/L	SW6010C	1.06	1.000	0.01937	104	75-125	10.8	20		10/6/2010
1009511-001DMSD	Iron	mg/L	SW6010C	0.944	1.000	0	94.4	75-125	7.62	20		10/6/2010
1009511-001DMSD	Magnesium	mg/L	SW6010C	16.6	10.00	7.380	92.4	75-125	4.64	20		10/6/2010
1009511-001DMSD	Molybdenum	mg/L	SW6010C	0.188	0.2000	0	94.0	75-125	10.4	20		10/6/2010
1009511-001DMSD	Potassium	mg/L	SW6010C	10.7	10.00	1.011	96.7	75-125	8.90	20		10/6/2010
1009511-001DMSD	Sodium	mg/L	SW6010C	25.0	10.00	16.03	89.5	75-125	2.51	20		10/6/2010
1009508-001EMSD	Calcium	mg/L	SW6010C	65.4	10.00	53.40	121	75-125	3.67	20		10/6/2010
1009508-001EMSD	Sodium	mg/L	SW6010C	54.9	10.00	43.17	117	75-125	2.59	20		10/6/2010
1009511-001DMSD	Calcium	mg/L	SW6010C	92.0	10.00	82.42	96.0	75-125	0.711	20		10/6/2010
1009508-001FMSD	Iron	mg/L	SW6010C	1.30	1.000	0.2070	109	75-125	2.33	20		10/5/2010
1009511-001EMSD	Iron	mg/L	SW6010C	10.9	1.000	9.380	152	75-125	0.922	20	2	10/5/2010
1009508-001EMSD	Arsenic	mg/L	SW6020A	0.202	0.2000	0.0004450	101	75-125	0.144	20		10/1/2010
1009508-001EMSD	Cadmium	mg/L	SW6020A	0.200	0.2000	0	100	75-125	0.00600	20		10/1/2010
1009508-001EMSD	Copper	mg/L	SW6020A	0.196	0.2000	0	98.0	75-125	0.554	20		10/1/2010
1009508-001EMSD	Lead	mg/L	SW6020A	0.201	0.2000	0	101	75-125	0.801	20		10/1/2010
1009508-001EMSD	Manganese	mg/L	SW6020A	0.203	0.2000	0.006622	98.3	75-125	1.38	20		10/1/2010
1009508-001EMSD	Selenium	mg/L	SW6020A	0.200	0.2000	0.0005100	99.9	75-125	0.657	20		10/1/2010

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: ME
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001EMSD	Zinc	mg/L	SW6020A	1.00	1.000	0	100	75-125	0.326	20		10/1/2010
1009522-001BMSD	Manganese	mg/L	SW6020A	0.223	0.2000	0.02429	99.5	75-125	0.0699	20		10/1/2010
1009511-001DMSD	Arsenic	mg/L	SW6020A	0.201	0.2000	0.0004980	100	75-125	0.195	20		10/1/2010
1009511-001DMSD	Cadmium	mg/L	SW6020A	0.198	0.2000	0.00008100	99.2	75-125	0.700	20		10/1/2010
1009511-001DMSD	Copper	mg/L	SW6020A	0.201	0.2000	0.0004650	100	75-125	0.0911	20		10/1/2010
1009511-001DMSD	Lead	mg/L	SW6020A	0.200	0.2000	0	99.9	75-125	0.462	20		10/1/2010
1009511-001DMSD	Manganese	mg/L	SW6020A	0.205	0.2000	0.002118	101	75-125	0.380	20		10/1/2010
1009511-001DMSD	Selenium	mg/L	SW6020A	0.202	0.2000	0.0006810	100	75-125	0.388	20		10/1/2010
1009511-001DMSD	Zinc	mg/L	SW6020A	0.987	1.000	0	98.7	75-125	0.281	20		10/1/2010
1009508-001FMSD	Manganese	mg/L	SW6020A	0.222	0.2000	0.02004	101	75-125	0.954	20		9/30/2010
1009511-001EMSD	Manganese	mg/L	SW6020A	0.298	0.2000	0.09608	101	75-125	0.0988	20		9/30/2010
1009533-001FMSD	Arsenic	mg/L	SW6020A	0.288	0.2000	0.09053	98.8	75-125	0.381	20		9/30/2010
1009533-001FMSD	Cadmium	mg/L	SW6020A	0.194	0.2000	0.0002780	96.8	75-125	0.549	20		9/30/2010
1009533-001FMSD	Copper	mg/L	SW6020A	0.203	0.2000	0.002522	100	75-125	0.0113	20		9/30/2010
1009533-001FMSD	Lead	mg/L	SW6020A	0.200	0.2000	0	100	75-125	0.00150	20		9/30/2010
1009533-001FMSD	Manganese	mg/L	SW6020A	1.76	0.2000	1.663	49.1	75-125	2.86	20	[2]	9/30/2010
1009533-001FMSD	Selenium	mg/L	SW6020A	0.211	0.2000	0.007680	101	75-125	0.299	20		9/30/2010
1009533-001FMSD	Zinc	mg/L	SW6020A	1.03	1.000	0.02531	101	75-125	0.706	20		9/30/2010

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*

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463 West 3600 South
Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: WC
QC Type: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001ADUP	Total Dissolved Solids	mg/L	A2540C	404		412.0		-	1.96	5		10/1/2010
1009511-001ADUP	Total Dissolved Solids	mg/L	A2540C	394		390.0		-	1.02	5		10/1/2010
1009533-001HDUP	Total Dissolved Solids	mg/L	A2540C	1,140		1,132		-	1.05	5		10/1/2010

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Salt Lake City, Utah 84115
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: WC
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R19058	Chloride	mg/L	E300.0	4.54	5.000	0	90.7	90-110				10/1/2010
LCS-R19058	Sulfate	mg/L	E300.0	4.87	5.000	0	97.4	90-110				10/1/2010
LCS-R19235	Sulfate	mg/L	E300.0	5.46	5.000	0	109	90-110				10/10/2010
LCS-R18965	Acidity	mg/L	A2310B	48.0	50.00	0	96.0	80-120				9/30/2010
LCS-R18966	Alkalinity (as CaCO3)	mg/L	A2320B	51,600	50,000	0	103	90-110				9/30/2010
LCS-8769	Ammonia (as N)	mg/L	E350.1	1.09	1.000	0	109	90-110				10/4/2010
LCS-R18919	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.962	1.000	0.005800	95.6	90-110				9/29/2010
LCS-R19081	Total Dissolved Solids	mg/L	A2540C	192	205.0	0	93.7	80-120				10/1/2010

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: WC
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R19058	Chloride	mg/L	E300.0	< 0.100				-				10/1/2010
MB-R19058	Sulfate	mg/L	E300.0	< 0.750				-				10/1/2010
MB-R19235	Sulfate	mg/L	E300.0	< 0.750				-				10/10/2010
MB-R18965	Acidity	mg/L	A2310B	< 15.0				-				9/30/2010
MB-R18966	Alkalinity (as CaCO3)	mg/L	A2320B	< 10.0				-				9/30/2010
MB-R18966	Bicarbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				9/30/2010
MB-R18966	Carbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				9/30/2010
MB-8769	Ammonia (as N)	mg/L	E350.1	< 0.0500				-				10/4/2010
MB-R18919	Phosphate, Total Ortho (as P)	mg/L	E365.1	< 0.0500				-				9/29/2010
MB-R19081	Total Dissolved Solids	mg/L	A2540C	< 10.0				-				10/1/2010

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: WC
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009507-005CMS	Sulfate	mg/L	E300.0	6.91	5.000	1.929	99.6	90-110				10/1/2010
1009508-004BMS	Chloride	mg/L	E300.0	55.7	50.00	10.05	91.4	90-110				10/1/2010
1009508-004BMS	Sulfate	mg/L	E300.0	73.0	50.00	23.46	99.0	90-110				10/1/2010
1009511-001BMS	Chloride	mg/L	E300.0	480	500.0	0	96.0	90-110				10/1/2010
1009522-001AMS	Chloride	mg/L	E300.0	65.6	25.00	39.76	103	90-110				10/1/2010
1009522-001AMS	Sulfate	mg/L	E300.0	36.1	25.00	11.88	96.8	90-110				10/1/2010
1009533-001DMS	Chloride	mg/L	E300.0	140	50.00	86.55	106	90-110				10/2/2010
1009533-001DMS	Sulfate	mg/L	E300.0	185	50.00	133.8	102	90-110				10/2/2010
1009511-002BMS	Sulfate	mg/L	E300.0	17,100	5,000	11,710	109	90-110				10/10/2010
1009508-005BMS	Acidity	mg/L	A2310B	46.0	50.00	0	92.0	80-120				9/30/2010
1009511-001BMS	Acidity	mg/L	A2310B	52.0	50.00	0	104	80-120				9/30/2010
1009508-001BMS	Alkalinity (as CaCO3)	mg/L	A2320B	338	100.0	238.0	100	80-120				9/30/2010
1009511-001BMS	Alkalinity (as CaCO3)	mg/L	A2320B	280	100.0	177.0	103	80-120				9/30/2010
1009522-001AMS	Alkalinity (as CaCO3)	mg/L	A2320B	1,570	500.0	1,059	101	80-120				9/30/2010
1009533-001DMS	Alkalinity (as CaCO3)	mg/L	A2320B	1,430	500.0	893.0	107	80-120				9/30/2010
1009508-001DMS	Ammonia (as N)	mg/L	E350.1	1.03	1.000	0	103	90-110				10/4/2010
1009511-002CMS	Ammonia (as N)	mg/L	E350.1	1.00	1.000	0	100	90-110				10/4/2010
1009533-001EMS	Ammonia (as N)	mg/L	E350.1	1.08	1.000	0.3142	76.9	90-110			1	10/4/2010
1009508-001BMS	Nitrite (as N)	mg/L	E353.2	1.09	1.000	0	109	90-110				9/29/2010
1009511-001BMS	Nitrite (as N)	mg/L	E353.2	1.10	1.000	0.02370	108	90-110				9/29/2010
1009508-001BMS	Nitrate (as N)	mg/L	E353.2	1.13	1.000	0.009300	112	90-110			1	9/29/2010
1009507-005CMS	Nitrate (as N)	mg/L	E353.2	0.790	1.000	0	79.0	90-110			1	9/29/2010
1009511-001BMS	Nitrate (as N)	mg/L	E353.2	18.4	10.00	0.6793	177	90-110			1	9/29/2010
1009508-001BMS	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.919	1.000	0.03440	88.5	90-110			1	9/29/2010

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: WC
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009511-001BMS	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.924	1.000	0.07200	85.2	90-110			1	9/29/2010

1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: WC
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009507-005CMSD	Sulfate	mg/L	E300.0	6.86	5.000	1.929	98.5	90-110	0.799	20		10/1/2010
1009508-004BMSD	Chloride	mg/L	E300.0	55.4	50.00	10.05	90.7	90-110	0.569	20		10/1/2010
1009508-004BMSD	Sulfate	mg/L	E300.0	72.8	50.00	23.46	98.6	90-110	0.268	20		10/1/2010
1009511-001BMSD	Chloride	mg/L	E300.0	478	500.0	0	95.6	90-110	0.394	20		10/1/2010
1009522-001AMSD	Chloride	mg/L	E300.0	65.1	25.00	39.76	101	90-110	0.747	20		10/1/2010
1009522-001AMSD	Sulfate	mg/L	E300.0	35.5	25.00	11.88	94.6	90-110	1.53	20		10/1/2010
1009533-001DMSD	Chloride	mg/L	E300.0	140	50.00	86.55	107	90-110	0.233	20		10/2/2010
1009533-001DMSD	Sulfate	mg/L	E300.0	185	50.00	133.8	103	90-110	0.228	20		10/2/2010
1009511-002BMSD	Sulfate	mg/L	E300.0	17,200	5,000	11,710	109	90-110	0.221	20		10/10/2010
1009508-005BMSD	Acidity	mg/L	A2310B	50.0	50.00	0	100	80-120	8.33	0		9/30/2010
1009511-001BMSD	Acidity	mg/L	A2310B	52.0	50.00	0	104	80-120	0	0		9/30/2010
1009508-001BMSD	Alkalinity (as CaCO3)	mg/L	A2320B	340	100.0	238.0	102	80-120	0.590	10		9/30/2010
1009511-001BMSD	Alkalinity (as CaCO3)	mg/L	A2320B	284	100.0	177.0	107	80-120	1.42	10		9/30/2010
1009522-001AMSD	Alkalinity (as CaCO3)	mg/L	A2320B	1,580	500.0	1,059	105	80-120	1.14	10		9/30/2010
1009533-001DMSD	Alkalinity (as CaCO3)	mg/L	A2320B	1,400	500.0	893.0	101	80-120	1.84	10		9/30/2010
1009508-001DMSD	Ammonia (as N)	mg/L	E350.1	1.06	1.000	0	106	90-110	3.06	10		10/4/2010
1009511-002CMSD	Ammonia (as N)	mg/L	E350.1	1.01	1.000	0	101	90-110	0.259	10		10/4/2010
1009533-001EMSD	Ammonia (as N)	mg/L	E350.1	1.19	1.000	0.3142	87.9	90-110	9.67	10	1	10/4/2010
1009508-001BMSD	Nitrite (as N)	mg/L	E353.2	1.10	1.000	0	110	90-110	1.11	10	1	9/29/2010
1009511-001BMSD	Nitrite (as N)	mg/L	E353.2	1.11	1.000	0.02370	109	90-110	0.929	10		9/29/2010
1009508-001BMSD	Nitrate (as N)	mg/L	E353.2	1.13	1.000	0.009300	112	90-110	0.222	10	1	9/29/2010
1009507-005CMSD	Nitrate (as N)	mg/L	E353.2	0.788	1.000	0	78.8	90-110	0.254	10	1	9/29/2010
1009511-001BMSD	Nitrate (as N)	mg/L	E353.2	17.0	10.00	0.6793	163	90-110	7.86	10	1	9/29/2010
1009508-001BMSD	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.955	1.000	0.03440	92.0	90-110	3.81	10		9/29/2010

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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009511
Project: Scofield Baseline / Ground Water Monitoring

Dept: WC
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009511-001BMSD	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.994	1.000	0.07200	92.2	90-110	7.33	10		9/29/2010

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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American West Analytical Laboratories

WORK ORDER Summary

Work Order: 1009511

Page 1 of 2

9/29/2010

Client: Carbon Resources

Client ID: CAR300

Contact: Brad Lindsay

Project: Scofield Baseline / Ground Water Monitoring

QC Level: LEVEL II+

WO Type: Project

Comments: QC 2+, EDD;

HCO3 TOK-DB

-el

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009511-001A	CR-10-12	9/28/2010 11:00:00 AM	9/29/2010 8:02:00 AM	10/13/2010	Aqueous	TDS-W-2540C	☐	ww - tds	1
1009511-001B				10/13/2010		300.0-W	☑	DF - wc	
	SEL Analytes: CL SO4								
				10/13/2010		ACIDITY-W-2310B	☐	DF - wc	
				10/13/2010		ALK-W-2320B	☑	DF - wc	
	SEL Analytes: ALK ALKB ALKC								
				10/13/2010		NO2-W-353.2	☐	DF - wc	
				10/13/2010		NO3-W-353.2	☐	DF - wc	
				10/13/2010		PO4-O-365.1	☐	DF - wc	
1009511-001C				10/13/2010		NH3-W-350.1	☐	df / nh3	
				10/13/2010		NH3-W-PR	☐	df / nh3	
1009511-001D				10/13/2010		3005A-DIS-PR	☐	df / dis/met	2
				10/13/2010		6010C-DIS	☑	df / dis/met	
	SEL Analytes: AL B CA FE MG MO K NA								
				10/13/2010		6020-DIS	☑	df / dis/met	
	SEL Analytes: AS CD CU PB MN SE ZN								
				10/13/2010		HARD-2340B	☐	df / dis/met	
1009511-001E				10/13/2010		3005A-ICPMS-PR	☐	df / total metals	1
				10/13/2010		6010C-W	☑	df / total metals	
	SEL Analytes: FE								
				10/13/2010		6020-W	☑	df / total metals	
	SEL Analytes: MN								
1009511-002A	CR-10-11	9/28/2010 2:15:00 PM		10/13/2010		TDS-W-2540C	☐	ww - tds	

WORK ORDER Summary

Work Order: **1009511**

Client: Carbon Resources
Client ID: CAR300
Project: Scofield Baseline / Ground Water Monitoring
Comments: QC 2+, EDD;

Contact: Brad Lindsay
QC Level: LEVEL II+

9/29/2010
WO Type: Project

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009511-002B	CR-10-11	9/28/2010 2:15:00 PM	9/29/2010 8:02:00 AM	10/13/2010	Aqueous	300.0-W	☑	DF - wc	1
	SEL Analytes: CL SO4								
				10/13/2010		ACIDITY-W-2310B	☐	DF - wc	
				10/13/2010		ALK-W-2320B	☑	DF - wc	
	SEL Analytes: ALK ALKB ALKC								
				10/13/2010		NO2-W-353.2	☐	DF - wc	
				10/13/2010		NO3-W-353.2	☐	DF - wc	
				10/13/2010		PO4-O-365.1	☐	DF - wc	
1009511-002C				10/13/2010		NH3-W-350.1	☐	df / nh3	
				10/13/2010		NH3-W-PR	☐	df / nh3	
1009511-002D				10/13/2010		3005A-DIS-PR	☐	df / dismet	2
				10/13/2010		6010C-DIS	☑	df / dismet	
	SEL Analytes: AL B CA FE MG MO K NA								
				10/13/2010		6020-DIS	☑	df / dismet	
	SEL Analytes: AS CD CU PB MN SE ZN								
				10/13/2010		HARD-2340B	☐	df / dismet	
1009511-002E				10/13/2010		3005A-ICPMS-PR	☐	df / total met	1
				10/13/2010		6010C-W	☑	df / total met	
	SEL Analytes: FE								
				10/13/2010		6020-W	☑	df / total met	
	SEL Analytes: MN								

Client CARBON RESOURCES c/o ROCK LOGIC

Address PO BOX 544

CEDAREDGE (City) CO (State) 81413 (Zip)

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 1009508

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day Standard

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TESTS REQUIRED: TABLE 4	TABLE 3	QC LEVEL	COMMENTS
CR-10-12	9/23/10 / 11:00	W	6	✓		1 2 2+ 3 3+ 4	1009511
CR-10-11	/ 14:15		6	✓			
MUD CREEK	/ 12:00		7		✓		1009508
SULFUR SPRING	/ 12:35		7		✓		
RES-1	/ 12:50		7		✓		
MILLER OUTLET	/ 13:20		7		✓		
ASPEN SPRING	/ 17:45		7		✓		

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes: on ice
3 Temperature 3.5
4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:
5 Properly Preserved Y N
Checked at Bench Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

Relinquished By: Signature	Date	Time	PRINT NAME	Received By: Signature	Date	Time	PRINT NAME
Brad Lindsay	9/28/10	19:30	BRAD LINDSAY	Jeffrey Lindsay	9/28/10	19:30	JEFFREY LINDSAY
Jeffrey Lindsay	9/29/10	8:02	JEFFREY LINDSAY	Erica Hale	9/29/10	8:02	ERICA HALE

Special Instructions:

PLEASE FILTER

TABLE 4 SHOULD BE TITLED "GROUND WATER MONITORING..."

TABLE 3 SHOULD BE TITLED "SURFACE WATER MONITORING..."

TABLE 4

1 L HDPE
1 L HDPE
250 mL HDPE
1 500 mL HNO3
1 250 mL H2SO4

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Temperature	°C

LABORATORY MEASUREMENTS

*	-	Total Dissolved Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphate (Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 100951

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL																
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline / Surface Water Monitoring

Dear Brad Lindsay: Lab Set ID: 1009508

American West Analytical Laboratories received 5 sample(s) on 9/29/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-001
Client Sample ID: Mud Creek
Collection Date: 9/28/2010 1200h
Received Date: 9/29/2010 0802h

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	9/30/2010 1321h	10/6/2010 1753h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	9/30/2010 1321h	10/1/2010 2017h	SW6020A	0.000600	< 0.000600	
Boron	mg/L	9/30/2010 1321h	10/6/2010 1753h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	9/30/2010 1321h	10/1/2010 2017h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	9/30/2010 1321h	10/6/2010 1639h	SW6010C	10.0	**53.4**	
Copper	mg/L	9/30/2010 1321h	10/1/2010 2017h	SW6020A	0.000800	< 0.000800	
Iron	mg/L	9/30/2010 1321h	10/6/2010 1753h	SW6010C	0.100	< 0.100	
Lead	mg/L	9/30/2010 1321h	10/1/2010 2017h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	9/30/2010 1321h	10/6/2010 1753h	SW6010C	1.00	**33.2**	
Manganese	mg/L	9/30/2010 1321h	10/1/2010 2017h	SW6020A	0.00120	**0.00662**	
Molybdenum	mg/L	9/30/2010 1321h	10/6/2010 1753h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	9/30/2010 1321h	10/6/2010 1753h	SW6010C	1.00	**6.37**	
Selenium	mg/L	9/30/2010 1321h	10/1/2010 2017h	SW6020A	0.000800	< 0.000800	
Sodium	mg/L	9/30/2010 1321h	10/6/2010 1639h	SW6010C	10.0	**43.2**	
Zinc	mg/L	9/30/2010 1321h	10/1/2010 2017h	SW6020A	0.00500	< 0.00500	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-002
Client Sample ID: Sulfur Spring
Collection Date: 9/28/2010 1235h
Received Date: 9/29/2010 0802h

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463 West 3600 South
Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	9/30/2010 1321h	10/6/2010 1808h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	9/30/2010 1321h	10/1/2010 2048h	SW6020A	0.000600	< 0.000600	
Boron	mg/L	9/30/2010 1321h	10/6/2010 1808h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	9/30/2010 1321h	10/1/2010 2048h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	9/30/2010 1321h	10/6/2010 1651h	SW6010C	10.0	**89.4**	
Copper	mg/L	9/30/2010 1321h	10/1/2010 2048h	SW6020A	0.000800	< 0.000800	
Iron	mg/L	9/30/2010 1321h	10/6/2010 1808h	SW6010C	0.100	< 0.100	
Lead	mg/L	9/30/2010 1321h	10/1/2010 2048h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	9/30/2010 1321h	10/6/2010 1808h	SW6010C	1.00	**33.7**	
Manganese	mg/L	9/30/2010 1321h	10/1/2010 2048h	SW6020A	0.00120	**0.0271**	
Molybdenum	mg/L	9/30/2010 1321h	10/6/2010 1808h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	9/30/2010 1321h	10/6/2010 1808h	SW6010C	1.00	**4.65**	
Selenium	mg/L	9/30/2010 1321h	10/1/2010 2048h	SW6020A	0.000800	< 0.000800	
Sodium	mg/L	9/30/2010 1321h	10/6/2010 1808h	SW6010C	1.00	**8.21**	
Zinc	mg/L	9/30/2010 1321h	10/1/2010 2048h	SW6020A	0.00500	< 0.00500	

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-003
Client Sample ID: RES-1
Collection Date: 9/28/2010 1250h
Received Date: 9/29/2010 0802h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	9/30/2010 1321h	10/6/2010 1812h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	9/30/2010 1321h	10/1/2010 2054h	SW6020A	0.000600	**0.00305**	
Boron	mg/L	9/30/2010 1321h	10/6/2010 1812h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	9/30/2010 1321h	10/1/2010 2054h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	9/30/2010 1321h	10/6/2010 1812h	SW6010C	1.00	**47.8**	
Copper	mg/L	9/30/2010 1321h	10/1/2010 2054h	SW6020A	0.000800	**0.00125**	
Iron	mg/L	9/30/2010 1321h	10/6/2010 1812h	SW6010C	0.100	< 0.100	
Lead	mg/L	9/30/2010 1321h	10/1/2010 2054h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	9/30/2010 1321h	10/6/2010 1655h	SW6010C	10.0	**75.5**	
Manganese	mg/L	9/30/2010 1321h	10/1/2010 2054h	SW6020A	0.00120	**0.244**	
Molybdenum	mg/L	9/30/2010 1321h	10/6/2010 1812h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	9/30/2010 1321h	10/6/2010 1812h	SW6010C	1.00	**10.5**	
Selenium	mg/L	9/30/2010 1321h	10/1/2010 2054h	SW6020A	0.000800	< 0.000800	
Sodium	mg/L	9/30/2010 1321h	10/6/2010 1812h	SW6010C	1.00	**34.4**	
Zinc	mg/L	9/30/2010 1321h	10/1/2010 2054h	SW6020A	0.00500	< 0.00500	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-004
Client Sample ID: Miller Outlet
Collection Date: 9/28/2010 1320h
Received Date: 9/29/2010 0802h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	9/30/2010 1321h	10/6/2010 1816h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	9/30/2010 1321h	10/1/2010 2059h	SW6020A	0.000600	< 0.000600	
Boron	mg/L	9/30/2010 1321h	10/6/2010 1816h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	9/30/2010 1321h	10/1/2010 2059h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	9/30/2010 1321h	10/6/2010 1659h	SW6010C	10.0	**67.9**	
Copper	mg/L	9/30/2010 1321h	10/1/2010 2059h	SW6020A	0.000800	< 0.000800	
Iron	mg/L	9/30/2010 1321h	10/6/2010 1816h	SW6010C	0.100	< 0.100	
Lead	mg/L	9/30/2010 1321h	10/1/2010 2059h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	9/30/2010 1321h	10/6/2010 1816h	SW6010C	1.00	**16.5**	
Manganese	mg/L	9/30/2010 1321h	10/1/2010 2059h	SW6020A	0.00120	**0.00161**	
Molybdenum	mg/L	9/30/2010 1321h	10/6/2010 1816h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	9/30/2010 1321h	10/6/2010 1816h	SW6010C	1.00	**2.08**	
Selenium	mg/L	9/30/2010 1321h	10/1/2010 2059h	SW6020A	0.000800	< 0.000800	
Sodium	mg/L	9/30/2010 1321h	10/6/2010 1816h	SW6010C	1.00	**6.21**	
Zinc	mg/L	9/30/2010 1321h	10/1/2010 2059h	SW6020A	0.00500	< 0.00500	

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-005
Client Sample ID: Aspen Spring
Collection Date: 9/28/2010 1745h
Received Date: 9/29/2010 0802h

DISSOLVED METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Aluminum	mg/L	9/30/2010 1321h	10/6/2010 1820h	SW6010C	0.100	< 0.100	
Arsenic	mg/L	9/30/2010 1321h	10/1/2010 2125h	SW6020A	0.000600	**0.00162**	
Boron	mg/L	9/30/2010 1321h	10/6/2010 1820h	SW6010C	0.500	< 0.500	
Cadmium	mg/L	9/30/2010 1321h	10/1/2010 2125h	SW6020A	0.000180	< 0.000180	
Calcium	mg/L	9/30/2010 1321h	10/6/2010 1820h	SW6010C	1.00	**35.1**	
Copper	mg/L	9/30/2010 1321h	10/1/2010 2125h	SW6020A	0.000800	**0.00267**	
Iron	mg/L	9/30/2010 1321h	10/6/2010 1820h	SW6010C	0.100	**0.213**	
Lead	mg/L	9/30/2010 1321h	10/1/2010 2125h	SW6020A	0.000400	< 0.000400	
Magnesium	mg/L	9/30/2010 1321h	10/6/2010 1820h	SW6010C	1.00	**10.9**	
Manganese	mg/L	9/30/2010 1321h	10/1/2010 2125h	SW6020A	0.00120	**0.0106**	
Molybdenum	mg/L	9/30/2010 1321h	10/6/2010 1820h	SW6010C	0.0200	< 0.0200	
Potassium	mg/L	9/30/2010 1321h	10/6/2010 1820h	SW6010C	1.00	**24.1**	
Selenium	mg/L	9/30/2010 1321h	10/1/2010 2125h	SW6020A	0.000800	< 0.000800	
Sodium	mg/L	9/30/2010 1321h	10/6/2010 1820h	SW6010C	1.00	**11.1**	
Zinc	mg/L	9/30/2010 1321h	10/1/2010 2125h	SW6020A	0.00500	< 0.00500	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-001
Client Sample ID: Mud Creek
Collection Date: 9/28/2010 1200h
Received Date: 9/29/2010 0802h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	9/30/2010 1324h	10/5/2010 1520h	SW6010C	0.100	**0.207**	
Manganese	mg/L	9/30/2010 1324h	9/30/2010 2020h	SW6020A	0.00120	**0.0200**	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-002
Client Sample ID: Sulfur Spring
Collection Date: 9/28/2010 1235h
Received Date: 9/29/2010 0802h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	9/30/2010 1324h	10/5/2010 1536h	SW6010C	0.100	< 0.100	
Manganese	mg/L	9/30/2010 1324h	9/30/2010 2038h	SW6020A	0.00120	**0.0272**	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-003
Client Sample ID: RES-1
Collection Date: 9/28/2010 1250h
Received Date: 9/29/2010 0802h

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Salt Lake City, Utah
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TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	9/30/2010 1324h	10/5/2010 1551h	SW6010C	0.100	**1.95**	
Manganese	mg/L	9/30/2010 1324h	9/30/2010 2044h	SW6020A	0.00120	**0.405**	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-004
Client Sample ID: Miller Outlet
Collection Date: 9/28/2010 1320h
Received Date: 9/29/2010 0802h

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TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	9/30/2010 1324h	10/5/2010 1555h	SW6010C	0.100	**0.628**	
Manganese	mg/L	9/30/2010 1324h	9/30/2010 2049h	SW6020A	0.00120	**0.0263**	

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Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-005
Client Sample ID: Aspen Spring
Collection Date: 9/28/2010 1745h
Received Date: 9/29/2010 0802h

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TOTAL METALS

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Iron	mg/L	9/30/2010 1324h	10/5/2010 1559h	SW6010C	0.100	**25.8**	
Manganese	mg/L	9/30/2010 1324h	9/30/2010 2055h	SW6020A	0.00120	**0.609**	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-001
Client Sample ID: Mud Creek
Collection Date: 9/28/2010 1200h
Received Date: 9/29/2010 0802h

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Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		9/30/2010 1110h	A2310B	15.0	< 15.0	
Alkalinity (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**238**	
Ammonia (as N)	mg/L	10/1/2010 1019h	10/4/2010 0826h	E350.1	0.0500	< 0.0500	
Bicarbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**238**	
Carbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	10.0	< 10.0	
Chloride	mg/L		10/1/2010 1712h	E300.0	1.00	**14.1**	
Hardness (as CaCO3)	mg/L		10/6/2010	A2340B	10.0	**270**	
Nitrate (as N)	mg/L		9/29/2010 1442h	E353.2	0.0100	< 0.0100	1
Nitrite (as N)	mg/L		9/29/2010 1442h	E353.2	0.0100	< 0.0100	1
Oil & Grease	mg/L		9/29/2010 1358h	E1664A	3.00	**3.10**	
Phosphate, Total Ortho (as P)	mg/L		9/29/2010 1558h	E365.1	0.0500	< 0.0500	1
Settleable Solids	mL/L		9/29/2010 1325h	A2540F	0.100	< 0.100	
Sulfate	mg/L		10/1/2010 1712h	E300.0	7.50	**122**	
Total Dissolved Solids	mg/L		10/1/2010 1330h	A2540C	10.0	**412**	
Total Suspended Solids	mg/L		9/29/2010 1530h	A2540D	3.00	**13.0**	

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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INORGANIC ANALYTICAL REPORT

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Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-002
Client Sample ID: Sulfur Spring
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QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		9/30/2010 1110h	A2310B	15.0	< 15.0	
Alkalinity (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**343**	
Ammonia (as N)	mg/L	10/1/2010 1019h	10/4/2010 0830h	E350.1	0.0500	**0.142**	
Bicarbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**343**	
Carbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	10.0	< 10.0	
Chloride	mg/L		9/29/2010 2106h	E300.0	1.00	**6.63**	
Hardness (as CaCO3)	mg/L		10/6/2010	A2340B	10.0	**362**	
Nitrate (as N)	mg/L		9/29/2010 1455h	E353.2	0.0100	< 0.0100	
Nitrite (as N)	mg/L		9/29/2010 1455h	E353.2	0.0100	< 0.0100	
Oil & Grease	mg/L		9/29/2010 1358h	E1664A	3.00	**3.10**	
Phosphate, Total Ortho (as P)	mg/L		9/29/2010 1601h	E365.1	0.0500	< 0.0500	
Settleable Solids	mL/L		9/29/2010 1325h	A2540F	0.100	< 0.100	
Sulfate	mg/L		9/29/2010 2106h	E300.0	7.50	**43.3**	
Total Dissolved Solids	mg/L		10/1/2010 1330h	A2540C	10.0	**388**	
Total Suspended Solids	mg/L		9/29/2010 1530h	A2540D	3.00	< 3.00	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-003
Client Sample ID: RES-1
Collection Date: 9/28/2010 1250h
Received Date: 9/29/2010 0802h

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Salt Lake City, Utah
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Kyle F. Gross
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Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		9/30/2010 1110h	A2310B	15.0	< 15.0	
Alkalinity (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**406**	
Ammonia (as N)	mg/L	10/1/2010 1019h	10/4/2010 0831h	E350.1	0.0500	**0.0642**	
Bicarbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**315**	
Carbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**91.0**	
Chloride	mg/L		9/29/2010 2129h	E300.0	1.00	**68.3**	
Hardness (as CaCO3)	mg/L		10/6/2010	A2340B	10.0	**430**	
Nitrate (as N)	mg/L		9/29/2010 1457h	E353.2	0.0100	**0.200**	
Nitrite (as N)	mg/L		9/29/2010 1457h	E353.2	0.0100	< 0.0100	
Oil & Grease	mg/L		9/29/2010 1358h	E1664A	3.00	**3.24**	
Phosphate, Total Ortho (as P)	mg/L		9/29/2010 1602h	E365.1	0.0500	**0.0770**	
Settleable Solids	mL/L		9/29/2010 1325h	A2540F	0.100	**4.70**	
Sulfate	mg/L		9/29/2010 2129h	E300.0	7.50	**11.6**	
Total Dissolved Solids	mg/L		10/1/2010 1330h	A2540C	10.0	**568**	
Total Suspended Solids	mg/L		9/29/2010 1530h	A2540D	3.00	**67.0**	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-004
Client Sample ID: Miller Outlet
Collection Date: 9/28/2010 1320h
Received Date: 9/29/2010 0802h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		9/30/2010 1110h	A2310B	15.0	< 15.0	
Alkalinity (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**217**	
Ammonia (as N)	mg/L	10/1/2010 1019h	10/4/2010 0832h	E350.1	0.0500	< 0.0500	
Bicarbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**214**	
Carbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	< 20.0	
Chloride	mg/L		10/1/2010 1735h	E300.0	1.00	**10.1**	
Hardness (as CaCO3)	mg/L		10/6/2010	A2340B	10.0	**238**	
Nitrate (as N)	mg/L		9/29/2010 1458h	E353.2	0.0100	< 0.0100	
Nitrite (as N)	mg/L		9/29/2010 1458h	E353.2	0.0100	< 0.0100	
Oil & Grease	mg/L		9/29/2010 1358h	E1664A	3.00	< 3.00	
Phosphate, Total Ortho (as P)	mg/L		9/29/2010 1602h	E365.1	0.0500	< 0.0500	
Settleable Solids	mL/L		9/29/2010 1325h	A2540F	0.100	< 0.100	
Sulfate	mg/L		10/1/2010 1735h	E300.0	7.50	**23.5**	
Total Dissolved Solids	mg/L		10/1/2010 1330h	A2540C	10.0	**272**	
Total Suspended Solids	mg/L		9/29/2010 1530h	A2540D	3.00	**20.0**	

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INORGANIC ANALYTICAL REPORT

Client: Carbon Resources **Contact:** Brad Lindsay
Project: Scofield Baseline / Surface Water Monitoring
Lab Sample ID: 1009508-005
Client Sample ID: Aspen Spring
Collection Date: 9/28/2010 1745h
Received Date: 9/29/2010 0802h

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Analytical Results	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Acidity	mg/L		9/30/2010 1110h	A2310B	15.0	< 15.0	
Alkalinity (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**124**	
Ammonia (as N)	mg/L	10/1/2010 1019h	10/4/2010 0833h	E350.1	0.0500	**1.63**	
Bicarbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	20.0	**124**	
Carbonate (as CaCO3)	mg/L		9/30/2010 1015h	A2320B	10.0	< 10.0	
Chloride	mg/L		10/1/2010 1931h	E300.0	0.500	**36.1**	
Hardness (as CaCO3)	mg/L		10/6/2010	A2340B	10.0	**128**	
Nitrate (as N)	mg/L		9/29/2010 1459h	E353.2	0.0100	< 0.0100	
Nitrite (as N)	mg/L		9/29/2010 1459h	E353.2	0.0100	**0.0605**	
Oil & Grease	mg/L		9/29/2010 1358h	E1664A	3.00	< 3.00	
Phosphate, Total Ortho (as P)	mg/L		9/29/2010 1603h	E365.1	0.0500	**0.118**	
Settleable Solids	mL/L		9/29/2010 1325h	A2540F	0.100	**1.50**	
Sulfate	mg/L		10/1/2010 1931h	E300.0	3.75	**29.1**	
Total Dissolved Solids	mg/L		10/1/2010 1330h	A2540C	10.0	**342**	
Total Suspended Solids	mg/L		9/29/2010 1530h	A2540D	15.0	**344**	

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: ME
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-8751	Aluminum	mg/L	SW6010C	0.950	1.000	0	95.0	80-120				10/6/2010
LCS-8751	Boron	mg/L	SW6010C	0.968	1.000	0	96.8	80-120				10/6/2010
LCS-8751	Calcium	mg/L	SW6010C	9.09	10.00	0	90.9	80-120				10/6/2010
LCS-8751	Iron	mg/L	SW6010C	0.945	1.000	0	94.5	80-120				10/6/2010
LCS-8751	Magnesium	mg/L	SW6010C	9.39	10.00	0	93.9	80-120				10/6/2010
LCS-8751	Molybdenum	mg/L	SW6010C	0.183	0.2000	0	91.4	80-120				10/6/2010
LCS-8751	Potassium	mg/L	SW6010C	9.71	10.00	0	97.1	80-120				10/6/2010
LCS-8751	Sodium	mg/L	SW6010C	9.44	10.00	0	94.4	80-120				10/6/2010
LCS-8752	Iron	mg/L	SW6010C	1.06	1.000	0	106	80-120				10/5/2010
LCS-8751	Arsenic	mg/L	SW6020A	0.200	0.2000	0	100	85-115				10/1/2010
LCS-8751	Cadmium	mg/L	SW6020A	0.200	0.2000	0	99.9	85-115				10/1/2010
LCS-8751	Copper	mg/L	SW6020A	0.201	0.2000	0	101	85-115				10/1/2010
LCS-8751	Lead	mg/L	SW6020A	0.200	0.2000	0	100	85-115				10/1/2010
LCS-8751	Manganese	mg/L	SW6020A	0.202	0.2000	0	101	85-115				10/1/2010
LCS-8751	Selenium	mg/L	SW6020A	0.204	0.2000	0	102	85-115				10/1/2010
LCS-8751	Zinc	mg/L	SW6020A	1.01	1.000	0	101	85-115				10/1/2010
LCS-8752	Arsenic	mg/L	SW6020A	0.200	0.2000	0	99.9	85-115				9/30/2010
LCS-8752	Cadmium	mg/L	SW6020A	0.199	0.2000	0	99.7	85-115				9/30/2010
LCS-8752	Copper	mg/L	SW6020A	0.201	0.2000	0	100	85-115				9/30/2010
LCS-8752	Lead	mg/L	SW6020A	0.200	0.2000	0	100	85-115				9/30/2010
LCS-8752	Manganese	mg/L	SW6020A	0.200	0.2000	0	99.8	85-115				9/30/2010
LCS-8752	Selenium	mg/L	SW6020A	0.202	0.2000	0	101	85-115				9/30/2010
LCS-8752	Zinc	mg/L	SW6020A	1.01	1.000	0	101	85-115				9/30/2010

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: ME
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-8751	Aluminum	mg/L	SW6010C	< 0.100				-				10/6/2010
MB-8751	Boron	mg/L	SW6010C	< 0.500				-				10/6/2010
MB-8751	Calcium	mg/L	SW6010C	< 1.00				-				10/6/2010
MB-8751	Iron	mg/L	SW6010C	< 0.100				-				10/6/2010
MB-8751	Magnesium	mg/L	SW6010C	< 1.00				-				10/6/2010
MB-8751	Molybdenum	mg/L	SW6010C	< 0.0200				-				10/6/2010
MB-8751	Potassium	mg/L	SW6010C	< 1.00				-				10/6/2010
MB-8751	Sodium	mg/L	SW6010C	< 1.00				-				10/6/2010
MB-8752	Iron	mg/L	SW6010C	< 0.100				-				10/5/2010
MB-8751	Arsenic	mg/L	SW6020A	< 0.000600				-				10/1/2010
MB-8751	Cadmium	mg/L	SW6020A	< 0.000180				-				10/1/2010
MB-8751	Copper	mg/L	SW6020A	< 0.000800				-				10/1/2010
MB-8751	Lead	mg/L	SW6020A	< 0.000400				-				10/1/2010
MB-8751	Manganese	mg/L	SW6020A	< 0.00120				-				10/1/2010
MB-8751	Selenium	mg/L	SW6020A	< 0.000800				-				10/1/2010
MB-8751	Zinc	mg/L	SW6020A	< 0.00500				-				10/1/2010
MB-8752	Arsenic	mg/L	SW6020A	< 0.000600				-				9/30/2010
MB-8752	Cadmium	mg/L	SW6020A	< 0.000180				-				9/30/2010
MB-8752	Copper	mg/L	SW6020A	< 0.000800				-				9/30/2010
MB-8752	Lead	mg/L	SW6020A	< 0.000400				-				9/30/2010
MB-8752	Manganese	mg/L	SW6020A	< 0.00120				-				9/30/2010
MB-8752	Selenium	mg/L	SW6020A	< 0.000800				-				9/30/2010
MB-8752	Zinc	mg/L	SW6020A	< 0.00500				-				9/30/2010

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: ME
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001EMS	Aluminum	mg/L	SW6010C	0.986	1.000	0	98.6	75-125				10/6/2010
1009508-001EMS	Boron	mg/L	SW6010C	1.23	1.000	0.1526	108	75-125				10/6/2010
1009508-001EMS	Iron	mg/L	SW6010C	0.998	1.000	0	99.8	75-125				10/6/2010
1009508-001EMS	Magnesium	mg/L	SW6010C	42.0	10.00	33.17	88.2	75-125				10/6/2010
1009508-001EMS	Molybdenum	mg/L	SW6010C	0.195	0.2000	0	97.3	75-125				10/6/2010
1009508-001EMS	Potassium	mg/L	SW6010C	16.4	10.00	6.373	100	75-125				10/6/2010
1009511-001DMS	Aluminum	mg/L	SW6010C	0.866	1.000	0	86.6	75-125				10/6/2010
1009511-001DMS	Boron	mg/L	SW6010C	0.955	1.000	0.01937	93.6	75-125				10/6/2010
1009511-001DMS	Iron	mg/L	SW6010C	0.875	1.000	0	87.5	75-125				10/6/2010
1009511-001DMS	Magnesium	mg/L	SW6010C	15.9	10.00	7.380	84.8	75-125				10/6/2010
1009511-001DMS	Molybdenum	mg/L	SW6010C	0.169	0.2000	0	84.7	75-125				10/6/2010
1009511-001DMS	Potassium	mg/L	SW6010C	9.77	10.00	1.011	87.6	75-125				10/6/2010
1009511-001DMS	Sodium	mg/L	SW6010C	24.4	10.00	16.03	83.3	75-125				10/6/2010
1009508-001EMS	Calcium	mg/L	SW6010C	63.1	10.00	53.40	96.9	75-125				10/6/2010
1009508-001EMS	Sodium	mg/L	SW6010C	53.5	10.00	43.17	103	75-125				10/6/2010
1009511-001DMS	Calcium	mg/L	SW6010C	91.4	10.00	82.42	89.4	75-125				10/6/2010
1009508-001FMS	Iron	mg/L	SW6010C	1.27	1.000	0.2070	106	75-125				10/5/2010
1009511-001EMS	Iron	mg/L	SW6010C	10.8	1.000	9.380	142	75-125			2	10/5/2010
1009508-001EMS	Arsenic	mg/L	SW6020A	0.201	0.2000	0.0004450	100	75-125				10/1/2010
1009508-001EMS	Cadmium	mg/L	SW6020A	0.200	0.2000	0	100	75-125				10/1/2010
1009508-001EMS	Copper	mg/L	SW6020A	0.195	0.2000	0	97.5	75-125				10/1/2010
1009508-001EMS	Lead	mg/L	SW6020A	0.203	0.2000	0	101	75-125				10/1/2010
1009508-001EMS	Manganese	mg/L	SW6020A	0.206	0.2000	0.006622	99.7	75-125				10/1/2010
1009508-001EMS	Selenium	mg/L	SW6020A	0.202	0.2000	0.0005100	101	75-125				10/1/2010

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Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: ME
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001EMS	Zinc	mg/L	SW6020A	1.01	1.000	0	101	75-125				10/1/2010
1009511-001DMS	Arsenic	mg/L	SW6020A	0.201	0.2000	0.0004980	100	75-125				10/1/2010
1009511-001DMS	Cadmium	mg/L	SW6020A	0.197	0.2000	0.00008100	98.5	75-125				10/1/2010
1009511-001DMS	Copper	mg/L	SW6020A	0.201	0.2000	0.0004650	100	75-125				10/1/2010
1009511-001DMS	Lead	mg/L	SW6020A	0.201	0.2000	0	100	75-125				10/1/2010
1009511-001DMS	Manganese	mg/L	SW6020A	0.204	0.2000	0.002118	101	75-125				10/1/2010
1009511-001DMS	Selenium	mg/L	SW6020A	0.201	0.2000	0.0006810	100	75-125				10/1/2010
1009511-001DMS	Zinc	mg/L	SW6020A	0.990	1.000	0	99.0	75-125				10/1/2010
1009522-001BMS	Manganese	mg/L	SW6020A	0.223	0.2000	0.02429	99.4	75-125				10/1/2010
1009508-001FMS	Manganese	mg/L	SW6020A	0.220	0.2000	0.02004	99.9	75-125				9/30/2010
1009511-001EMS	Manganese	mg/L	SW6020A	0.297	0.2000	0.09608	101	75-125				9/30/2010
1009533-001FMS	Arsenic	mg/L	SW6020A	0.287	0.2000	0.09053	98.2	75-125				9/30/2010
1009533-001FMS	Cadmium	mg/L	SW6020A	0.195	0.2000	0.0002780	97.4	75-125				9/30/2010
1009533-001FMS	Copper	mg/L	SW6020A	0.203	0.2000	0.002522	100	75-125				9/30/2010
1009533-001FMS	Lead	mg/L	SW6020A	0.200	0.2000	0	100	75-125				9/30/2010
1009533-001FMS	Manganese	mg/L	SW6020A	1.81	0.2000	1.663	74.6	75-125			2	9/30/2010
1009533-001FMS	Selenium	mg/L	SW6020A	0.210	0.2000	0.007680	101	75-125				9/30/2010
1009533-001FMS	Zinc	mg/L	SW6020A	1.04	1.000	0.02531	101	75-125				9/30/2010

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: ME
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001EMSD	Aluminum	mg/L	SW6010C	0.970	1.000	0	97.0	75-125	1.67	20		10/6/2010
1009508-001EMSD	Boron	mg/L	SW6010C	1.22	1.000	0.1526	107	75-125	1.08	20		10/6/2010
1009508-001EMSD	Iron	mg/L	SW6010C	0.962	1.000	0	96.2	75-125	3.61	20		10/6/2010
1009508-001EMSD	Magnesium	mg/L	SW6010C	40.8	10.00	33.17	75.8	75-125	3.00	20		10/6/2010
1009508-001EMSD	Molybdenum	mg/L	SW6010C	0.193	0.2000	0	96.3	75-125	1.09	20		10/6/2010
1009508-001EMSD	Potassium	mg/L	SW6010C	15.9	10.00	6.373	95.7	75-125	2.86	20		10/6/2010
1009511-001DMSD	Aluminum	mg/L	SW6010C	0.969	1.000	0	96.9	75-125	11.2	20		10/6/2010
1009511-001DMSD	Boron	mg/L	SW6010C	1.06	1.000	0.01937	104	75-125	10.8	20		10/6/2010
1009511-001DMSD	Iron	mg/L	SW6010C	0.944	1.000	0	94.4	75-125	7.62	20		10/6/2010
1009511-001DMSD	Magnesium	mg/L	SW6010C	16.6	10.00	7.380	92.4	75-125	4.64	20		10/6/2010
1009511-001DMSD	Molybdenum	mg/L	SW6010C	0.188	0.2000	0	94.0	75-125	10.4	20		10/6/2010
1009511-001DMSD	Potassium	mg/L	SW6010C	10.7	10.00	1.011	96.7	75-125	8.90	20		10/6/2010
1009511-001DMSD	Sodium	mg/L	SW6010C	25.0	10.00	16.03	89.5	75-125	2.51	20		10/6/2010
1009508-001EMSD	Calcium	mg/L	SW6010C	65.4	10.00	53.40	121	75-125	3.67	20		10/6/2010
1009508-001EMSD	Sodium	mg/L	SW6010C	54.9	10.00	43.17	117	75-125	2.59	20		10/6/2010
1009511-001DMSD	Calcium	mg/L	SW6010C	92.0	10.00	82.42	96.0	75-125	0.711	20		10/6/2010
1009508-001FMSD	Iron	mg/L	SW6010C	1.30	1.000	0.2070	109	75-125	2.33	20		10/5/2010
1009511-001EMSD	Iron	mg/L	SW6010C	10.9	1.000	9.380	152	75-125	0.922	20	2	10/5/2010
1009508-001EMSD	Arsenic	mg/L	SW6020A	0.202	0.2000	0.0004450	101	75-125	0.144	20		10/1/2010
1009508-001EMSD	Cadmium	mg/L	SW6020A	0.200	0.2000	0	100	75-125	0.00600	20		10/1/2010
1009508-001EMSD	Copper	mg/L	SW6020A	0.196	0.2000	0	98.0	75-125	0.554	20		10/1/2010
1009508-001EMSD	Lead	mg/L	SW6020A	0.201	0.2000	0	101	75-125	0.801	20		10/1/2010
1009508-001EMSD	Manganese	mg/L	SW6020A	0.203	0.2000	0.006622	98.3	75-125	1.38	20		10/1/2010
1009508-001EMSD	Selenium	mg/L	SW6020A	0.200	0.2000	0.0005100	99.9	75-125	0.657	20		10/1/2010

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: ME
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001EMSD	Zinc	mg/L	SW6020A	1.00	1.000	0	100	75-125	0.326	20		10/1/2010
1009522-001BMSD	Manganese	mg/L	SW6020A	0.223	0.2000	0.02429	99.5	75-125	0.0699	20		10/1/2010
1009511-001DMSD	Arsenic	mg/L	SW6020A	0.201	0.2000	0.0004980	100	75-125	0.195	20		10/1/2010
1009511-001DMSD	Cadmium	mg/L	SW6020A	0.198	0.2000	0.00008100	99.2	75-125	0.700	20		10/1/2010
1009511-001DMSD	Copper	mg/L	SW6020A	0.201	0.2000	0.0004650	100	75-125	0.0911	20		10/1/2010
1009511-001DMSD	Lead	mg/L	SW6020A	0.200	0.2000	0	99.9	75-125	0.462	20		10/1/2010
1009511-001DMSD	Manganese	mg/L	SW6020A	0.205	0.2000	0.002118	101	75-125	0.380	20		10/1/2010
1009511-001DMSD	Selenium	mg/L	SW6020A	0.202	0.2000	0.0006810	100	75-125	0.388	20		10/1/2010
1009511-001DMSD	Zinc	mg/L	SW6020A	0.987	1.000	0	98.7	75-125	0.281	20		10/1/2010
1009508-001FMSD	Manganese	mg/L	SW6020A	0.222	0.2000	0.02004	101	75-125	0.954	20		9/30/2010
1009511-001EMSD	Manganese	mg/L	SW6020A	0.298	0.2000	0.09608	101	75-125	0.0988	20		9/30/2010
1009533-001FMSD	Arsenic	mg/L	SW6020A	0.288	0.2000	0.09053	98.8	75-125	0.381	20		9/30/2010
1009533-001FMSD	Cadmium	mg/L	SW6020A	0.194	0.2000	0.0002780	96.8	75-125	0.549	20		9/30/2010
1009533-001FMSD	Copper	mg/L	SW6020A	0.203	0.2000	0.002522	100	75-125	0.0113	20		9/30/2010
1009533-001FMSD	Lead	mg/L	SW6020A	0.200	0.2000	0	100	75-125	0.00150	20		9/30/2010
1009533-001FMSD	Manganese	mg/L	SW6020A	1.76	0.2000	1.663	49.1	75-125	2.86	20	2	9/30/2010
1009533-001FMSD	Selenium	mg/L	SW6020A	0.211	0.2000	0.007680	101	75-125	0.299	20		9/30/2010
1009533-001FMSD	Zinc	mg/L	SW6020A	1.03	1.000	0.02531	101	75-125	0.706	20		9/30/2010

2 - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: WC
QC Type: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009508-001ADUP	Total Dissolved Solids	mg/L	A2540C	404		412.0		-	1.96	5		10/1/2010
1009511-001ADUP	Total Dissolved Solids	mg/L	A2540C	394		390.0		-	1.02	5		10/1/2010
1009533-001HDUP	Total Dissolved Solids	mg/L	A2540C	1,140		1,132		-	1.05	5		10/1/2010
1009503-001ADUP	Total Suspended Solids	mg/L	A2540D	101		100.0		-	0.995	5		9/29/2010
1009508-002ADUP	Total Suspended Solids	mg/L	A2540D	< 3.00		1.000		-	0	5		9/29/2010

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: WC
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
LCS-R18970	Chloride	mg/L	E300.0	4.73	5.000	0	94.6	90-110				9/29/2010
LCS-R18970	Sulfate	mg/L	E300.0	5.51	5.000	0	110	90-110				9/29/2010
LCS-R19058	Chloride	mg/L	E300.0	4.54	5.000	0	90.7	90-110				10/1/2010
LCS-R19058	Sulfate	mg/L	E300.0	4.87	5.000	0	97.4	90-110				10/1/2010
LCS-R18965	Acidity	mg/L	A2310B	48.0	50.00	0	96.0	80-120				9/30/2010
LCS-R18966	Alkalinity (as CaCO3)	mg/L	A2320B	51,600	50,000	0	103	90-110				9/30/2010
LCS-8769	Ammonia (as N)	mg/L	E350.1	1.09	1.000	0	109	90-110				10/4/2010
LCS-R18989	Oil & Grease	mg/L	E1664A	40.2	40.00	2.700	93.8	78-114				9/29/2010
LCS-R18919	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.962	1.000	0.005800	95.6	90-110				9/29/2010
LCS-R19081	Total Dissolved Solids	mg/L	A2540C	192	205.0	0	93.7	80-120				10/1/2010
LCS-R18955	Total Suspended Solids	mg/L	A2540D	97.0	100.0	0	97.0	80-120				9/29/2010

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: WC
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
MB-R18970	Chloride	mg/L	E300.0	< 0.100				-				9/29/2010
MB-R18970	Sulfate	mg/L	E300.0	< 0.750				-				9/29/2010
MB-R19058	Chloride	mg/L	E300.0	< 0.100				-				10/1/2010
MB-R19058	Sulfate	mg/L	E300.0	< 0.750				-				10/1/2010
MB-R18965	Acidity	mg/L	A2310B	< 15.0				-				9/30/2010
MB-R18966	Alkalinity (as CaCO3)	mg/L	A2320B	< 10.0				-				9/30/2010
MB-R18966	Bicarbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				9/30/2010
MB-R18966	Carbonate (as CaCO3)	mg/L	A2320B	< 10.0				-				9/30/2010
MB-8769	Ammonia (as N)	mg/L	E350.1	< 0.0500				-				10/4/2010
MB-R18989	Oil & Grease	mg/L	E1664A	< 3.00				-				9/29/2010
MB-R18919	Phosphate, Total Ortho (as P)	mg/L	E365.1	< 0.0500				-				9/29/2010
MB-R19081	Total Dissolved Solids	mg/L	A2540C	< 10.0				-				10/1/2010
MB-R18955	Total Suspended Solids	mg/L	A2540D	< 3.00				-				9/29/2010

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Kyle F. Gross
Laboratory Director

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: WC
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009507-005CMS	Chloride	mg/L	E300.0	85.2	25.00	61.56	94.4	90-110				9/29/2010
1009507-005CMS	Sulfate	mg/L	E300.0	6.91	5.000	1.929	99.6	90-110				10/1/2010
1009508-004BMS	Chloride	mg/L	E300.0	55.7	50.00	10.05	91.4	90-110				10/1/2010
1009508-004BMS	Sulfate	mg/L	E300.0	73.0	50.00	23.46	99.0	90-110				10/1/2010
1009511-001BMS	Chloride	mg/L	E300.0	480	500.0	0	96.0	90-110				10/1/2010
1009522-001AMS	Chloride	mg/L	E300.0	65.6	25.00	39.76	103	90-110				10/1/2010
1009522-001AMS	Sulfate	mg/L	E300.0	36.1	25.00	11.88	96.8	90-110				10/1/2010
1009533-001DMS	Chloride	mg/L	E300.0	140	50.00	86.55	106	90-110				10/2/2010
1009533-001DMS	Sulfate	mg/L	E300.0	185	50.00	133.8	102	90-110				10/2/2010
1009508-005BMS	Acidity	mg/L	A2310B	46.0	50.00	0	92.0	80-120				9/30/2010
1009511-001BMS	Acidity	mg/L	A2310B	52.0	50.00	0	104	80-120				9/30/2010
1009508-001BMS	Alkalinity (as CaCO3)	mg/L	A2320B	338	100.0	238.0	100	80-120				9/30/2010
1009511-001BMS	Alkalinity (as CaCO3)	mg/L	A2320B	280	100.0	177.0	103	80-120				9/30/2010
1009522-001AMS	Alkalinity (as CaCO3)	mg/L	A2320B	1,570	500.0	1,059	101	80-120				9/30/2010
1009533-001DMS	Alkalinity (as CaCO3)	mg/L	A2320B	1,430	500.0	893.0	107	80-120				9/30/2010
1009508-001DMS	Ammonia (as N)	mg/L	E350.1	1.03	1.000	0	103	90-110				10/4/2010
1009511-002CMS	Ammonia (as N)	mg/L	E350.1	1.00	1.000	0	100	90-110				10/4/2010
1009533-001EMS	Ammonia (as N)	mg/L	E350.1	1.08	1.000	0.3142	76.9	90-110			I	10/4/2010
1009508-001BMS	Nitrite (as N)	mg/L	E353.2	1.09	1.000	0	109	90-110				9/29/2010
1009511-001BMS	Nitrite (as N)	mg/L	E353.2	1.10	1.000	0.02370	108	90-110				9/29/2010
1009508-001BMS	Nitrate (as N)	mg/L	E353.2	1.13	1.000	0.009300	112	90-110			I	9/29/2010
1009507-005CMS	Nitrate (as N)	mg/L	E353.2	0.790	1.000	0	79.0	90-110			I	9/29/2010
1009511-001BMS	Nitrate (as N)	mg/L	E353.2	18.4	10.00	0.6793	177	90-110			I	9/29/2010
1009508-001BMS	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.919	1.000	0.03440	88.5	90-110			I	9/29/2010

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: WC
QC Type: MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009511-001BMS	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.924	1.000	0.07200	85.2	90-110			1	9/29/2010

1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: WC
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009507-005CMSD	Chloride	mg/L	E300.0	85.1	25.00	61.56	94.0	90-110	0.110	20		9/29/2010
1009507-005CMSD	Sulfate	mg/L	E300.0	6.86	5.000	1.929	98.5	90-110	0.799	20		10/1/2010
1009508-004BMSD	Chloride	mg/L	E300.0	55.4	50.00	10.05	90.7	90-110	0.569	20		10/1/2010
1009508-004BMSD	Sulfate	mg/L	E300.0	72.8	50.00	23.46	98.6	90-110	0.268	20		10/1/2010
1009511-001BMSD	Chloride	mg/L	E300.0	478	500.0	0	95.6	90-110	0.394	20		10/1/2010
1009522-001AMSD	Chloride	mg/L	E300.0	65.1	25.00	39.76	101	90-110	0.747	20		10/1/2010
1009522-001AMSD	Sulfate	mg/L	E300.0	35.5	25.00	11.88	94.6	90-110	1.53	20		10/1/2010
1009533-001DMSD	Chloride	mg/L	E300.0	140	50.00	86.55	107	90-110	0.233	20		10/2/2010
1009533-001DMSD	Sulfate	mg/L	E300.0	185	50.00	133.8	103	90-110	0.228	20		10/2/2010
1009508-005BMSD	Acidity	mg/L	A2310B	50.0	50.00	0	100	80-120	8.33	0		9/30/2010
1009511-001BMSD	Acidity	mg/L	A2310B	52.0	50.00	0	104	80-120	0	0		9/30/2010
1009508-001BMSD	Alkalinity (as CaCO3)	mg/L	A2320B	340	100.0	238.0	102	80-120	0.590	10		9/30/2010
1009511-001BMSD	Alkalinity (as CaCO3)	mg/L	A2320B	284	100.0	177.0	107	80-120	1.42	10		9/30/2010
1009522-001AMSD	Alkalinity (as CaCO3)	mg/L	A2320B	1,580	500.0	1,059	105	80-120	1.14	10		9/30/2010
1009533-001DMSD	Alkalinity (as CaCO3)	mg/L	A2320B	1,400	500.0	893.0	101	80-120	1.84	10		9/30/2010
1009508-001DMSD	Ammonia (as N)	mg/L	E350.1	1.06	1.000	0	106	90-110	3.06	10		10/4/2010
1009511-002CMSD	Ammonia (as N)	mg/L	E350.1	1.01	1.000	0	101	90-110	0.259	10		10/4/2010
1009533-001EMSD	Ammonia (as N)	mg/L	E350.1	1.19	1.000	0.3142	87.9	90-110	9.67	10	1	10/4/2010
1009508-001BMSD	Nitrite (as N)	mg/L	E353.2	1.10	1.000	0	110	90-110	1.11	10	1	9/29/2010
1009511-001BMSD	Nitrite (as N)	mg/L	E353.2	1.11	1.000	0.02370	109	90-110	0.929	10		9/29/2010
1009508-001BMSD	Nitrate (as N)	mg/L	E353.2	1.13	1.000	0.009300	112	90-110	0.222	10	1	9/29/2010
1009507-005CMSD	Nitrate (as N)	mg/L	E353.2	0.788	1.000	0	78.8	90-110	0.254	10	1	9/29/2010
1009511-001BMSD	Nitrate (as N)	mg/L	E353.2	17.0	10.00	0.6793	163	90-110	7.86	10	1	9/29/2010
1009508-001BMSD	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.955	1.000	0.03440	92.0	90-110	3.81	10		9/29/2010

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Carbon Resources
Lab Set ID: 1009508
Project: Scofield Baseline / Surface Water Monitoring

Dept: WC
QC Type: MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qualifiers	Analysis Date
1009511-001BMSD	Phosphate, Total Ortho (as P)	mg/L	E365.1	0.994	1.000	0.07200	92.2	90-110	7.33	10		9/29/2010

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

American West Analytical Laboratories

WORK ORDER Summary

Work Order: 1009508

Client: Carbon Resources
Client ID: CAR300
Project: Scofield Baseline / Surface Water Monitoring
Comments: QC 2+, EDD;

Contact: Brad Lindsay
QC Level: LEVEL II+

9/29/2010
WO Type: Project

HOK-DB

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009508-001A	Mud Creek	9/28/2010 12:00:00 PM	9/29/2010 8:02:00 AM	10/13/2010	Aqueous	SS-W-2540F	☐	ww - ss/tss	1
				10/13/2010		TDS-W-2540C	☐	ww - ss/tss	
				10/13/2010		TSS-W-2540D	☐	ww - ss/tss	
1009508-001B				10/13/2010		300.0-W	☑	DF - wc	
	SEL Analytes: CL SO4								
				10/13/2010		ACIDITY-W-2310B	☐	DF - wc	
				10/13/2010		ALK-W-2320B	☑	DF - wc	
	SEL Analytes: ALK ALKB ALKC								
				10/13/2010		NO2-W-353.2	☐	DF - wc	
				10/13/2010		NO3-W-353.2	☐	DF - wc	
				10/13/2010		PO4-O-365.1	☐	DF - wc	
1009508-001C				10/13/2010		OGB-W-1664A	☐	ogb	
1009508-001D				10/13/2010		NH3-W-350.1	☐	DF - nh3	
				10/13/2010		NH3-W-PR	☐	DF - nh3	
1009508-001E				10/13/2010		3005A-DIS-PR	☐	DF - dis met	2
				10/13/2010		6010C-DIS	☑	DF - dis met	
	SEL Analytes: AL B CA FE MG MO K NA								
				10/13/2010		6020-DIS	☑	DF - dis met	
	SEL Analytes: AS CD CU PB MN SE ZN								
				10/13/2010		HARD-2340B	☐	DF - dis met	
1009508-001F				10/13/2010		3005A-ICPMS-PR	☐	DF - total met	1
				10/13/2010		6010C-W	☑	DF - total met	
	SEL Analytes: FE								

WORK ORDER Summary

Work Order: **1009508**

Client: Carbon Resources

Client ID: CAR300 **Contact:** Brad Lindsay

Project: Scofield Baseline / Surface Water Monitoring **QC Level:** LEVEL II+ **WO Type:** Project

Comments: QC 2+, EDD;

9/29/2010

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009508-001F	Mud Creek	9/28/2010 12:00:00 PM	9/29/2010 8:02:00 AM	10/13/2010	Aqueous	6020-W	☑	DF - total met	1
	SEL Analytes: MN								
1009508-002A	Sulfur Spring	9/28/2010 12:35:00 PM		10/13/2010		SS-W-2540F	☐	ww - ss/tss	
				10/13/2010		TDS-W-2540C	☐	ww - ss/tss	
				10/13/2010		TSS-W-2540D	☐	ww - ss/tss	
1009508-002B				10/13/2010		300.0-W	☑	DF - wc	
	SEL Analytes: CL SO4								
				10/13/2010		ACIDITY-W-2310B	☐	DF - wc	
				10/13/2010		ALK-W-2320B	☑	DF - wc	
	SEL Analytes: ALK ALKB ALKC								
				10/13/2010		NO2-W-353.2	☐	DF - wc	
				10/13/2010		NO3-W-353.2	☐	DF - wc	
				10/13/2010		PO4-O-365.1	☐	DF - wc	
1009508-002C				10/13/2010		OGB-W-1664A	☐	ogb	
1009508-002D				10/13/2010		NH3-W-350.1	☐	DF - nh3	
				10/13/2010		NH3-W-PR	☐	DF - nh3	
1009508-002E				10/13/2010		3005A-DIS-PR	☐	DF - dis met	2
				10/13/2010		6010C-DIS	☑	DF - dis met	
	SEL Analytes: AL B CA FE MG MO K NA								
				10/13/2010		6020-DIS	☑	DF - dis met	
	SEL Analytes: AS CD CU PB MN SE ZN								
				10/13/2010		HARD-2340B	☐	DF - dis met	
1009508-002F				10/13/2010		3005A-ICPMS-PR	☐	DF - total met	1
				10/13/2010		6010C-W	☑	DF - total met	
	SEL Analytes: FE								

WORK ORDER Summary

Work Order: 1009508

Client: Carbon Resources
Client ID: CAR300
Project: Scofield Baseline / Surface Water Monitoring
Comments: QC 2+, EDD;

Contact: Brad Lindsay
QC Level: LEVEL II+

9/29/2010
WO Type: Project

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009508-002F	Sulfur Spring	9/28/2010 12:35:00 PM	9/29/2010 8:02:00 AM	10/13/2010	Aqueous	6020-W	☑	DF - total met	1
	SEL Analytes: MN								
1009508-003A	RES-1	9/28/2010 12:50:00 PM		10/13/2010		SS-W-2540F	☐	ww - ss/tss	
				10/13/2010		TDS-W-2540C	☐	ww - ss/tss	
				10/13/2010		TSS-W-2540D	☐	ww - ss/tss	
1009508-003B				10/13/2010		300.0-W	☑	DF - wc	
	SEL Analytes: CL SO4								
				10/13/2010		ACIDITY-W-2310B	☐	DF - wc	
				10/13/2010		ALK-W-2320B	☑	DF - wc	
	SEL Analytes: ALK ALKB ALKC								
				10/13/2010		NO2-W-353.2	☐	DF - wc	
				10/13/2010		NO3-W-353.2	☐	DF - wc	
				10/13/2010		PO4-O-365.1	☐	DF - wc	
1009508-003C				10/13/2010		OGB-W-1664A	☐	ogb	
1009508-003D				10/13/2010		NH3-W-350.1	☐	DF - nh3	
				10/13/2010		NH3-W-PR	☐	DF - nh3	
1009508-003E				10/13/2010		3005A-DIS-PR	☐	DF - dis met	2
				10/13/2010		6010C-DIS	☑	DF - dis met	
	SEL Analytes: AL B CA FE MG MO K NA								
				10/13/2010		6020-DIS	☑	DF - dis met	
	SEL Analytes: AS CD CU PB MN SE ZN								
				10/13/2010		HARD-2340B	☐	DF - dis met	
1009508-003F				10/13/2010		3005A-ICPMS-PR	☐	DF - total met	1
				10/13/2010		6010C-W	☑	DF - total met	
	SEL Analytes: FE								

WORK ORDER Summary

Work Order: 1009508

Client: Carbon Resources
Client ID: CAR300
Project: Scofield Baseline / Surface Water Monitoring
Comments: QC 2+, EDD;

Contact: Brad Lindsay
QC Level: LEVEL II+

9/29/2010
WO Type: Project

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009508-003F	RES-1	9/28/2010 12:50:00 PM	9/29/2010 8:02:00 AM	10/13/2010	Aqueous	6020-W	☑	DF - total met	1
	SEL Analytes: MN								
1009508-004A	Miller Outlet	9/28/2010 1:20:00 PM		10/13/2010		SS-W-2540F	☐	ww - ss/tss	
				10/13/2010		TDS-W-2540C	☐	ww - ss/tss	
				10/13/2010		TSS-W-2540D	☐	ww - ss/tss	
1009508-004B				10/13/2010		300.0-W	☑	DF - wc	
	SEL Analytes: CL SO4								
				10/13/2010		ACIDITY-W-2310B	☐	DF - wc	
				10/13/2010		ALK-W-2320B	☑	DF - wc	
	SEL Analytes: ALK ALKB ALKC								
				10/13/2010		NO2-W-353.2	☐	DF - wc	
				10/13/2010		NO3-W-353.2	☐	DF - wc	
				10/13/2010		PO4-O-365.1	☐	DF - wc	
1009508-004C				10/13/2010		OGB-W-1664A	☐	ogb	
1009508-004D				10/13/2010		NH3-W-350.1	☐	DF - nh3	
				10/13/2010		NH3-W-PR	☐	DF - nh3	
1009508-004E				10/13/2010		3005A-DIS-PR	☐	DF - dis met	2
				10/13/2010		6010C-DIS	☑	DF - dis met	
	SEL Analytes: AL B CA FE MG MO K NA								
				10/13/2010		6020-DIS	☑	DF - dis met	
	SEL Analytes: AS CD CU PB MN SE ZN								
				10/13/2010		HARD-2340B	☐	DF - dis met	
1009508-004F				10/13/2010		3005A-ICPMS-PR	☐	DF - total met	1
				10/13/2010		6010C-W	☑	DF - total met	
	SEL Analytes: FE								

WORK ORDER Summary

Work Order: **1009508**

Client: Carbon Resources
Client ID: CAR300
Project: Scofield Baseline / Surface Water Monitoring
Comments: QC 2+, EDD;

Contact: Brad Lindsay
QC Level: LEVEL II+

9/29/2010
WO Type: Project

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009508-004F	Miller Outlet	9/28/2010 1:20:00 PM	9/29/2010 8:02:00 AM	10/13/2010	Aqueous	6020-W	☑	DF - total met	1
	SEL Analytes: MN								
1009508-005A	Aspen Spring	9/28/2010 5:45:00 PM		10/13/2010		SS-W-2540F	☐	ww - ss/tss	
				10/13/2010		TDS-W-2540C	☐	ww - ss/tss	
				10/13/2010		TSS-W-2540D	☐	ww - ss/tss	
1009508-005B				10/13/2010		300.0-W	☑	DF - wc	
	SEL Analytes: CL SO4								
				10/13/2010		ACIDITY-W-2310B	☐	DF - wc	
				10/13/2010		ALK-W-2320B	☑	DF - wc	
	SEL Analytes: ALK ALKB ALKC								
				10/13/2010		NO2-W-353.2	☐	DF - wc	
				10/13/2010		NO3-W-353.2	☐	DF - wc	
				10/13/2010		PO4-O-365.1	☐	DF - wc	
1009508-005C				10/13/2010		OGB-W-1664A	☐	ogb	
1009508-005D				10/13/2010		NH3-W-350.1	☐	DF - nh3	
				10/13/2010		NH3-W-PR	☐	DF - nh3	
1009508-005E				10/13/2010		3005A-DIS-PR	☐	DF - dis met	2
				10/13/2010		6010C-DIS	☑	DF - dis met	
	SEL Analytes: AL B CA FE MG MO K NA								
				10/13/2010		6020-DIS	☑	DF - dis met	
	SEL Analytes: AS CD CU PB MN SE ZN								
				10/13/2010		HARD-2340B	☐	DF - dis met	
1009508-005F				10/13/2010		3005A-ICPMS-PR	☐	DF - total met	1
				10/13/2010		6010C-W	☑	DF - total met	
	SEL Analytes: FE								

WORK ORDER Summary

Work Order: **1009508**

9/29/2010

Client:	Carbon Resources				
Client ID:	CAR300	**Contact:**	Brad Lindsay		
Project:	Scofield Baseline / Surface Water Monitoring	**QC Level:**	LEVEL II+	**WO Type:**	Project
Comments:	QC 2+, EDD;				

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1009508-005F	Aspen Spring	9/28/2010 5:45:00 PM	9/29/2010 8:02:00 AM	10/13/2010	Aqueous	6020-W	☑	DF - total met	1
	SEL Analytes: MN								

Client CARBON RESOURCES c/o ROCK LOGIC

Address PO BOX 544

CEDAREDGE CO 81413
City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115

(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

CHAIN OF CUSTODY

Lab Sample Set # 1009508

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	TESTS REQUIRED: TABLE 4	TABLE 3	QC LEVEL	COMMENTS
CR-10-12	9/28/10 / 11:00	W	6	✓		1 2 2+ 3 3+ 4	1009511
CR-10-11	/ 14:15		6	✓			
MUD CREEK	/ 12:00		7		✓		
SULFUR SPRING	/ 12:35		7		✓		
RES-1	/ 12:50		7		✓		1009508
MILLER OUTLET	/ 13:20		7		✓		
ASPEN SPRING	/ 17:45		7		✓		

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes: On ice
3 Temperature 3.5
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved (Y) N
Checked at Bench Y N
Notes:
6 Received Within Holding Times (Y) N
Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y N (NA)
4 Unbroken on Sample Y N (NA)

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME: BRAD LINDSAY	Time: 19:30	PRINT NAME: JEFFREY LINDSAY	Time: 19:30
Relinquished By: Signature	Date: 9/29/10	Received By: Signature	Date: 9/29/10
PRINT NAME: JEFFREY LINDSAY	Time: 8:02	PRINT NAME: [illegible]	Time: 8:02
Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME	Time	PRINT NAME	Time
Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME	Time	PRINT NAME	Time

Special Instructions:

PLEASE FILTER

TABLE 4 SHOULD BE TITLED "GROUND WATER MONITORING..."

TABLE 3 SHOULD BE TITLED "SURFACE WATER MONITORING..."

59.25 54.P

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

		FIELD MEASUREMENTS	REPORTED AS
*	-	Water level or Flow	Depth, Flow
*	-	pH	Standard units
*	-	Specific Conductivity	umhos/cm @ 25° C
*	-	Dissolved Oxygen	mg/l
*	-	Temperature	°C

		LABORATORY MEASUREMENTS	
*	-	Total Dissolved Solids	mg/l
*	-	Total Settleable Solids	(UPDES)
*	-	Total Suspended Solids	mg/l
*	-	Total Hardness ($CaCO_3$)	mg/l
*	-	Total Alkalinity	mg/l
	-	Acidity	mg/l
	-	Aluminum (Dissolved)	mg/l
	-	Arsenic (Dissolved)	mg/l
	-	Boron (Dissolved)[1]	mg/l
*	-	Carbonate	mg/l
*	-	Bicarbonate	mg/l
	-	Cadmium (Dissolved)	mg/l
*	-	Calcium (Dissolved)	mg/l
*	-	Chloride	mg/l
	-	Copper (Dissolved)	mg/l
*	-	Iron (Dissolved)	mg/l
*	-	Iron (Total)	mg/l
	-	Lead (Dissolved)	mg/l
*	-	Magnesium (Dissolved)	mg/l
*	-	Manganese (Dissolved)	mg/l
*	-	Manganese (Total)	mg/l
	-	Molybdenum (Dissolved)	mg/l
	-	Ammonia	mg/l
	-	Nitrates	mg/l
	-	Nitrites	mg/l
*	-	Potassium (Dissolved)	mg/l
	-	Phosphates(Ortho)	mg/l
	-	Selenium[1] (Dissolved)	mg/l
*	-	Sodium (Dissolved)	mg/l
*	-	Sulfate	mg/l
	-	Zinc (Dissolved)	mg/l
*	-	Oil & Grease[2]	mg/l
*	-	Cations	meq/l
*	-	Anions	meq/l

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.
½ gallon HDPE

Sample Set: 1009508

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except	Except
Ammonia	pH <2 H_2SO_4	✓															
COD	pH <2 H_2SO_4																
Cyanide	PH >12 NaOH																
Metals	pH <2 HNO_3	✓															
NO_2 & NO_3	pH <2 H_2SO_4																
Nutrients	pH <2 H_2SO_4																
O & G	pH <2 HCL	✓															
Phenols	pH <2 H_2SO_4																
Sulfide	pH > 9NaOH, Zn Acetate																
TKN	pH <2 H_2SO_4																
TOC	pH <2 H_3PO_4																
TOX	pH <2 H_2SO_4																
T PO_4	pH <2 H_2SO_4																
TPH	pH <2 HCL																

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

Exhibit 13

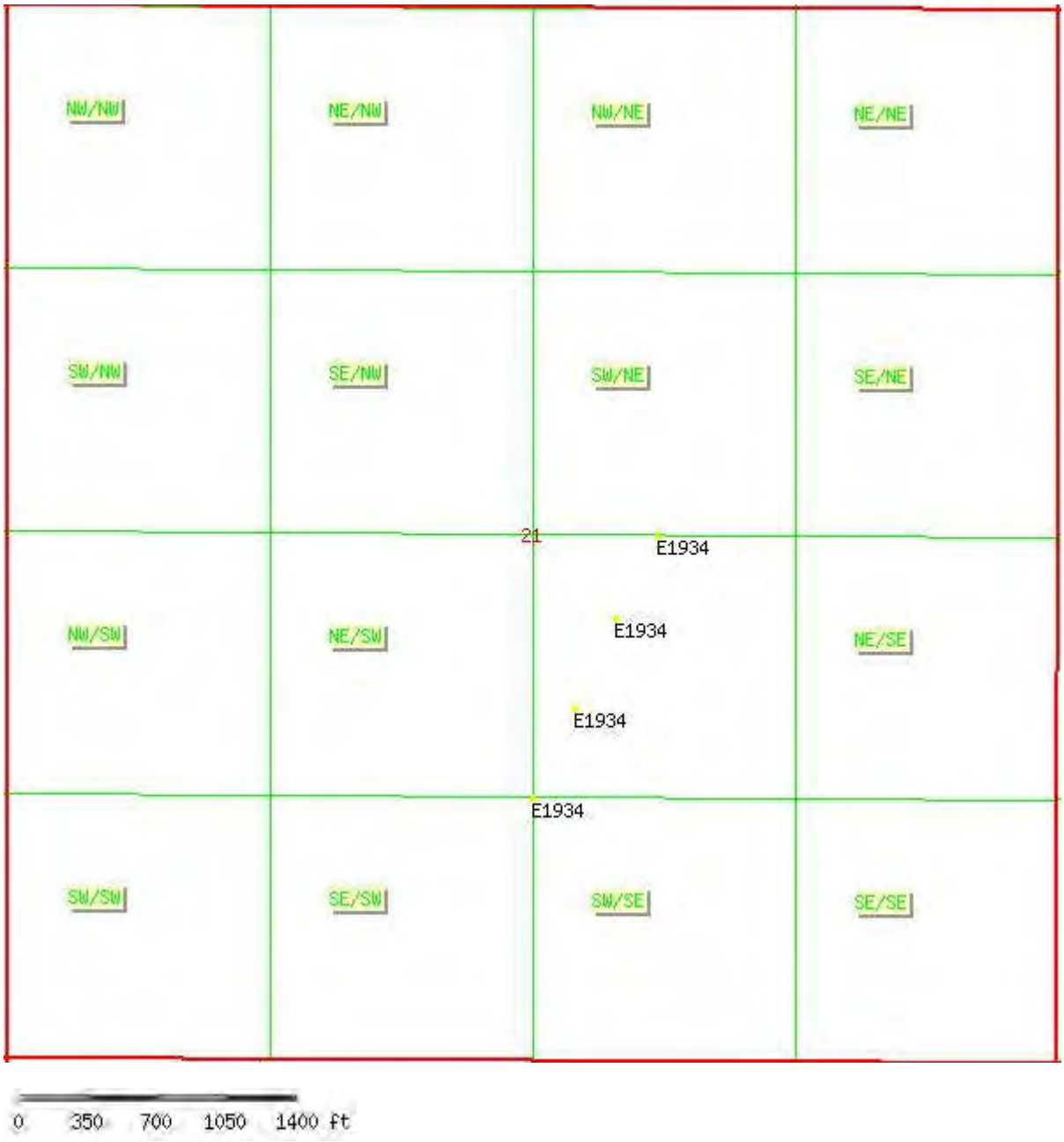
Water Rights

Kinney No. 2 Mine Water rights Search

March 11, 2011

Ground Water By Sections

Search of Section 21, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=U,Sp status=U,A,P usetypes=all



Water Rights Section 21, T12S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
E1934	Underground		A	19810629	O	0.000	20.000	UCO INCORPORATED
	N1320 0 S4 21 12S 7E SL							1580 LINCOLN SUITE 530
E1934	Underground		A	19810629	O	0.000	20.000	UCO INCORPORATED
	N1771 E210 S4 21 12S 7E SL							1580 LINCOLN SUITE 530
E1934	Underground		A	19810629	O	0.000	20.000	UCO INCORPORATED
	N2220 E420 S4 21 12S 7E SL							1580 LINCOLN SUITE 530
E1934	Underground		A	19810629	O	0.000	20.000	UCO INCORPORATED
	N2640 E630 S4 21 12S 7E SL							1580 LINCOLN SUITE 530

Search of Section 32, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=U,Sp status=U,A,P usetypes=all

Water Rights Sectio0n 32, T12S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-3401	Underground		P	18950000	DS	0.011	0.000	WAINO E. BURTON
	N625 E710 S4 32 12S 7E SL							SCOFIELD UT
91-3402	Underground		P	18950000	DS	0.011	0.000	WAINO E. BURTON
	N570 E690 S4 32 12S 7E SL							SCOFIELD UT
91-5069	Spring		P	18690000	OS	0.000	1.244	RUDMAN LAND AND LIVESTOCK L.L.C.
	S1346 W630 N4 32 12S 7E SL							1111 EAST BRICKYARD ROAD SUITE 106
a34946	Underground	well info	A	20081016	DIS	0.000	1.000	BOYD L. PETERSON AND PEGGY PETERSON TRUST
	S1235 W1351 E4 32 12S 7E SL							1363 SEA PINES
E164	Underground		A	19650218	D	0.000	1.000	LOUIS GORISHEK
	N30 E465 S4 32 12S 7E SL							SCOFIELD UT

Search of Section 05, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=U,Sp status=U,A,P usetypes=all

Water Rights Section 5 T13S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
a34604	Underground		A	20080701	DS	0.000	1.000	ROBERT & ELLEN RADAKOVICH MARITAL & FAMILY TRUST
	N334 E432 W4 05 13S 7E SL							C/O KARI FOWLER, SUCCESSOR TRUSTEE
a34604	Underground		A	20080701	DS	0.000	1.000	ROBERT & ELLEN RADAKOVICH MARITAL & FAMILY TRUST
	N1347 W995 S4 05 13S 7E SL							C/O KARI FOWLER, SUCCESSOR TRUSTEE
E164	Underground		A	19650218	D	0.000	1.000	LOUIS GORISHEK
	N30 E465 S4 32 12S 7E SL							SCOFIELD UT
E1912	Underground		A	19810611	D	0.000	1.000	JIM NICOLODEMOS
	N2145 W1350 E4 05 13S 7E SL							1221 SOUTH 2820 WEST
E2567	Underground	well info	A	19871013	M	0.000	30.000	SCOFIELD TOWN
	S1056 W1451 N4 05 13S 7E SL							ATTN: JAY N. NELSON, MAYOR

****
****

WATER RIGHT: **91-3402** APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Waino E. Burton
ADDR: Scofield UT
INTEREST: 100% REMARKS:

==========

DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:

FILED: |PRIORITY: 00/00/1895|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/02/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**----------

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========
FLOW: 0.011 cfs SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- UNDERGROUND: (Click Well ID# link for more well data.)
(1) N 570 ft E 690 ft from S4 cor, Sec 32, T 12S, R 7E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED: WELL LOG? No WELL ID#:
==========
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
****

CHANGE: **a34946** WATER RIGHT: 91-5160 CERT. NO.: COUNTY TAX ID#: AMENDATORY? No
BASE WATER RIGHTS: 91-5160
RIGHT EVIDENCED BY: 91-5160 (a seg`d portion of 91-2) Based on one share of stock #7926)
CHANGES: Point of Diversion [X], Place of Use [X], Nature of Use [X], Reservoir Storage [ ].
*----------

NAME: Boyd L. Peterson and Peggy Peterson Trust
ADDR: 1363 Sea Pines
Mesquite, NV 87024
REMARKS:

NAME: Price River Water User's Association
ADDR: 375 South Carbon Avenue A-10
Price, Utah 84501
REMARKS:
*----------
FILED: 10/16/2008|PRIORITY: 10/16/2008|ADV BEGAN: 11/06/2008|ADV ENDED: 11/13/2008|NEWSPAPER: Sun Advocate
ProtestEnd:12/03/2008|PROTESTED: [No]|HEARNG HLD: |SE ACTION: [Approved]|ActionDate:01/22/2009|PROOF DUE: 01/31/2014
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: |LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
Status: Approved
Related Distribution System: 41-PRICE RIVER
**********H E R E T O F O R E**********
**********H E R E A F T E R**********

FLOW: 1.0 acre-feet	FLOW: 1.0 acre-feet
SOURCE: Gooseberry Creek	SOURCE: Underground Water Well
COUNTY: Sanpete	COUNTY: Carbon COM DESC: North Scofield

		The animals will be on the property
		from April - September, or approximately
		50% of the year. .014 af per animal
		was used to calculate the amount of water
		for the elu`s. The domestic is part time.
|POINT(S) OF DIVERSION ------> MAP VIEWER ||CHANGED AS FOLLOWS: (Click Location link for WRPLAT) |

|----------||----------
||Point Surface: ||
|
|(1) N 810 ft W 990 ft from SE cor, Sec 10, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|| Source: ||
||----------||----------
-|Point Underground:
	UNDERGROUND: (Click Link for PLAT data, Well ID# link for data.)
||(1) S 1235 ft W 1351 ft from E4 cor, Sec 32, T 12S, R 7E, SLBM
|| Diameter: 6 ins. Depth: 100 to 500 ft. WELL ID#: 433933
----------||----------
Point Rediversion:	
(1) N 900 ft E 100 ft from SW cor, Sec 03, T 12S, R 7E, SLBM	
Dvrting Wks:	
Source: Ex.430, Theresa A. Phelps-well	
(2) N 1420 ft W 480 ft from SE cor, Sec 04, T 12S, R 7E, SLBM	
Dvrting Wks:	
Source: Ex.175, Rudy Scartezina-well	
(3) N 1285 ft W 345 ft from SE cor, Sec 04, T 12S, R 7E, SLBM	
Dvrting Wks:	
Source: Ex.336, Frank Marrelli-well	
(4) S 1400 ft W 20 ft from E4 cor, Sec 04, T 12S, R 7E, SLBM	
Dvrting Wks:	
Source: Ex.397,Robt.or Francis Mallard-Well	
(5) N 1338 ft E 655 ft from SW cor, Sec 17, T 12S, R 7E, SLBM	

| Dvrting Wks: ||
|
| Source: Ex.178, Catherine Rudman-spring ||
|
|(6) N 860 ft E 430 ft from S4 cor, Sec 19, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.375, G. Pete Frandsen-spring ||
|
|(7) N 30 ft E 465 ft from S4 cor, Sec 32, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.164, Louis Gorishek-well ||
|
|(8) N 430 ft W 410 ft from S4 cor, Sec 26, T 12S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Price City Filtering Plant ||
|
|(9) S 90 ft E 730 ft from N4 cor, Sec 35, T 12S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Power Plant & Coal Company ||
|
|(10) S 970 ft E 60 ft from W4 cor, Sec 05, T 13S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.452, Robert Radokovich-well ||
|
|(11) N 900 ft E 980 ft from SW cor, Sec 12, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Bryner-Hansen Ditch ||
|
|(12) S 480 ft E 1440 ft from W4 cor, Sec 12, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Bryner-Ploutz Ditch ||
|
|(13) S 560 ft W 840 ft from N4 cor, Sec 13, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Spring Glen Canal ||
|
|(14) N 1310 ft E 1000 ft from S4 cor, Sec 24, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|

| Source: Gay Ditch ||
|
|(15) S 1190 ft W 1490 ft from E4 cor, Sec 24, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Stowell Ditch ||
|
|(16) S 0 ft W 730 ft from NE cor, Sec 24, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: O`Berto Ditch ||
|
|(17) N 580 ft W 240 ft from S4 cor, Sec 36, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Country Club-Cook Ditch ||
|
|(18) N 560 ft W 240 ft from S4 cor, Sec 36, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Price-Wellington Canal ||
|
|(19) S 560 ft E 680 ft from N4 cor, Sec 01, T 14S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Carbon Canal ||
|
|(20) N 1410 ft W 535 ft from S4 cor, Sec 08, T 15S, R 11E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Coal Washing Plant ||
|
|(21) N 2261 ft W 218 ft from SE cor, Sec 16, T 15S, R 11E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Coal Washing Plant ||
|
|(22) S 1925 ft W 811 ft from NE cor, Sec 16, T 15S, R 11E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Coal Washing Plant ||
|
|(23) S 470 ft W 310 ft from E4 cor, Sec 16, T 15S, R 11E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Farnham Ditch ||
|

|PLACE OF USE ------> **||CHANGED as follows:**

	--NW¼-- --NE¼-- --SW¼-- --SE¼--	
--NW¼-- --NE¼-- --SW¼-- --SE¼-- |	|N N S S||N N S S||N N S S||N N S S|||
|N N S S||N N S S||N N S S||N N S S||	|W E W E||W E W E||W E W E||W E W E|||
|W E W E||W E W E||W E W E||W E W E||	
ALL T R SLBM *	||Sec 32 T
12S R 7E SLBM	* : : : ** : : : ** : : : ** : :X: *|
|Sec 12 T 13S R 9E SLBM	* : : : ** : : : **X: :X:X** : : : *||
|Sec 13 T 13S R 9E SLBM	*X:X:X:X** : : : **X:X:X:X**X:X:X:X*||
|Sec 24 T 13S R 9E SLBM	* :X: : **X:X:X:X** : : :X**X:X:X:X*||
|Sec 25 T 13S R 9E SLBM	* :X: : **X: :X:X** : : : **X:X:X:X*||
|Sec 36 T 13S R 9E SLBM	* : : : **X:X:X:X** :X: :X**X:X:X:X*||
|Sec 18 T 13S R 10E SLBM	* : : : ** : : : ** : :X: ** : : : *||
|Sec 19 T 13S R 10E SLBM	*X:X:X: **X: : : ** : : : ** : : : *||
|Sec 30 T 13S R 10E SLBM	* :X:X:X** : :X: **X: :X:X**X:X:X:X*||
|Sec 31 T 13S R 10E SLBM	*X:X:X:X**X:X:X:X**X:X: : **X:X: : *||
|Sec 32 T 13S R 10E SLBM	*X: :X: ** : : : ** : : : ** : : : *||
|Sec 01 T 14S R 9E SLBM	* :X: : **X: :X: ** : : : **X:X:X:X*||
|Sec 12 T 14S R 9E SLBM	* : : : ** :X: : ** : : : ** : : : *||
|Sec 05 T 14S R 10E SLBM	* : : : ** : : : **X: :X: ** : : : *||
|Sec 06 T 14S R 10E SLBM	* :X:X:X** : : : **X:X:X:X**X:X:X:X*||
|Sec 07 T 14S R 10E SLBM	*X:X:X:X**X:X:X:X** :X:X:X**X:X:X:X*||
|Sec 08 T 14S R 10E SLBM	* : :X: ** : : : **X: :X:X** : :X: *||
|Sec 15 T 14S R 10E SLBM	* : : : ** : : : **X:X:X:X** : :X: *||
|Sec 16 T 14S R 10E SLBM	* : : : ** : : : **X:X:X:X**X: :X:X*||
|Sec 17 T 14S R 10E SLBM	*X:X:X:X**X: :X:X**X:X:X:X**X:X:X: *||
|Sec 18 T 14S R 10E SLBM	*X:X:X:X**X:X:X:X**X:X: :X**X:X:X:X*||
|Sec 19 T 14S R 10E SLBM	* : : : **X: : : ** : : : ** :X: : *||
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|Sec 21 T 14S R 10E SLBM	*X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||

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|Sec 25 T 14S R 10E SLBM *X: :X: ** : : : **X: :X: **X:X:X:X*||
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|Sec 21 T 15S R 11E SLBM * : : : ** : : : **X: :X: ** : : : *||
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|Sec 35 T 15S R 11E SLBM * : : : **X:X: :X** : :X:X**X:X:X:X*||
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|Sec 23 T 16S R 10E SLBM * :X: : **X:X: : ** : : : ** : : : *||
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|Sec 24 T 16S R 10E SLBM *X:X: : ** : : : ** : : : ** : : : *||
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|Sec 05 T 16S R 11E SLBM *X:X:X:X** : : : ** : : : ** : : : *||
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|Sec 06 T 16S R 11E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
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|Sec 07 T 16S R 11E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
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|Sec 08 T 16S R 11E SLBM *X: :X: ** : : : ** : : : ** : : : *||
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|Sec 09 T 16S R 11E SLBM * : : : ** : : :X** : : : ** : : : *||
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|Sec 10 T 16S R 11E SLBM *X:X:X:X**X:X:X:X**X:X:X:X** : : : *||
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|Sec 11 T 16S R 11E SLBM     *X: :X: ** : : : ** : : : ** : : : *||
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|Sec 16 T 16S R 11E SLBM     * : : : ** : : : **X:X:X:X**X: :X: *||
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|Sec 17 T 16S R 11E SLBM     * : : : ** : : : **X:X:X: **X: :X:X*||
|
|Sec 20 T 16S R 11E SLBM     * : : : **X:X: :X** : : : ** : : : *||
|
|Sec 21 T 16S R 11E SLBM     *X:X:X:X** : : : ** : : : ** : : : *||
|
 _____________________________________________________________
|NATURE OF USE ------>                                          ||CHANGED as
follows:                                          |
|-------------------------------------------------------------||----------
----------------------------------------------------|
|IRR  = values are in acres.                                   ||
|
|STK  = values are in ELUs meaning Cattle or Equivalent.       ||
|
|DOM  = values are in EDUs meaning Equivalent Domestic Units (F  ||
|
|-------------------------------------------------------------||----------
----------------------------------------------------|
|SUPPLEMENTAL to Other Water Rights: Yes
||SUPPLEMENTAL to Other Water Rights: No                       |
|-------------------------------------------------------------||----------
----------------------------------------------------|
|IRR:      0.2000 acres.                      USED 04/01 - 10/31||IRR:
and       .2267 Supp acres   USED 04/01 - 10/31|
|.....................................................||.........
.....................................................|
|                                                              ||STK:
5.0000 Cattle or Equivalent         USED 04/01 - 09/30|
|.....................................................||.........
.....................................................|
|                                                              ||DOM:
1.0000 Equivalent Domestic Units.   USED 01/01 - 12/31|
 _____________________________________________________________
```

****
****

EXCHANGE: **E1912 (91-4889)** BASE WATER RIGHT: - STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Stock Cert. 4018, Price River Water Users Assoc.

OWNERSHIP

NAME: Jim Nicolodemos
ADDR: 1221 South 2820 West
South Jordan UT 84065

DATES, ETC.

```
FILED:     06/11/1981|PRIORITY:  06/11/1981|ADV BEGAN:          |ADV ENDED:
|NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]||HEARNG HLD:         |SE ACTION:
[        ]||ActionDate:04/30/1982|PROOF DUE:
EXTENSION:           |ProofFiled:          |CertIssued:          |LAP, ETC:
|LAPS LETTR:          |RUSH LETTER:
```

RENOVATE: |RECON REQ: |TYPE: [ ]
Date Verified: Initials: Status: Approved
Related Distribution System: Not part of any Distribution System
**********C U R R E N T R I G H T
FLOW: 1.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N 850 ft W 1080 ft from SE cor, Sec 10, T 12S, R 7E, SLBM
*---
NATURE OF USE:
.....
.....
###IRRIGATION: Total: acres Sole Supply: acres
PERIOD OF USE: 04/01 TO 10/31
**********P R O P O S E D E X C H A N G E
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION: 12 1/2 Mi. NW of Scofield Dam
*---
==========
LOCATION OF EXCHANGE*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID# link for more well data.)
(1) N 2145 ft W 1350 ft from E4 cor, Sec 05, T 13S, R 7E, SLBM
DIAMETER OF WELL: 6 ins. DEPTH: 100 to 500 ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
*---
POINT OF RELEASE:
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
***Location of Release Point(s) is the SAME as Point(s) of Diversion in CURRENT RIGHT above.
*---
NATURE OF USE:
****
****

EXCHANGE: **E2567 (91-4909)** BASE WATER RIGHT: - STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Price River Water Users Assn. Stock Cert. #5163
==========
OWNERSHIP********

NAME: Scofield Town (Public Water Supplier)
ADDR: Attn: Jay N. Nelson, Mayor
Scofield Star Route
Helper UT 84526
INTEREST: 100% REMARKS:
DATES,
ETC.********

FILED: 10/13/1987|PRIORITY: 10/13/1987|ADV BEGAN: 11/18/1987|ADV ENDED:
|NEWSPAPER: Sun Advocate
ProtestEnd:01/01/1988|PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[Approved]|ActionDate:04/12/1988|PROOF DUE:
EXTENSION: |ProofFiled: |CertIssued: |LAP, ETC:
|LAPS LETTR: |RUSH LETTER:
RENOVATE: |RECON REQ: |TYPE: [ ]
Date Verified: /01/ 0 Initials: Status: Approved
Related Distribution System: Not part of any Distribution System
**********C U R R E N T R I G
HT**********
**
FLOW: 30.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N 810 ft W 1000 ft from SE cor, Sec 10, T 12S, R 7E, SLBM
Diverting Works: Source: Scofield
Reservoir
*---
NATURE OF USE:
SUPPLEMENTAL to Other Water Rights
**********P R O P O S E D E X C H A N G E**********
FLOW: 30.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION:
*---
LOCATION OF EXCHANGE***(Points of Diversion: Click on Location to access PLAT
Program.)**********MAP VIEWER**********
==========
POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID#
link for more well data.)
(1) S 1056 ft W 1451 ft from N4 cor, Sec 05, T 13S, R 7E, SLBM
DIAMETER OF WELL: 8 ins. DEPTH: 220 to ft. YEAR DRILLED:
WELL LOG? WELL ID#: 2933
*---
POINT OF RELEASE:
FLOW: PERIOD OF USE: / 0 TO / 0
***Location of Release Point(s) is the SAME as Point(s) of Diversion in
CURRENT RIGHT above.
*---
NATURE OF USE:
****
****

CHANGE: a34604 WATER RIGHT: 91-5165 CERT. NO.: COUNTY TAX
ID#: AMENDATORY? No
BASE WATER RIGHTS: 91-5165
RIGHT EVIDENCED BY: 91-5165 (based on one share of stock in the Price River
Water Users Association)
CHANGES: Point of Diversion [X], Place of Use [X], Nature of Use [X],
Reservoir Storage [ ].
*---

NAME: Robert & Ellen Radakovich Marital & Family Trust
ADDR: c/o Kari Fowler, Successor Trustee
2564 South Corral Drive

```
      Grand Juntion, CO  81505
                    REMARKS:

NAME: Price River Water Users Association
ADDR: 375 South Carbon Avenue, A-10
      Price, UT  84501
                    REMARKS:
*-------------------------------------------------------------------------
FILED:     07/01/2008|PRIORITY:  07/01/2008|ADV BEGAN: 08/21/2008|ADV ENDED:
08/28/2008|NEWSPAPER:  Sun Advocate
ProtestEnd:09/17/2008|PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[Approved]|ActionDate:03/11/2010|PROOF DUE:  03/31/2015
EXTENSION:           |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
|LAP, ETC:            |LAPS LETTER:
RUSH LETTR:          |RENOVATE:            |RECON REQ:           |TYPE: [
]
Status: Approved
Related Distribution System:  41-PRICE RIVER
**********H E R E T O F O R E**********
**********H E R E A F T E R**********
|FLOW:   1.0 acre-feet                                             ||FLOW:
1.0 acre-feet                                          |
|-----------------------------------------------------------------||----------
|SOURCE: Scofield Reservoir                                        ||SOURCE: 3
Underground Water Wells (existing)                     |
|COUNTY: Carbon                                                    ||COUNTY:
Carbon     COM DESC: 1/2 Mile SW of Scofield Town       |
 _________________________________________________________________

|POINT(S) OF DIVERSION ------> MAP VIEWER                         ||CHANGED AS
FOLLOWS: (Click Location link for WRPLAT)              |
|-----------------------------------------------------------------||----------
|Point Surface:                                                    ||
|
|(1)  N  810 ft W  990 ft from SE cor, Sec 10, T 12S, R  7E, SLBM||
|
| Dvrting Wks: Earthen Dam                                         ||
|
| Source:                                                          ||
||----------------------------------------------------------------||---------
-|Point Underground:
||UNDERGROUND: (Click Link for PLAT data, Well ID# link for data.)|
|                                                                  ||(1)  N
1347 ft W  995 ft from S4 cor, Sec 05, T 13S, R  7E, SLBM|
|                                                                  ||
Diameter:     ins.  Depth:      to      ft.  WELL ID#:         |
|                                                                  ||(2)  N
334 ft E  432 ft from W4 cor, Sec 05, T 13S, R  7E, SLBM|
|                                                                  ||
Diameter:  6  ins.  Depth: 205  to      ft.  WELL ID#:         |
|                                                                  ||(3)  N
1249 ft W  256 ft from SE cor, Sec 06, T 13S, R  7E, SLBM|
|                                                                  ||
Diameter:     ins.  Depth:      to      ft.  WELL ID#:         |
|-----------------------------------------------------------------||----------
|PLACE OF USE ------>                                             ||CHANGED as
follows:                                               |
```

```
|-------------------------------------------------------------||----------
|                              --NW¼--  --NE¼--  --SW¼--  --SE¼-- ||
--NW¼--  --NE¼--  --SW¼--  --SE¼-- |
|                              |N N S S||N N S S||N N S S||N N S S|||
|N N S S||N N S S||N N S S||N N S S||
|                              |W E W E||W E W E||W E W E||W E W E|||
|W E W E||W E W E||W E W E||W E W E||
|                                                             ||Sec 05 T
13S R  7E SLBM     * : :X: ** : : : ** :X: : ** : : : *|
|                                                             ||Sec 06 T
13S R  7E SLBM     * : : : ** : : : ** : : : ** : : :X*|
 _____________________________________________________________
|NATURE OF USE ------>                                        ||CHANGED as
follows:                                          |
|IRR  = values are in acres.                                  ||
|
|STK  = values are in ELUs meaning Cattle or Equivalent.      ||
|
|DOM  = values are in EDUs meaning Equivalent Domestic Units (F  ||
|
|-------------------------------------------------------------||----------
|SUPPLEMENTAL to Other Water Rights: No
||SUPPLEMENTAL to Other Water Rights: No                      |
|-------------------------------------------------------------||----------
|IRR:      0.2000 acres.                      USED 04/01 - 10/31||
|
|.............................................................||.........
38.0000 Cattle or Equivalent         USED 06/01 - 10/31|
                                                            ||DOM:
1.0000 Equivalent Domestic Units.   USED 01/01 - 12/31|
**********************************************************E N D   O F   D A T


EXCHANGE: E1934 (91-4891) BASE WATER RIGHT:   -        STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Price River Water Users Association Stock Certific
                    ate # 4035
================================================================================
OWNERSHIP*******************************************************************

NAME:  UCO Incorporated
ADDR: 1580 Lincoln Suite 530
      Denver UT 80203
================================================================================
DATES,
ETC.************************************************************************
FILED:     06/29/1981|PRIORITY:  06/29/1981|ADV BEGAN:           |ADV ENDED:
|NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[        ]|ActionDate:01/21/1983|PROOF DUE:
EXTENSION:           |ProofFiled:          |CertIssued:          |LAP, ETC:
|LAPS LETTR:          |RUSH LETTER:
RENOVATE:            |RECON REQ:           |TYPE: [             ]
Date Verified:             Initials:           Status: Approved
Related Distribution System:  Not part of any Distribution System
*****************************************C U R R E N T   R I G H T***
```

FLOW: 20.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N 810 ft W 1000 ft from SE cor, Sec 10, T 12S, R 7E, SLBM
Diverting Works: Source: Scofield Reservoir
*---
NATURE OF USE:
.....
###OTHER Irrigation under Wellington Canal System.
PERIOD OF USE: 01/01 TO 12/31
**********P R O P O S E D E X C H A N G E**********
FLOW: 20.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION: 1.5 - 2.5 mi. W. Scofield Town
*---
LOCATION OF EXCHANGE*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID# link for more well data.)
(1) N 1320 ft 0 ft from S4 cor, Sec 21, T 12S, R 7E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
(2) N 1771 ft E 210 ft from S4 cor, Sec 21, T 12S, R 7E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
(3) N 2220 ft E 420 ft from S4 cor, Sec 21, T 12S, R 7E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
(4) N 2640 ft E 630 ft from S4 cor, Sec 21, T 12S, R 7E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
(5) S 2200 ft W 700 ft from NE cor, Sec 01, T 13S, R 6E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
(6) S 2000 ft W 2300 ft from NE cor, Sec 01, T 13S, R 6E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
(7) S 1300 ft W 2200 ft from NE cor, Sec 12, T 13S, R 6E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
(8) S 2100 ft E 2500 ft from NW cor, Sec 06, T 13S, R 7E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
(9) S 2100 ft E 1000 ft from NW cor, Sec 06, T 13S, R 7E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
*---
POINT OF RELEASE:
FLOW: 20.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
***Location of Release Point(s) is the SAME as Point(s) of Diversion in CURRENT RIGHT above.
*---
NATURE OF USE:

SUPPLEMENTAL GROUP NO. 615764.

SEGREGATION HISTORY

This Exchange as originally filed:

FLOW IN	QUANTITY IN				
W A T E R U S E S					
	CFS	ACRE-FEET	IRRIGATED	STOCK	
DOMESTIC	MUNICIPAL	MINING	POWER	OTHER	
				ACREAGE	(ELUs)
(FAMILIES)	(ACRE-FEET)				
		20.0			

E N D O F D A T A

CHANGE: **a34604** WATER RIGHT: 91-5165 CERT. NO.: COUNTY TAX ID#: AMENDATORY? No

BASE WATER RIGHTS: 91-5165

RIGHT EVIDENCED BY: 91-5165 (based on one share of stock in the Price River Water Users Association)

CHANGES: Point of Diversion [X], Place of Use [X], Nature of Use [X], Reservoir Storage [ ].

NAME: Robert & Ellen Radakovich Marital & Family Trust
ADDR: c/o Kari Fowler, Successor Trustee
2564 South Corral Drive
Grand Juntion, CO 81505
REMARKS:

NAME: Price River Water Users Association
ADDR: 375 South Carbon Avenue, A-10
Price, UT 84501
REMARKS:

FILED: 07/01/2008|PRIORITY: 07/01/2008|ADV BEGAN: 08/21/2008|ADV ENDED: 08/28/2008|NEWSPAPER: Sun Advocate
ProtestEnd:09/17/2008|PROTESTED: [No]|HEARNG HLD: |SE ACTION: [Approved]|ActionDate:03/11/2010|PROOF DUE: 03/31/2015
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: |LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
Status: Approved
Related Distribution System: 41-PRICE RIVER

H E R E T O F O R E

H E R E A F T E R

FLOW: 1.0 acre-feet ||FLOW: 1.0 acre-feet
SOURCE: Scofield Reservoir ||SOURCE: 3 Underground Water Wells (existing)
COUNTY: Carbon ||COUNTY: Carbon COM DESC: 1/2 Mile SW of Scofield Town

|POINT(S) OF DIVERSION ------> MAP VIEWER ||CHANGED AS FOLLOWS: (Click Location link for WRPLAT) |

|Point Surface: ||
|
|(1) N 810 ft W 990 ft from SE cor, Sec 10, T 12S, R 7E, SLBM||
|
| Dvrting Wks: Earthen Dam ||
|
| Source: ||
||----------||
-|Point Underground:
||UNDERGROUND: (Click Link for PLAT data, Well ID# link for data.)|
| ||(1) N
1347 ft W 995 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM|
| ||
Diameter: ins. Depth: to ft. WELL ID#: |
| ||(2) N
334 ft E 432 ft from W4 cor, Sec 05, T 13S, R 7E, SLBM|
| ||
Diameter: 6 ins. Depth: 205 to ft. WELL ID#: |
| ||(3) N
1249 ft W 256 ft from SE cor, Sec 06, T 13S, R 7E, SLBM|
| ||
Diameter: ins. Depth: to ft. WELL ID#: |
|----------||----------
|PLACE OF USE ------> ||CHANGED as follows: |
|----------||----------
| --NW¼-- --NE¼-- --SW¼-- --SE¼-- ||
--NW¼-- --NE¼-- --SW¼-- --SE¼-- |
	N N S S		N N S S		N N S S		N N S S		
N N S S		N N S S		N N S S		N N S S	
	W E W E		W E W E		W E W E		W E W E		
W E W E		W E W E		W E W E		W E W E	
		Sec 05 T
13S R 7E SLBM * : :X: ** : : : ** :X: : ** : : : *|
		Sec 06 T
13S R 7E SLBM * : : : ** : : : ** : : : ** : : :X*|

|NATURE OF USE ------> ||CHANGED as follows: |
|----------||----------
|IRR = values are in acres. ||
|
|STK = values are in ELUs meaning Cattle or Equivalent. ||
|
|DOM = values are in EDUs meaning Equivalent Domestic Units (F ||
|
|----------||----------
|SUPPLEMENTAL to Other Water Rights: No
||SUPPLEMENTAL to Other Water Rights: No |
|----------||----------
|IRR: 0.2000 acres. USED 04/01 - 10/31||
|
| ||STK:
38.0000 Cattle or Equivalent USED 06/01 - 10/31|
| ||DOM:
1.0000 Equivalent Domestic Units. USED 01/01 - 12/31|

**********E N D O F D A T A********
****
****

EXCHANGE: **E2188 (91-4894)** BASE WATER RIGHT: - STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Price River Water Users Certificate Number: 4135
Midvale, Utah
OWNERSHIP********

NAME: Corporation of the Presiding Bishop LDS Church
ADDR: ATTN: Natural Resource Services
50 E. North Temple, 12th Floor East
Salt Lake City UT 84150-6321
DATES, ETC.********
FILED: 05/16/1983|PRIORITY: 05/16/1983|ADV BEGAN: 11/28/1983|ADV ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[Approved]|ActionDate:03/23/1984|PROOF DUE:
EXTENSION: |ProofFiled: |CertIssued: |LAP, ETC:
|LAPS LETTR: |RUSH LETTER:
RENOVATE: |RECON REQ: |TYPE: [ ]
Date Verified: Initials: Status: Approved
Related Distribution System: Not part of any Distribution System
**********C U R R E N T R I G H T**********
FLOW: 1.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N 850 ft W 1080 ft from SE cor, Sec 10, T 12S, R 7E, SLBM
*---
NATURE OF USE:
SUPPLEMENTAL to Other Water Rights
==========
OTHER COMMENTS********
The water use is shown as Irrigation on Price River
**********P R O P O S E D E X C H A N G E**********
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION: 1 Miles
South of Scofield
*---

LOCATION OF EXCHANGE*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========

POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID#
link for more well data.)
(1) S 310 ft W 580 ft from N4 cor, Sec 08, T 13S, R 7E, SLBM
DIAMETER OF WELL: 8 ins. DEPTH: 140 to ft. YEAR DRILLED:
WELL LOG? WELL ID#: 7196
*---
POINT OF RELEASE:
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31

***Location of Release Point(s) is the SAME as Point(s) of Diversion in CURRENT RIGHT above.

NATURE OF USE:
SUPPLEMENTAL GROUP NO. 615767.

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 20.0000
Div Limit: PERIOD OF USE: 05/01 TO 10/31

###PLACE OF USE: NORTH WEST QUARTER | NORTH EAST QUARTER | SOUTH WEST QUARTER | SOUTH EAST QUARTER | Section

	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	Totals
Sec 08 T 13S R 7E SLBM				X									0.0000

OTHER COMMENTS

Note on the file says to send a copy of all correspondence to:
Trent G. Jeppson, 420 Wilson Street - Midvale, Utah 84047

SEGREGATION HISTORY

This Exchange as originally filed:

WATER USES	FLOW IN CFS	QUANTITY IN ACRE-FEET	IRRIGATED ACREAGE	STOCK (ELUs)
DOMESTIC (FAMILIES)				
MUNICIPAL				
MINING				
POWER				
OTHER		1.0		20.0000

E N D O F D A TA

WATER RIGHT: **91-5069** APPLICATION/CLAIM NO.: CERT. NO.: CERTIFICAT
CHANGES: a27697 Certificate (Issued: 02/08/2011)

OWNERSHIP

NAME: Rudman Land and Livestock L.L.C.
ADDR: 1111 East Brickyard Road Suite 106
Salt Lake City, UT 84106

DATES, ETC.

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:

ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: |LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-]|MAP: [ ]|PUB DATE:

TYPE -- DOCUMENT -- STATUS----------

Type of Right: Diligence Claim Source of Info: Certificate
Status: Certificate

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

==========

FLOW: 1.2436 acre-feet SOURCE: Unnamed Spring and Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION: Woods Canyon

POINT OF SPRING:
(1) S 1346 ft W 630 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works: Collection box and pipeline
Source:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 1441 ft. E 1343 ft. from NW corner, Sec 32, T12S, R7E, SLBM,
to a point at S 1272 ft. W 277 ft. from N4 corner, Sec 32, T12S, R7E, SLBM.
SOURCE:

==========

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

==========

SUPPLEMENTAL GROUP NO.: **615951.**

.....
.....

STOCKWATER: 35.0000 Stock Units
Div Limit: 0.98 acft. PERIOD OF USE: 01/01 TO 12/31

.....

OTHER: Evaporation
PERIOD OF USE: 01/01 TO 12/31
Acre Feet Contributed by this Right for this Use: 0.2636

.....

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section

	*	NW	NE	SW	SE	*	NW	NE	SW	SE	*	NW	NE	SW	SE	*	Totals
Sec 32 T 12S R 7E SLBM	*					*					*			X		*	0.0000

GROUP ACREAGE TOTAL: 0.0000

==========

Storage from 01/01 to 12/31, inclusive, in Woods Canyon Pond with a maximum capacity of 0.390 acre-feet, located in:

Height of Dam: 3 NORTH-WEST¼ NORTH-EAST¼ SOUTH-WEST¼ SOUTH-EAST¼
Area Inundated: 0.22 NW NE SW SE NW NE SW SE NW NE SW SE NW NE SW SE
Sec 32 T 12S R 7E SLBM * : X: : * * : : : * * : : : * * : : : *

Small Dam Required?: No

SEGREGATION HISTORY

This Right was Segregated from 91-3655 , with Appl#: , Approval Date: / /
under which Proof is to be submitted.
This Right as originally filed:

FLOW IN	QUANTITY IN					
WATER USES	CFS	ACRE-FEET	IRRIGATED ACREAGE	STOCK (ELUs)	DOMESTIC (FAMILIES)	MUNICIPAL
		1.4		50.0000		

MINING POWER OTHER
50 ELU from 91-3655 only.

WATER RIGHT: **91-3401** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: Waino E. Burton
ADDR: Scofield UT
INTEREST: 100% REMARKS:

DATES, ETC.

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1895|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/02/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Diligence Claim Source of Info: Proposed Determination Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

FLOW: 0.011 cfs SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- UNDERGROUND: (Click Well ID# link for more well data.)
(1) N 625 ft E 710 ft from S4 cor, Sec 32, T 12S, R 7E, SLBM
DIAMETER OF WELL: ins. DEPTH: to
ft.[illegible] YEAR DRILLED: WELL LOG? No WELL ID#:
==========
USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family*
==========
SUPPLEMENTAL GROUP NO.: **614798.** Water Rights Appurtenant to the following use(s):
91-3401(DIL),3402(DIL)

.....
.....
  STOCKWATER: Sole Supply: UNEVALUATED ELUs   Group Total: 4.0000
Div Limit: 0.11 acft.   PERIOD OF USE: 01/01 TO 12/31
*==========
SUPPLEMENTAL GROUP NO.: **614799.**
91-3401(DIL)

.....
.....
  DOMESTIC: Sole Supply: UNEVALUATED EDUs   Group Total: 1.0000
Div Limit: 0.73 acft.   PERIOD OF USE: 01/01 TO 12/31
**********E N D O F D A T A**********
****
****

EXCHANGE: **E164** **(91-4945)** BASE WATER RIGHT: - STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Price River Water Users Certificate Number:

OWNERSHIP**********

NAME: Louis Gorishek
ADDR: Scofield UT
==========
DATES, ETC.**********
FILED: 02/18/1965|PRIORITY: 02/18/1965|ADV BEGAN: |ADV ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate:09/10/1965|PROOF DUE:
EXTENSION: |ProofFiled: |CertIssued: |LAP, ETC:
|LAPS LETTR: |RUSH LETTER:
RENOVATE: |RECON REQ: |TYPE: [ ]
Date Verified: 08/03/1993 Initials: MJK Status: Approved
Related Distribution System: Not part of any Distribution System
**********C U R R E N T R I G H T**********
FLOW: 1.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N 850 ft W 1080 ft from SE cor, Sec 10, T 12S, R 7E, SLBM
*----------
NATURE OF USE:
.....

###MISCELLANEOUS Irrigation on the Price River
PERIOD OF USE: 03/15 TO 11/30
**********P R O P O S E D E X C H A N GE**********
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION:
*---
LOCATION OF EXCHANGE*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID# link for more well data.)
(1) N 30 ft E 465 ft from S4 cor, Sec 32, T 12S, R 7E, SLBM
DIAMETER OF WELL: 7 ins. DEPTH: 65 to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
*---
POINT OF RELEASE:
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
***Location of Release Point(s) is the SAME as Point(s) of Diversion in CURRENT RIGHT above.
*---
NATURE OF USE:
SUPPLEMENTAL GROUP NO. 615819.
.....
DOMESTIC: Sole Supply: UNEVALUATED EDUs Group Total: 1.0000
Div Limit: PERIOD OF USE: 01/01 TO 12/31
==========
SEGREGATION HISTORY********
This Exchange as originally filed:

FLOW IN	QUANTITY IN				
----W A T E R U S E S----------					
CFS	ACRE-FEET	IRRIGATED	STOCK		
DOMESTIC	MUNICIPAL	MINING	POWER	OTHER	
				ACREAGE	(ELUs)
(FAMILIES)	(*----------ACRE-FEET----------*)				
			1.0		
1.0000					

**********E N D O F D A T A**********

Kinney No 2 Mine Water Rights Search

Feb 18, 2011

Surface Water Rights By Sections

Search of Section 20, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all

Water Rights Section 20, T12S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-3909	Point to Point N660 E660 S4 20 12S 7E SL		P	1869	S	0.000	0.000	LOUISE M. WATTS UT

Search of Section 21, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all

Water Rights Section 21, T12S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-3514	Point to Point S660 W660 E4 21 12S 7E SL		P	18690000	S	0.011	0.000	MILTON E. JACOB PAUL JACOB, TRUSTEE

Search of Section 27, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all

Water Rights Section 27, T12, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-1475	Point to Point		P	19020000	S	0.000	0.000	CLARENCE ANDERSON
	N660 W660 E4 27 12S 7E SL							GENERAL DELIVERY

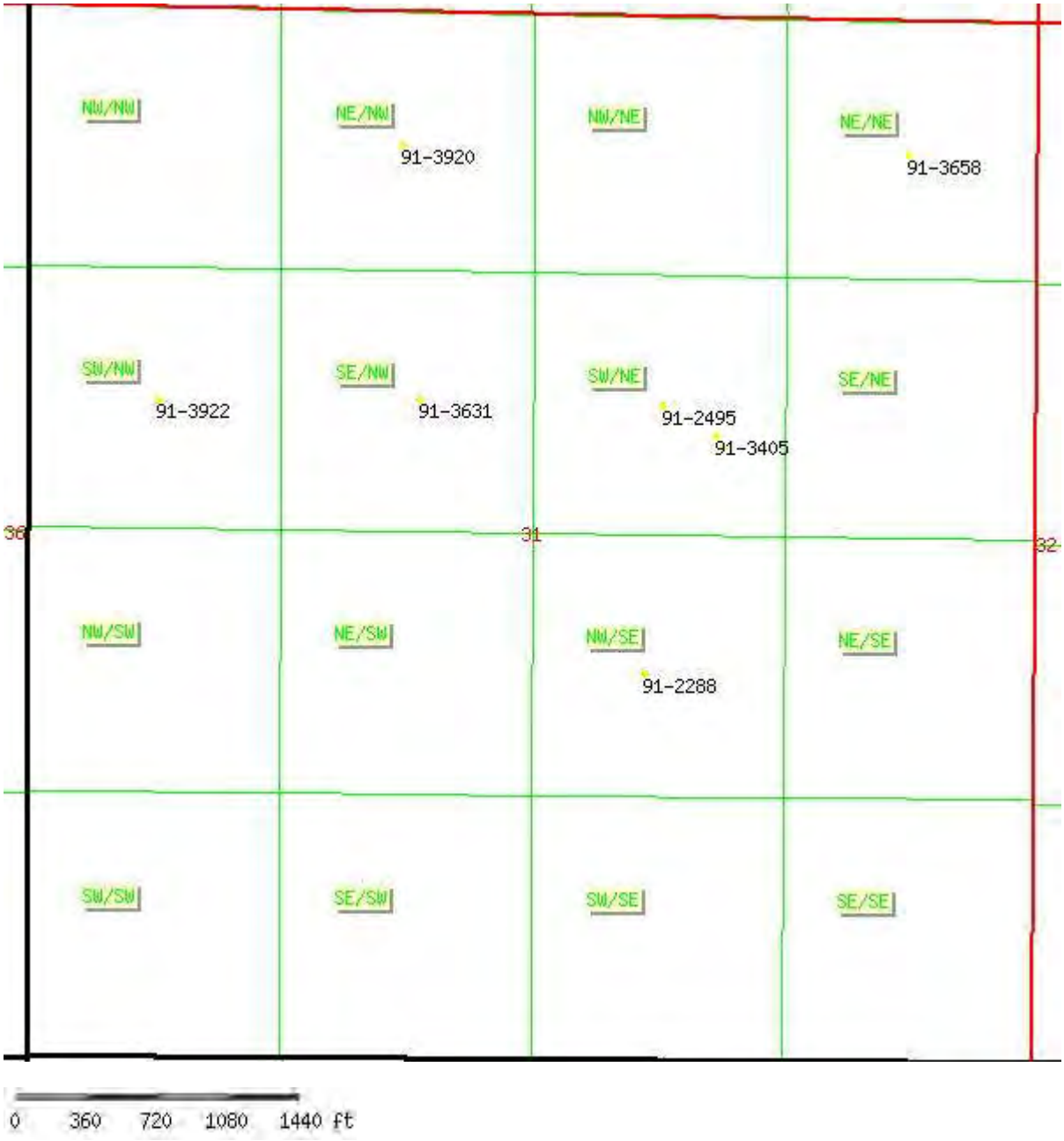
91-3516	Point to Point S660 W660 NE 27 12S 7E SL	P	18690000	S	0.000 0.000	MILTON E. JACOB PAUL JACOB, TRUSTEE
91-4107	Point to Point S660 E660 N4 27 12S 7E SL	U	1869	DS	0.011 0.000	MILTON E. JACOB PAUL JACOB, TRUSTEE
91-3513	Point to Point S660 E660 N4 27 12S 7E SL	P	18690000	S	0.000 0.000	MILTON E. JACOB 349 EAST 200 SOUTH
91-352	Point to Point N660 W660 E4 27 12S 7E SL	P	18600000	DS	0.000 0.000	CLARENCE ANDERSON
91-640	Point to Point N660 E660 S4 27 12S 7E SL	P	18600000	DS	0.000 0.000	CLARENCE ANDERSON

Search of Section 29, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all

Water Rights Section 29, T12S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-3442	Point to Point		P	18690000	S	0.011	0.000	DELLA L. MADSEN
	S660 E660 NW 29 12S 7E SL							MEADOW UT 84644
91-3443	Point to Point		P	18690000	S	0.011	0.000	DELLA L. MADSEN
	S660 E660 NW 29 12S 7E SL							MEADOW UT 84644
91-3601	Point to Point		P	18690000	S	0.011	0.000	DELLA L. MADSEN
	N660 E660 W4 29 12S 7E SL							MEADOW UT 84644
91-3910	Point to Point		P	1869	S	0.000	0.000	REED & LEON GUNDERSON
	S660 W660 N4 29 12S 7E SL							UT
91-3910	Point to Point		P	1869	S	0.000	0.000	REED & LEON GUNDERSON
	S660 E660 N4 29 12S 7E SL							UT
91-3911	Point to Point		P	1869	S	0.000	0.000	DELLA L. & HILDA M. MADSEN
	N660 E1980 W4 29 12S 7E SL							UT
91-3911	Point to Point		P	1869	S	0.000	0.000	DELLA L. & HILDA M. MADSEN
	S1980 E660 N4 29 12S 7E SL							UT
91-3648	Point to Point		P	1869	S	0.000	0.000	BILL B. AND UTAHNA PACE JONES
	S660 W1980 E4 29 12S 7E SL							SCOFIELD UT 84526
91-2997	Surface		P	1874	DI	0.000	38.800	GLADYS P. BUTLER
	N1810 E2535 SW 29 12S 7E SL							1584 EAST 1500 NORTH
a15120	Surface		A	19890608	DI	0.500	0.000	GLADYS P. BUTLER

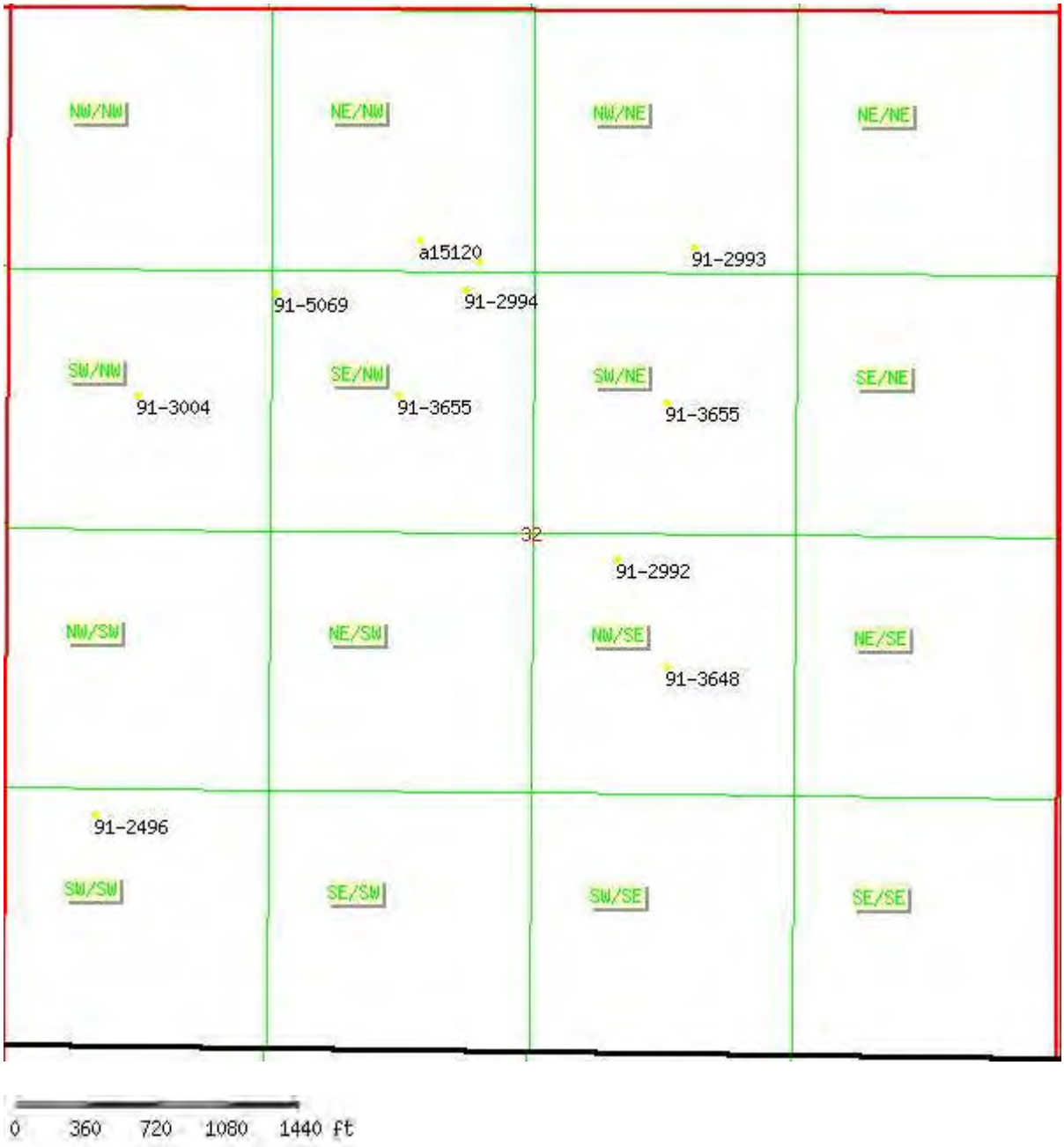
Search of Section 31, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all



Water Rights Section 31, T12S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-3658	Point to Point		P	1902	S	0.000	0.000	BILL & UTAHNA JONES FAMILY TRUST
	S660 W660 NE 31 12S 7E SL							GAYLAND B.JONES & JUDY SMITH AS SUCCESSOR TRUSTEES

Search of Section 32, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all



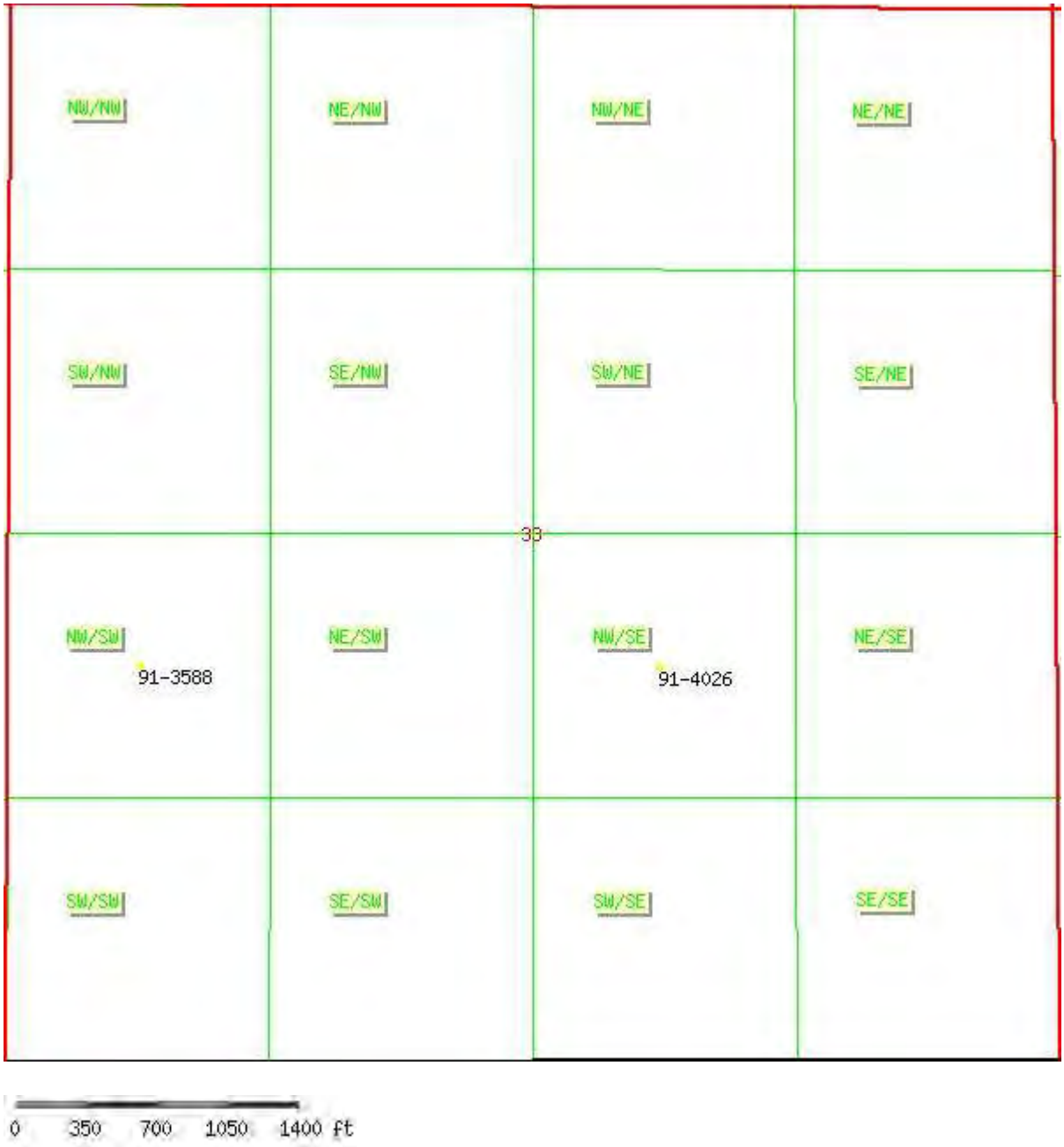
Water Rights Section 32, T12S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-2496	Point to Point		P	1902	S	0.000	0.000	MATTIE B. CORNABY FAMILY TRUST
	N1160 E460 SW 32 12S 7E SL							MATTIE B. AND WILLIAM ARGYLE CORNABY TRUSTEES

91-3648	Point to Point	P	1869	S	0.000 0.000	BILL B. AND UTAHNA PACE JONES
	S660 W1980 E4 32 12S 7E SL					555 W. FRONT STREET
91-3655	Point to Point	P	1869	S	0.000 4.200	BILL & UTAHNA JONES FAMILY TRUST
	N660 E1980 W4 32 12S 7E SL					BILL & UTAHNA JONES TRUSTEES, GAYLORD & JUDY
91-5069	Point to Point	P	18690000	OS	0.000 1.244	RUDMAN LAND AND LIVESTOCK L.L.C.
	S1441 E1343 NW 32 12S 7E SL					1111 EAST BRICKYARD ROAD SUITE 106
91-2495	Point to Point	P	1869	IS	0.000 0.000	MATTIE B. CORNABY FAMILY TRUST
	N660 E660 W4 32 12S 7E SL					5087 SOUTH 3200 WEST
91-3655	Point to Point	P	1869	S	0.000 4.200	BILL & UTAHNA JONES FAMILY TRUST
	S1980 E660 N4 32 12S 7E SL					555 W. FRONT STREET
91-5069	Point to Point	P	18690000	OS	0.000 1.244	RUDMAN LAND AND LIVESTOCK L.L.C.
	S1272 W277 N4 32 12S 7E SL					SALT LAKE CITY, UT 84106
91-2992	Surface	P	1874	I	4.580 0.000	BILL B. AND UTAHNA PACE JONES
	S120 W2230 E4 32 12S 7E SL					PALMYRA UT
91-2993	Surface	P	1874	I	4.580 0.000	BILL B. AND UTAHNA PACE JONES
	S1200 E800 N4 32 12S 7E SL					PALMYRA UT
91-2994	Surface	P	1874	I	0.012 0.000	BILL B. AND UTAHNA PACE JONES
	S1410 W350 N4 32 12S 7E SL					PALMYRA UT
91-2995	Surface	P	1874	I	0.000 0.000	BILL B. AND UTAHNA PACE JONES
	S1160 W580 N4 32 12S 7E SL					PALMYRA UT
91-2997	Surface	P	1874	DI	0.000 38.800	LAZY CP LIMITED PARTNERSHIP
	S1160 W580 N4 32 12S 7E SL					C/O CLYDE PANNIER AND MARILYN PANNIER
91-2998	Surface	P	18740000	I	0.500 0.000	LAZY CP LIMITED PARTNERSHIP
	S1160 W580 N4 32 12S 7E SL					(CLYDE PANNIER AND MARILYN PANNIER)
91-2999	Surface	P	18740000	I	0.136 0.000	REED & LEOAN M. GUNDERSON

	N660 E660 W4 32 12S 7E SL					3990 RAYMOND
91-3002	Surface	P	1874	I	0.035 0.000	DELLA L. MADSEN
	N660 E660 W4 32 12S 7E SL					MEADOW UT 84644
91-3003	Surface	P	1874	I	0.433 0.000	CHARLYN J. DALEBOUT
	N660 E660 W4 32 12S 7E SL					284 `M` STREET
91-3004	Surface	P	1874	I	0.433 0.000	LOUISE M. AND HELEN L. WATTS
	N660 E660 W4 32 12S 7E SL					287 EAST 1ST NORTH
a15120	Surface	A	19890608	DI	0.500 0.000	GLADYS P. BUTLER
	S1160 W580 N4 32 12S 7E SL					1584 EAST 1500 NORTH

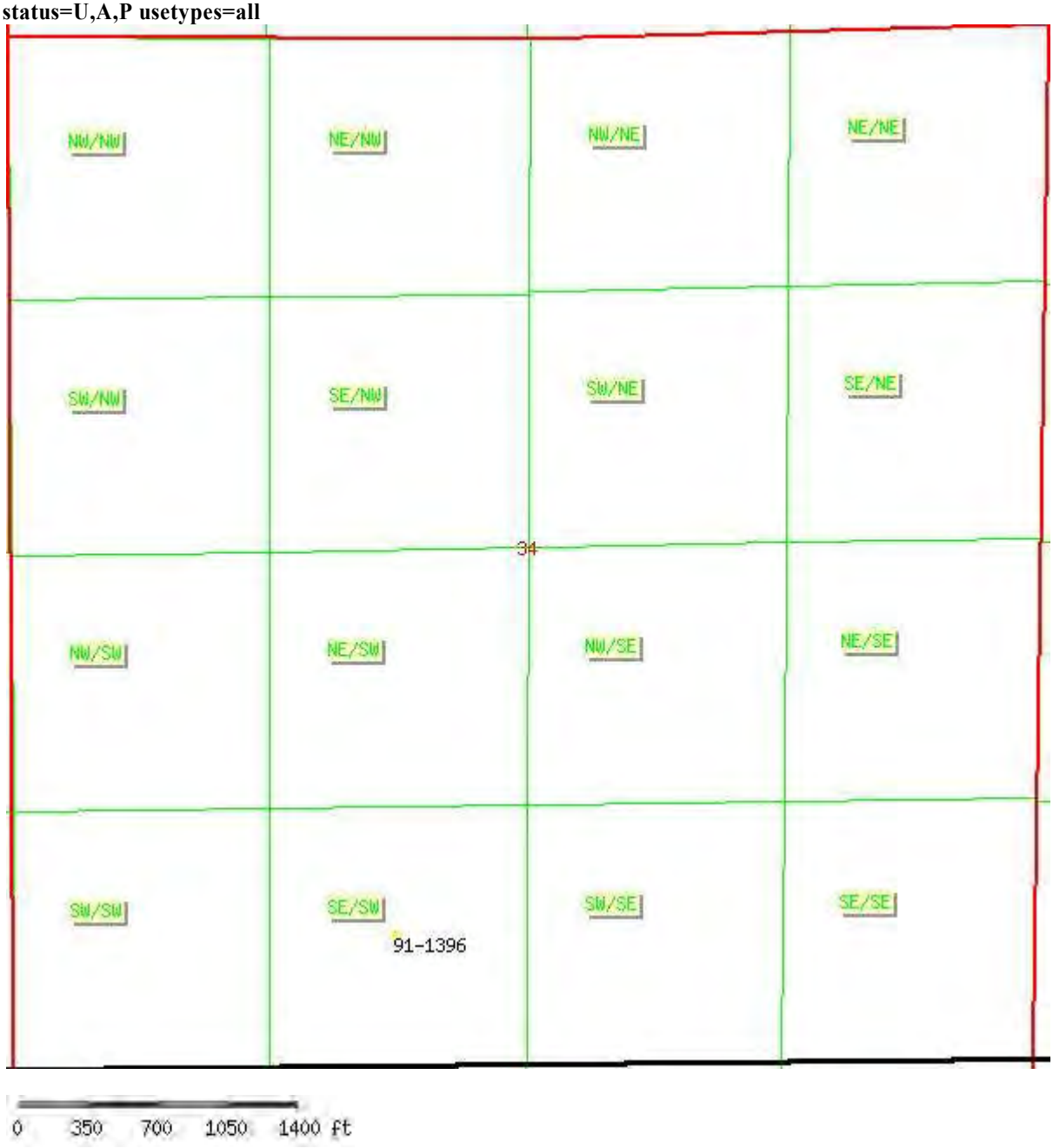
Search of Section 33, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all



Water Rights Section 33, T12S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-4026	Point to Point S660 W1980 E4 33 12S 7E SL		U	1869	S	0.000	0.000	GEORGE TELONIS C/O LUKE PAPPAS
91-3588	Point to Point		P	18690000	S	0.000	0.000	CLEAR CREEK HOME ASSOCIATION

Search of Section 34, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all



Water Rights Section 34, T12S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-1396	Point to Point N660 W660 S4 34 12S 7E SL		P	19020000	S	0.000	0.000	CLARENCE ANDERSON PRICE UT 84501

Search of Section 02, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,D,Sp,P,R status=U,A,P usetypes=all

Water Rights

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Ow
91-1412	Point to Point		P	18600000	DS	0.000	0.000	HELPER ST
	S660 E660 N4 02 13S 7E SL							HELPER UT
91-1413	Point to Point		P	18600000	DS	0.000	0.000	HELPER ST
	S660 W660 NE 02 13S 7E SL							HELPER UT

Search of Section 03, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all

Water Rights Section 3, T13S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-1403	Point to Point		P	18600000	DS	0.150	0.000	CLARENCE ANDERSON
	S1980 E660 N4 03 13S 7E SL							GENERAL DELIVERY
91-352	Point to Point		P	18600000	DS	0.000	0.000	CLARENCE ANDERSON
	N660 E1980 W4 03 13S 7E							PRICE UT

SL

Search of Section 05, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all

Water Rights Section 5, T13S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-2146	Point to Point		P	1869	S	0.000	0.000	MATTIE B. CORNABY FAMILY TRUST
	N660 E660 W4 05							MATTIE B. AND WILLIAM

	13S 7E SL				ARGYLE CORNABY TRUSTEES
91-3011	Point to Point	P	18690000 S	0.000 0.000	FRED AND SHELIA JENSEN
	N660 W660 E4 05 13S 7E SL				P.O. BOX 113
91-3644	Point to Point	P	18690000 S	0.000 0.000	CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS
	N660 E660 S4 05 13S 7E SL				A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON
91-3645	Point to Point	P	18690000 S	0.000 0.000	FRED AND SHELIA JENSEN
	S660 W1980 E4 05 13S 7E SL				UT
91-2146	Point to Point	P	1869 S	0.000 0.000	MATTIE B. CORNABY FAMILY TRUST
	N660 E660 W4 05 13S 7E SL				5087 SOUTH 3200 WEST
91-3011	Point to Point	P	18690000 S	0.000 0.000	FRED AND SHELIA JENSEN
	S1980 E660 N4 05 13S 7E SL				GOSHEN UT 84633
91-3644	Point to Point	P	18690000 S	0.000 0.000	CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS
	N660 E660 S4 05 13S 7E SL				185 EAST MAIN
91-3645	Point to Point	P	18690000 S	0.000 0.000	FRED AND SHELIA JENSEN
	S1980 E660 N4 05 13S 7E SL				
91-2975	Surface	P	18740000 IS	0.011 0.000	CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS
	N420 W80 S4 05 13S 7E SL				A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON
91-2976	Surface	P	18740000 IS	0.011 0.000	CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS
	N100 W10 S4 05 13S 7E SL				A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON
91-2978	Surface	P	18740000 IS	0.683 0.000	CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS
	N310 E510 S4 05 13S 7E SL				A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON
91-2979	Surface	P	18740000 I	0.453 0.000	FRED AND SHELIA JENSEN
	N310 E510 S4 05 13S 7E SL				P.O. BOX 113
91-2980	Surface	P	18740000 I	0.100 0.000	FRANK T. JR. & PAMELA G. HELSTEN
	N310 E510 S4 05 13S 7E SL				1339 EAST 3955 SOUTH

91-2981	Surface N310 E510 S4 05 13S 7E SL	P	18740000	I	0.100 0.000	ORSON MARSING MILLER CREEK UT
91-2982	Surface N310 E510 S4 05 13S 7E SL	P	18740000	I	0.100 0.000	LILLIE PEARSON 315 SOUTH 7TH EAST
91-2983	Surface N310 E510 S4 05 13S 7E SL	P	1874	I	0.100 0.000	THOMAS BIGGS COLUMBIA UT
91-2984	Surface N310 E510 S4 05 13S 7E SL	P	18740000	I	0.100 0.000	WAINO E. BURTON SCOFIELD UT
91-2985	Surface N310 E510 S4 05 13S 7E SL	P	18740000	I	0.100 0.000	PHYLLIS M. CONOVER 358 SOUTH 1ST WEST
91-2986	Surface N310 E510 S4 05 13S 7E SL	P	18740000	I	0.015 0.000	JAMES F. LEVANGER HC-35 BOX 250
91-2987	Surface N310 E510 S4 05 13S 7E SL	P	18740000	I	0.100 0.000	LEAH B. JOHNSON 273 WEST MAIN
91-2988	Surface N310 E510 S4 05 13S 7E SL	P	18740000	I	0.000 0.000	NOLAN G. AND LARUE H. DAVIS HELPER UT 84526
91-2989	Surface N310 E510 S4 05 13S 7E SL	P	18740000	IM	0.100 0.000	TOWN OF SCOFIELD SCOFIELD UT
91-2990	Surface N310 E510 S4 05 13S 7E SL	P	18740000	I	1.166 0.000	DELLA L. MADSEN MEADOW UT 84644
91-2991	Surface N310 E510 S4 05 13S 7E SL	P	1874	I	0.000 0.000	JOHN B. JONES RT. 2 BOX 96
91-3008	Surface N700 W1400 E4 05 13S 7E SL	P	18740000	I	0.693 0.000	FRED AND SHELIA JENSEN P.O. BOX 113
91-354	Surface N388 E437 W4 05 13S 7E SL	P	19030000	O	0.019 0.000	PIONEER DITCH COMPANY #1 PRICE UT 84501
91-3622	Surface N310 E510 S4 05 13S 7E SL	P	1874	I	0.016 0.000	MAE NICOLODEMAS SCOFIELD UT 84538
91-4195	Surface N310 E510 S4 05 13S 7E SL	P	18740000	M	0.100 0.000	SCOFIELD TOWN SCOFIELD UT 84538

Search of Section 06, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P

Water Rights Section 6, T13S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-462	Point to Point N660 E660 W4 06 13S 7E SL		P	18600000	S	0.000	0.000	EUREKA ENERGY COMPANY 215 MARKET STREET

Search of Section 08, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all

Water Rights Section 8, T13S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-2048	Point to Point S1980 E660 N4 08 13S 7E SL		P	18690000 S		0.000	0.000	CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON

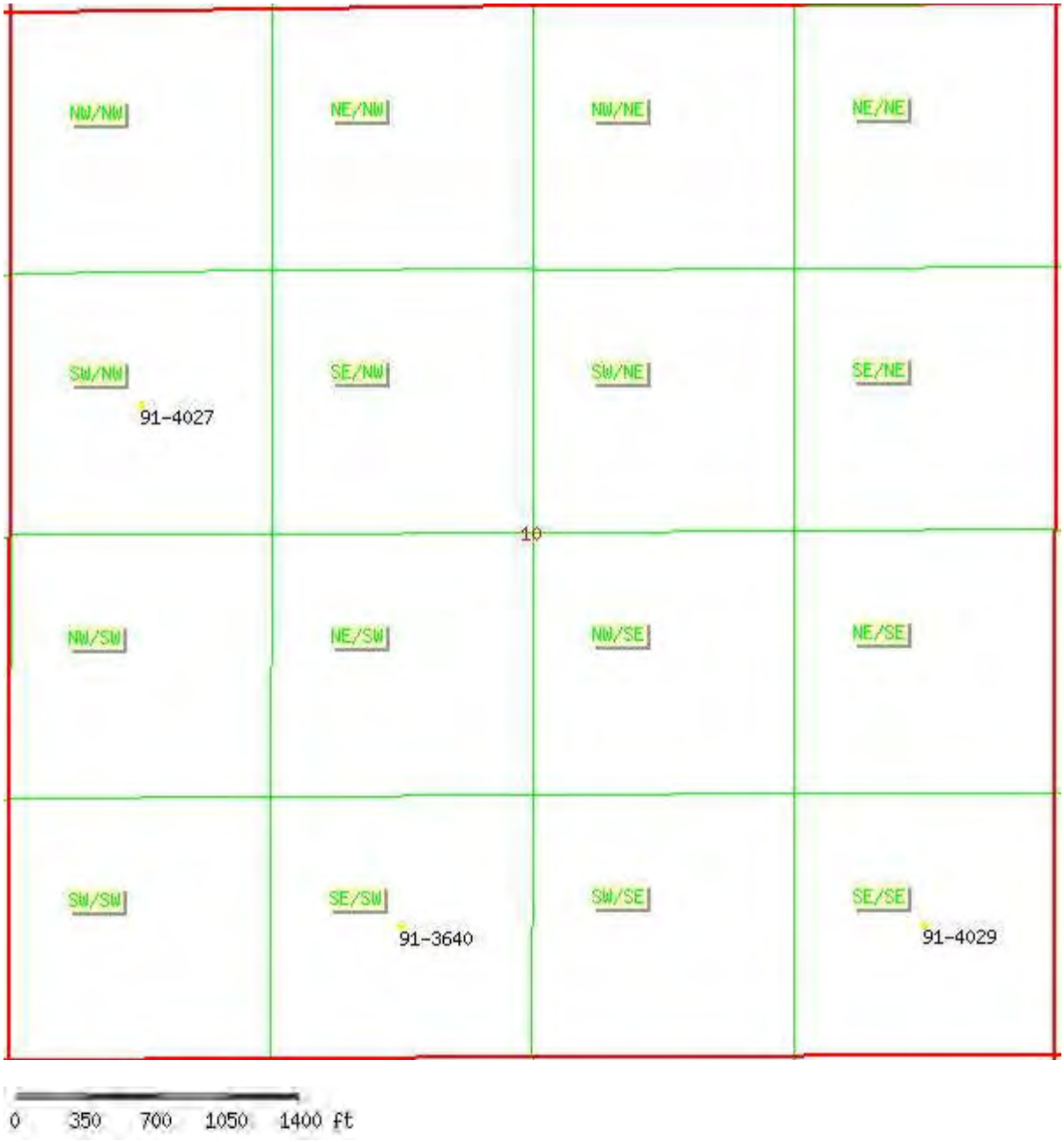
Search of Section 09, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all

NW/NW
91-201
NE/NW
NW/NE
NE/NE
SW/NW
SE/NW
SW/NE
SE/NE
9
NW/SW
NE/SW
NW/SE
91-4143
NE/SE
SW/SW
SE/SW
91-4031
SW/SE
SE/SE
0
350
700
1050
1400 ft

Water Rights Section 9, T13S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-201	Point to Point S660 E660 NW 09 13S 7E SL		P	19530930 S		0.068	0.000	ALBERT B. AND APRIL S. CORNABY 5167 SOUTH 3200 WEST

Search of Section 10, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all



Water Rights Section 10, T13S, R7E

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-4027	Point to Point		U	1869	S	0.011	0.000	GEORGE TELONIS
	N660 E660 W4 10 13S 7E SL							C/O LUKE PAPPAS

****
****

INDIVIDUAL WATER RIGHTS RECORDS

WATER RIGHT: **91-2495** APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP********
****

NAME: Mattie B. Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w Mattie B. Cornaby Family Trust
==========
DATES, ETC.********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
04/01/1966|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:
TYPE -- DOCUMENT -- STATUS*******
****
Type of Right: Diligence Claim Source of Info: Proposed
Determination Status: Water User's Claim
==========
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: SOURCE: Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 1980 ft. E 660 ft. from N4 corner, Sec 31, T12S, R7E, SLBM,

to a point at N 660 ft. E 660 ft. from W4 corner, Sec 32, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

SUPPLEMENTAL GROUP NO.: **614247.** Water Rights Appurtenant to the following use(s):
91-2146(WUC),2288(WUC),2494(WUC),2495(WUC),2496(WUC)
3405(WUC)

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 100.0000
Div Limit: 2.1 acft. PERIOD OF USE: 06/01 TO 11/30

SUPPLEMENTAL GROUP NO.: **614337.** Water Rights Appurtenant to the following use(s):
91-2288(WUC),2494(WUC),2495(WUC),3405(WUC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 18.0
Div Limit: 72.0 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

Section	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	Totals
Sec 31 T 12S R 7E SLBM													
	9.6000					1.7000							11.3000
Sec 32 T 12S R 7E SLBM													
	5.8000												0.9000

GROUP ACREAGE TOTAL: 18.0000

**********E N D O F D A T**********

OWNERSHIP********
****

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
      349 East 200 South
      Pleasant Grove UT 84062
INTEREST: 100%   REMARKS:

DATES,
ETC.********
****
LAND OWNED BY APPLICANT? Yes   COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No   ]|HEARNG HLD: |SE ACTION:
[   ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[   ]|ELEC/PROOF: |CERT/WUC:
09/06/1968|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1   ]|MAP: [29b   ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Diligence Claim   Source of Info: Proposed
Determination   Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

FLOW: 0.011 cfs   SOURCE: Unnamed Spring
COUNTY: Carbon   COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on spring located at S 660 ft. W 660 ft. from E4 corner, Sec 21, T12S, R7E, SLBM.
                          COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
****
****

WATER RIGHT: 91-3513   APPLICATION/CLAIM NO.:   CERT. NO.:

OWNERSHIP********

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
      349 East 200 South
      Pleasant Grove UT 84062
INTEREST: 100%   REMARKS:

DATES,
ETC.********

LAND OWNED BY APPLICANT? Yes   COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No   ]|HEARNG HLD: |SE ACTION:
[   ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[   ]|ELEC/PROOF: |CERT/WUC:
09/06/1968|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1   ]|MAP: [29   ]|PUB DATE:

TYPE -- DOCUMENT -- STATUS---

Type of Right: Diligence Claim   Source of Info: Proposed
Determination   Status:

==

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

==

FLOW: SOURCE: Unnamed Stream
COUNTY: Carbon   COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 660 ft. E 660 ft. from N4 corner, Sec 26, T12S, R7E, SLBM,
to a point at S 660 ft. E 660 ft. from N4 corner, Sec 27, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

****

****

WATER RIGHT: 91-3516   APPLICATION/CLAIM NO.:   CERT. NO.:

==

OWNERSHIP*

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
349 East 200 South
Pleasant Grove UT 84062
INTEREST: 100%   REMARKS:

==

DATES, ETC.* ***

LAND OWNED BY APPLICANT? Yes   COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No   ]|HEARNG HLD: |SE ACTION:
[   ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[   ]|ELEC/PROOF: |CERT/WUC:
09/06/1968|LAP, ETC: |LAPS LETTER:

RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [29b]|PUB DATE:
TYPE -- DOCUMENT -- STATUS--
Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:
==
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*****************
==
FLOW: SOURCE: Hopkins Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 660 ft. W 660 ft. from NE corner, Sec 27, T12S, R7E, SLBM,
to a point at N 660 ft. E 1980 ft. from W4 corner, Sec 21, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
==
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***
****
****

WATER RIGHT: 91-352 APPLICATION/CLAIM NO.: CERT. NO.:
==
OWNERSHIP

NAME: Clarence Anderson Estate
ADDR: Price UT
INTEREST: 100% REMARKS:
==
DATES, ETC.
LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1860|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/22/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [29c]|PUB DATE:
TYPE -- DOCUMENT -- STATUS--
Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:
==
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*****************
==
FLOW: SOURCE: Hopkins Creek

COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at N 660 ft. E 1980 ft. from W4 corner, Sec 03, T13S, R7E, SLBM,
to a point at N 660 ft. W 660 ft. from E4 corner, Sec 27, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

****

WATER RIGHT: 91-640 APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Clarence Anderson Estate
ADDR: Price UT 84501
INTEREST: 100% REMARKS:

==========

DATES, ETC.********

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1860|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/22/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-1]|MAP: [29]|PUB DATE:

TYPE -- DOCUMENT -- STATUS----------

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: SOURCE: Left hand Fork of Hopkins Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 660 ft. W 660 ft. from E4 corner, Sec 35, T12S, R7E, SLBM,
to a point at N 660 ft. E 660 ft. from S4 corner, Sec 27, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

****

****

WATER RIGHT: 91-3910 APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Reed & Leon Gunderson
ADDR: UT
INTEREST: 100% REMARKS:

==========

DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28a]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status: Water User's Claim

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: SOURCE: Clear Creek
(Scofield Reservoir)
COUNTY: Carbon COMMON DESCRIPTION:

POINTS OF DIVERSION:
(1)Stockwatering directly on reservoir located at S 660 ft. W 660 ft. from N4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
(2)Stockwatering directly on reservoir located at S 660 ft. E 660 ft. from N4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

****

****

WATER RIGHT: 91-3911 APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********
****

NAME: Della L. & Hilda M. Madsen
ADDR: UT
INTEREST: 100% REMARKS:

==========

DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: |LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28a]|PUB DATE:

TYPE -- DOCUMENT -- STATUS*******

Type of Right: Diligence Claim Source of Info: Proposed Determination Status: Water User's Claim

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: SOURCE: Clear Creek (Scofield Reservoir)
COUNTY: Carbon COMMON DESCRIPTION:

POINTS OF DIVERSION:
(1)Stockwatering directly on reservoir located at N 660 ft. E 1980 ft. from W4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
(2)Stockwatering directly on reservoir located at S 1980 ft. E 660 ft. from N4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family*

****
****

WATER RIGHT: **91-3642** APPLICATION/CLAIM NO.: CERT. NO.:

==========
==========

OWNERSHIP********
****

NAME: Bill & Utahna Jones Family Trust
ADDR: Gayland B.Jones & Judy Smith as Successor Trustees
555 W. Front Street
Scofield UT 84526

INTEREST: 100%   REMARKS: Bill B. Jones & Utahna Pace Jones as Trustees
==
==
DATES, ETC.
****
LAND OWNED BY APPLICANT? Yes   COUNTY TAX ID#:
FILED: |PRIORITY: / /1902|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No   ]|HEARNG HLD: |SE ACTION:
[   ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[   ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1   ]|MAP: [28a   ]|PUB DATE:
TYPE -- DOCUMENT -- STATUS---
Type of Right: Diligence Claim   Source of Info: Proposed
Determination   Status: Water User's Claim
==
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*****************
==
FLOW: 0.011 cfs   SOURCE: Unnamed Spring
COUNTY: Carbon   COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on reservoir located at S 660 ft. W 660 ft. from
E4 corner, Sec 30, T12S, R7E, SLBM.
                          COMMENT: Administratively updated by State
Engineer.
==
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***
==
SUPPLEMENTAL GROUP NO.: **614855.** Water Rights Appurtenant to the following
use(s):
91-3642(WUC),3648(WUC),3655(WUC),3658(WUC)

....
STOCKWATER: Sole Supply: UNEVALUATED ELUs   Group Total: 150.0000   Div
Limit: PERIOD OF USE: 01/01 TO 12/31
==
PLACE OF USE for STOCKWATERING
****
                               NORTH-WEST¼   NORTH-EAST¼   SOUTH-
WEST¼   SOUTH-EAST¼
                               NW NE SW SE   NW NE SW SE   NW NE SW
SE   NW NE SW SE
Sec 30 T 12S R 7E SLBM   * : : : *   * : : : *   * : : :
*   * : X: : *
==
Storage from 01/01 to 12/31, inclusive, in Unnamed Reservoir with a maximum
capacity of 0.250 acre-feet, located in:

```
   Height of Dam:              NORTH-WEST¼       NORTH-EAST¼       SOUTH-
WEST¼       SOUTH-EAST¼
   Area Inundated:             NW NE SW SE       NW NE SW SE       NW NE SW
SE       NW NE SW SE
Sec 30 T 12S R  7E SLBM      *  :  :  :  *     *  : X:  :  *     *  :  :  :
*     *  :  :  :  *

Small Dam Required?: No
******************E N D   O F   D A T A*****************************
```

****
****

WATER RIGHT: 91-3658 APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Bill & Utahna Jones Family Trust
ADDR: Gayland B.Jones & Judy Smith as Successor Trustees
555 W. Front Street
Scofield UT 84526
REMARKS: Bill B Jones & Utahna Jones as Trustees

==========

DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1902|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status: Water User's Claim

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

==========

FLOW: SOURCE: Unnamed Stream
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on reservoir located at S 660 ft. W 660 ft. from NE corner, Sec 31, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

****
****

CHANGE: a15120 WATER RIGHT: 91-2996 CERT. NO.: COUNTY TAX ID#: AMENDATORY? No
BASE WATER RIGHTS: 91-2996
91-2997
RIGHT EVIDENCED BY: Morse Decree 1st Class 91-2996 & 91-2997
CHANGES: Point of Diversion [X], Place of Use [X], Nature of Use [X], Reservoir Storage [ ].
*----------

NAME: Gladys P. Butler
ADDR: 1584 East 1500 North
Logan UT 84321
REMARKS:
*----------
FILED: 06/08/1989|PRIORITY: 06/08/1989|ADV BEGAN: 06/28/1989|ADV ENDED: |NEWSPAPER: Sun Advocate
ProtestEnd:08/11/1989|PROTESTED: [No]|HEARNG HLD: |SE ACTION: [Approved]|ActionDate:11/17/1989|PROOF DUE: 02/28/1999
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: |LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
Status: Approved
**********H E R E T O F O R E**********
**********H E R E A F T E R**********

FLOW: 0.5 cfs ||FLOW: 0.5 cfs
SOURCE: Woods Canyon Creek ||SOURCE: Woods Canyon Creek & Scofield Res.
COUNTY: Carbon ||COUNTY: Carbon COM DESC: Scofield Reservoir
|| The applicant desires to pump water
|| from Scofield Reservoir onto land around
|| the lake onto recreation property, the
|| remainder of the water not used this
|| way will be diverted onto acreage as
|| heretofore.
|| Interest: The applicant owns a

| ||
9.70/21.70 interest in the flow of 0.50 cfs. |
| || Other
interests, see 91-2998. |
The domestic use will provide for |
| ||
inside sanitary purposes. |
|---||----------
----------|

**|POINT(S) OF DIVERSION ------> MAP VIEWER ||CHANGED AS
FOLLOWS: (Click Location link for WRPLAT) |**
|---||----------
----------|
|Point Surface: ||Point
Surface: |
|(1) S 1160 ft W 580 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM||(1) S
1135 ft W   60 ft from NE cor, Sec 04, T 12S, R 7E, SLBM|
| Dvrting Wks: Earthen dam and ditches || Dvrting
Wks: |
| Source: Woods Canyon Creek || Source:
|
| ||(2) N
1400 ft E 1090 ft from SW cor, Sec 10, T 12S, R 7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
| ||(3) N
135 ft E   80 ft from SW cor, Sec 10, T 12S, R 7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
| ||(4) S
190 ft E 2225 ft from NW cor, Sec 20, T 12S, R 7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
| ||(5) N
1810 ft E 2535 ft from SW cor, Sec 29, T 12S, R 7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
| ||(6) S
1160 ft W 580 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
|Stream Alt?: No |
|---||----------
----------|
**|PLACE OF USE ------> ||CHANGED as
follows: |**

```
|-------------------------------------------------------------||----------
-----------------------------------------------|
|                              --NW¼--  --NE¼--  --SW¼--  --SE¼-- ||
--NW¼--  --NE¼--  --SW¼--  --SE¼-- |
|                              |N N S S||N N S S||N N S S||N N S S|||
|N N S S||N N S S||N N S S||N N S S||
|                              |W E W E||W E W E||W E W E||W E W E|||
|W E W E||W E W E||W E W E||W E W E||
|Sec 29 T 12S R  7E SLBM     * : : : ** : : : ** :X: : ** : : : *||Sec 04 T
12S R  7E SLBM     * : : : ** : : :X** : : : ** : : : *|
|                                                             ||Sec 10 T
12S R  7E SLBM     * : : : ** : : : **X: :X: ** : : : *|
|                                                             ||Sec 20 T
12S R  7E SLBM     * :X: : ** : : : ** : : : ** : : : *|
|                                                             ||Sec 29 T
12S R  7E SLBM     * : : : ** : : : ** :X: : ** : : : *|
 _____________________________________________________________
|NATURE OF USE ------>                                        ||CHANGED as
follows:                                          |
|IRR  = values are in acres.                                  ||
|
|STK  = values are in ELUs meaning Cattle or Equivalent.      ||
|
|DOM  = values are in EDUs meaning Equivalent Domestic Units (F  ||
|
|-------------------------------------------------------------||----------
|SUPPLEMENTAL to Other Water Rights: No
||SUPPLEMENTAL to Other Water Rights: No                      |
|-------------------------------------------------------------||----------
|IRR:      9.7000 acres.                      USED 03/01 - 11/30||IRR:
and      9.4500 Supp acres   USED 03/01 - 11/30|
|.............................................................||.........
.....................................................|
|                                                             ||DOM:
4.0000 Equivalent Domestic Units.   USED 05/01 - 11/01|
 _____________________________________________________________
*-------------------------------------------------------------------------
EXTENSIONS OF TIME WITHIN WHICH TO FILE
PROOF************************************************************************
*-------------------------------------------------------------------------
FILED:     02/26/1996|PUB BEGAN:           |PUB ENDED:           |NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]||HEARNG HLD:          |SE ACTION:
[Approved]||ActionDate:03/22/1996|PROOF DUE:  02/28/1999

************************************************************************
*************************************************************************************

WATER RIGHT: 91-2993      APPLICATION/CLAIM NO.:        CERT. NO.:
OWNERSHIP************************************************************************

NAME: Bill B. and Utahna Pace Jones
ADDR: Palmyra UT
INTEREST: 100%       REMARKS:
=========================================================================
DATES,
ETC.*****************************************************************************
```

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/20/1968|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
----------*
Type of Right: Decree Source of Info: Proposed
Determination Status: Water User's Claim
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
==========
FLOW: 4.58 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) S 1200 ft E 800 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No
==========
USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
****
****

WATER RIGHT: 91-5069 APPLICATION/CLAIM NO.: CERT. NO.: CERTIFICAT
CHANGES: a27697 Certificate (Issued: 02/08/2011)
==========
OWNERSHIP**********

NAME: Rudman Land and Livestock L.L.C.
ADDR: 1111 East Brickyard Road Suite 106
Salt Lake City, UT 84106
==========
DATES,
ETC.**********
LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-]|MAP: [ ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
----------*

Type of Right: Diligence Claim Source of Info: Certificate
Status: Certificate

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 1.2436 acre-feet SOURCE: Unnamed Spring and Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION: Woods Canyon

POINT OF SPRING:
(1) S 1346 ft W 630 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works: Collection box and pipeline
Source:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 1441 ft. E 1343 ft. from NW corner, Sec 32, T12S, R7E, SLBM,
to a point at S 1272 ft. W 277 ft. from N4 corner, Sec 32, T12S, R7E, SLBM.
SOURCE:

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

WATER RIGHT: 91-2994 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: Bill B. and Utahna Pace Jones
ADDR: Palmyra UT
INTEREST: 100% REMARKS:

DATES, ETC.
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/20/1968|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**
Type of Right: Decree Source of Info: Proposed Determination Status: Water User's Claim

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.012 cfs SOURCE: Woods Canyon Creek

COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) S 1410 ft W 350 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

WATER RIGHT: 91-3655 APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Bill & Utahna Jones Family Trust
ADDR: Bill & Utahna Jones trustees, Gaylord & Judy
555 W. Front Street
Scofield UT 84526
REMARKS: 150 elu's supp/w 3642,3648,3655,3658 see affidavit

==========

DATES, ETC

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**
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Type of Right: Diligence Claim Source of Info: Proposed
Determination Status: Water User's Claim

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LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: 4.2 acre-feet SOURCE: Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at N 660 ft. E 1980 ft. from W4 corner, Sec 32, T12S, R7E, SLBM,
to a point at S 1980 ft. E 660 ft. from N4 corner, Sec 32, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
****
****

WATER RIGHT: 91-3004 APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP

NAME: Louise M. and Helen L. Watts
ADDR: 287 East 1st North
Moab UT 84532
==========
DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 09/11/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
----------*
Type of Right: Decree Source of Info: Proposed Determination Status: Water User's Claim
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: 0.433 cfs SOURCE: Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 660 ft E 660 ft from W4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No
==========
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
****
****

WATER RIGHT: 91-2992 APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP********

NAME: Bill B. and Utahna Pace Jones
ADDR: Palmyra UT
INTEREST: 100% REMARKS:

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DATES,
ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/20/1968|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**
**----------*

Type of Right: Decree Source of Info: Proposed
Determination Status: Water User's Claim

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

==========

FLOW: 4.58 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) S 120 ft W 2230 ft from E4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

****

****

WATER RIGHT: 91-3648 APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Bill B. and Utahna Pace Jones
ADDR: 555 W. Front Street
Scofield UT 84526
INTEREST: 100% REMARKS:

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DATES,
ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:

RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:
TYPE -- DOCUMENT -- STATUS--

Type of Right: Diligence Claim Source of Info: Proposed Determination Status: Water User's Claim

==

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

==

FLOW: SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 660 ft. W 1980 ft. from E4 corner, Sec 32, T12S, R7E, SLBM,
to a point at S 660 ft. W 1980 ft. from E4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

****

WATER RIGHT: 91-2496 APPLICATION/CLAIM NO.: CERT. NO.:

==

OWNERSHIP

NAME: Mattie B. Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w Mattie B. Cornaby Family Trust

==

DATES, ETC.*

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1902|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 04/01/1966|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]

PD BOOK: [91-1]|MAP: [28d]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Diligence Claim Source of Info: Proposed Determination Status: Water User's Claim
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
==========
FLOW: SOURCE: Unnamed Stream
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on reservoir located at N 1160 ft. E 460 ft. from SW corner, Sec 32, T12S, R7E, SLBM.
==========
USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
****

WATER RIGHT: 91-3588 APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP**********

NAME: Clear Creek Home Association
ADDR: P.O. Box 263
Springville UT 84663
INTEREST: 100% REMARKS: a Utah Corporation
==========
DATES, ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/11/1969|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [49]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Diligence Claim Source of Info: Proposed Determination Status:
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
==========
FLOW: SOURCE: Finn Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 660 ft. W 1980 ft. from E4 corner, Sec 32, T13S, R7E, SLBM,

to a point at S 660 ft. E 660 ft. from W4 corner, Sec 33, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

WATER RIGHT: 91-4026 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: George Telonis
ADDR: C/O Luke Pappas
Price UT 84501
INTEREST: 100% REMARKS:

DATES, ETC.

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 01/22/1973|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-]|MAP: [29c]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Pending Adjudication Claim Source of Info: Water User's Claim Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on spring located at S 660 ft. W 1980 ft. from E4 corner, Sec 33, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

WATER RIGHT: 91-1396 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP********

NAME: Clarence Anderson Estate
ADDR: Price UT 84501
INTEREST: 100% REMARKS:
==========
DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1902|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/22/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [29c]|PUB DATE:
TYPE -- DOCUMENT -- STATUS*******

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: SOURCE: Hopkins Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on reservoir located at N 660 ft. W 660 ft. from S4 corner, Sec 34, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
==========
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***********

WATER RIGHT: 91-1403 APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP********

NAME: Clarence Anderson Estate
ADDR: General Delivery
Price UT 84501
INTEREST: 100% REMARKS:
==========
DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1860|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:

ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/22/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [29c]|PUB DATE:

TYPE -- DOCUMENT -- STATUS---

Type of Right: Diligence Claim Source of Info: Proposed Determination Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

FLOW: 0.15 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on spring located at S 1980 ft. E 660 ft. from N4 corner, Sec 03, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

WATER RIGHT: 91-354 APPLICATION/CLAIM NO.: CERT. NO.:
CHANGES: a1276 Certificate a58 (Issued:)

OWNERSHIP*

NAME: Pioneer Ditch Company #1
ADDR: Price UT 84501
INTEREST: 100% REMARKS:

DATES, ETC.

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1903|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-]|MAP: [ ]|PUB DATE:

TYPE -- DOCUMENT -- STATUS---

Type of Right: Decree Source of Info: Certificate
Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.019 cfs SOURCE: Two Springs Trib to Winter Quarters
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 388 ft E 437 ft from W4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
****
****

WATER RIGHT: 91-3645 APPLICATION/CLAIM NO.: CERT. NO.:
OWNERSHIP********
NAME: Fred and Shelia Jensen
ADDR: UT
INTEREST: 100% REMARKS:
==========
DATES, ETC.********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/27/1961|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:
TYPE -- DOCUMENT -- STATUS*******
Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 660 ft. W 1980 ft. from E4 corner, Sec 05, T13S, R7E, SLBM,
to a point at S 1980 ft. E 660 ft. from N4 corner, Sec 05, T13S, R7E, SLBM.

COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

****

****

WATER RIGHT: 91-3008 APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Fred and Shelia Jensen
ADDR: P.O. Box 113
Goshen UT 84633
INTEREST: 100% REMARKS:

==========

DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/26/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Decree Source of Info: Proposed
Determination Status:

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: 0.693 cfs SOURCE: Winter Quarters Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 700 ft W 1400 ft from E4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

****

****

WATER RIGHT: 91-3011 APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Fred and Shelia Jensen
ADDR: P.O. Box 113
Goshen UT 84633
INTEREST: 100% REMARKS:

DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/26/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

TYPE -- DOCUMENT -- STATUS----------

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

FLOW: SOURCE: Winter Quarters Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at N 660 ft. W 660 ft. from E4 corner, Sec 05, T13S, R7E, SLBM,
to a point at S 1980 ft. E 660 ft. from N4 corner, Sec 05, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

WATER RIGHT: 91-3644 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP********

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:

DATES,
ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**
----------*

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

==========

FLOW: SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at N 660 ft. E 660 ft. from S4 corner, Sec 05, T13S, R7E, SLBM,
to a point at N 660 ft. E 660 ft. from S4 corner, Sec 05, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

****

****

WATER RIGHT: 91-2975 APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:

==========

DATES,
ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/10/1967|LAP, ETC: |LAPS LETTER:

RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Decree Source of Info: Proposed
Determination Status:
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
==========
FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 420 ft W 80 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No
==========
USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
****

WATER RIGHT: 91-4195 APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP**********

NAME: Scofield Town (Public Water Supplier)
ADDR: Scofield UT 84538
INTEREST: 100% REMARKS:
==========
DATES, ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
05/08/1979|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-]|MAP: [28d]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Decree Source of Info: Water User's
Claim Status:
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
==========
FLOW: 0.1 cfs SOURCE: Mud Creek & Green Canyon Springs

COUNTY: Carbon COMMON DESCRIPTION:

POINTS OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:
(2) S 546 ft W 285 ft from N4 cor, Sec 17, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

POINT OF DIVERSION:
(1)Municipal directly on spring located at S 660 ft. W 660 ft. from N4 corner, Sec 17, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

WATER RIGHT: 91-2976 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:

DATES, ETC.

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/10/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Decree Source of Info: Proposed Determination Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 100 ft W   10 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
      Diverting Works:
Source:

Stream Alt Required?: No

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

****

****

WATER RIGHT: 91-462 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP********

NAME: Eureka Energy Company
ADDR: 215 Market Street
      San Francisco CA 94106
INTEREST: 50% REMARKS:

==========

DATES, ETC.

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1860|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
11/26/1963|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: SOURCE: Winter Quarters
Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at N 660 ft. E 660 ft. from W4 corner, Sec 06, T13S, R7E, SLBM,
to a point at N 660 ft. W 660 ft. from E4 corner, Sec 06, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

****

****

WATER RIGHT: 91-2048 APPLICATION/CLAIM NO.: CERT. NO.:
OWNERSHIP

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:
==
DATES, ETC.*
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/20/1966|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [38a]|PUB DATE:
TYPE -- DOCUMENT -- STATUS--
Type of Right: Diligence Claim Source of Info: Proposed Determination Status:
==
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*****************
==
FLOW: SOURCE: Pleasant Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at S 1980 ft. E 660 ft. from N4 corner, Sec 08, T13S, R7E, SLBM,
to a point at S 660 ft. E 660 ft. from N4 corner, Sec 08, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
==
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***
****
****

WATER RIGHT: 91-201 APPLICATION/CLAIM NO.: A25267 CERT. NO.: 5100
==
OWNERSHIP*

NAME: Albert B. and April S. Cornaby
ADDR: 5167 South 3200 West
Spanish Fork UT 84660
INTEREST: 100% REMARKS: as joint tenants

DATES, ETC

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: 09/30/1953|PRIORITY: 09/30/1953|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[Approved]|ActionDate:07/24/1954|PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/05/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [39]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Application to Appropriate Source of Info: Proposed
Determination Status: Certificate
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
==========
FLOW: 0.068 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on spring located at S 660 ft. E 660 ft. from NW corner, Sec 09, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.)*** ******** ***EDU -- Equivalent Domestic Unit or 1 Family***
****
****

WATER RIGHT: 91-4027 APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP**********

NAME: George Telonis
ADDR: C/O Luke Pappas
Price UT 84501
INTEREST: 100% REMARKS:

DATES,
ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
01/22/1973|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-]|MAP: [39]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Pending Adjudication Claim Source of Info: Water User's Claim Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on spring located at N 660 ft. E 660 ft. from W4 corner, Sec 10, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

****

WATER RIGHT: **91-3601** APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********
****

NAME: Della L. Madsen
ADDR: Meadow UT 84644
INTEREST: 100% REMARKS:

==========
==========

DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/18/1969|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [28a]|PUB DATE:

TYPE -- DOCUMENT -- STATUS*******

Type of Right: Diligence Claim Source of Info: Proposed Determination Status:

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on spring located at N 660 ft. E 660 ft. from W4 corner, Sec 29, T12S, R7E, SLBM.

COMMENT: Administratively updated by State Engineer.

===

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

===

SUPPLEMENTAL GROUP NO.: **614802.** Water Rights Appurtenant to the following use(s):
91-3406(DIL),3441(DIL),3442(DIL),3443(DIL),3444(DIL)
3599(DIL),3600(DIL),3601(DIL)

....

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 400.0000
Div Limit: 8.0 acft. PERIOD OF USE: 04/01 TO 11/30

===

PLACE OF USE for STOCKWATERING*

	NORTH-WEST¼	NORTH-EAST¼	SOUTH-WEST¼	SOUTH-EAST¼
	NW NE SW SE	NW NE SW SE	NW NE SW SE	NW NE SW SE
Sec 29 T 12S R 7E SLBM	* : : X: *	* : : : *	* : : : *	* : : : *

*****E N D O F D A TA*************************************

****
****

WATER RIGHT: **91-1412** APPLICATION/CLAIM NO.: CERT. NO.:

===

==

OWNERSHIP*

NAME: Helper State Bank
ADDR: General Delivery
Helper UT 84526
INTEREST: 100% REMARKS:

===

DATES, ETC.*

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1860|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/27/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [39]|PUB DATE:

TYPE -- DOCUMENT -- STATUS---

Type of Right: Diligence Claim Source of Info: Proposed Determination Status:

===

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: SOURCE: Right Fork of Jump Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at N 660 ft. E 660 ft. from SW corner, Sec 11, T13S, R7E, SLBM,
to a point at S 660 ft. E 660 ft. from N4 corner, Sec 02, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

==========

SUPPLEMENTAL GROUP NO.: **614073.** Water Rights Appurtenant to the following use(s):
91-1404(DIL),1405(DIL),1406(DIL),1407(DIL),1412(DIL)
1413(DIL),1414(DIL)

.....
.....
STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 606.0000
Div Limit: 9.08 acft. PERIOD OF USE: 05/01 TO 11/01

*==========

SUPPLEMENTAL GROUP NO.: **614079.**
91-1412(DIL)

.....
DOMESTIC: Sole Supply: UNEVALUATED EDUs Group Total: 1.0000
Div Limit: 0.37 acft. PERIOD OF USE: 05/01 TO 11/01
.....

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

Section	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	Totals
Sec 02 T 13S R 7E SLBM								X					0.0000
Sec 11 T 13S R 7E SLBM												X	0.0000

GROUP ACREAGE TOTAL: 0.0000

==========

PLACE OF USE for STOCKWATERING********

	NORTH-WEST¼				NORTH-EAST¼				SOUTH-WEST¼			
	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE

Sec 02 T 13S R 7E SLBM * : : : * * X: : : * * : : :
* * : : : *
Sec 11 T 13S R 7E SLBM * : : : * * : : : * * : : X:
* * : : : *
**********E N D O F D A T A**********

****
****
WATER RIGHT: **91-4143** APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP********

NAME: George Telonis
ADDR: C/O Luke Pappas
Price UT 84501
INTEREST: 100% REMARKS:
==========
DATES, ETC.********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
01/22/1973|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-]|MAP: [39]|PUB DATE:
TYPE -- DOCUMENT -- STATUS*******
Type of Right: Pending Adjudication Claim Source of Info: Water User's
Claim Status:
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on spring located at S 660 ft. W 1980 ft. from E4 corner, Sec 09, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
==========
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
==========
SUPPLEMENTAL GROUP NO.: **615057.** Water Rights Appurtenant to the following use(s):
91-3640(WUC),4025(PAC),4026(PAC),4027(PAC),4028(PAC)
4029(PAC),4030(WUC),4031(PAC),4032(PAC),4033(PAC)
4143(PAC)

```
.....................................................................
  STOCKWATER: Sole Supply: UNEVALUATED ELUs      Group Total: 510.0000
Div Limit:                 PERIOD OF USE: 05/01 TO 11/30
=====================================================================
PLACE OF USE for
STOCKWATERING*********************************************************
************************************

                                NORTH-WEST¼       NORTH-EAST¼       SOUTH-
WEST¼       SOUTH-EAST¼
                                NW NE SW SE       NW NE SW SE       NW NE SW
SE       NW NE SW SE
Sec 09 T 13S R  7E SLBM       *  :  :  :  *     *  :  :  :  *     *  :  :  :
*     * X:  :  :  *
*********************************************************************
*********************************************E N D   O F   D A T A*

WATER RIGHT: 91-3515      APPLICATION/CLAIM NO.:        CERT. NO.:
=====================================================================
OWNERSHIP*************************************************************
=====================================================================

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
      349 East 200 South
      Pleasant Grove UT 84062
INTEREST: 100%       REMARKS:
=====================================================================
DATES,
ETC.******************************************************************
LAND OWNED BY APPLICANT? Yes                 COUNTY TAX ID#:
FILED:               |PRIORITY:  00/00/1869|PUB BEGAN:           |PUB ENDED:
|NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[        ]|ActionDate:          |PROOF DUE:
EXTENSION:           |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
09/06/1968|LAP, ETC:            |LAPS LETTER:
RUSH LETTR:          |RENOVATE:            |RECON REQ:           |TYPE: [
]
PD BOOK: [91-1      ]|MAP:  [29b          ]|PUB DATE:
*TYPE -- DOCUMENT -- STATUS-------------------------------------------------
-----------------------------------------------------*
Type of Right: Diligence Claim               Source of Info: Proposed
Determination        Status:
=====================================================================
LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access
PLAT Program.)***********MAP VIEWER*****************
=====================================================================
FLOW: 0.011 cfs                                  SOURCE: Unnamed Spring
COUNTY: Carbon       COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at S 1980 ft. E 660 ft. from N4
corner, Sec 21, T12S, R7E, SLBM.
                          COMMENT: Administratively updated by State
Engineer.
```

==========

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.)*** ******** ***EDU -- Equivalent Domestic Unit or 1 Family***

==========

SUPPLEMENTAL GROUP NO.: **614126.** Water Rights Appurtenant to the following use(s):
91-408(DIL),660(DIL),665(DIL),667(DIL),1678(DIL)
1679(DIL),1680(DIL),1681(DIL),2233(DIL),2341(DIL)
2647(DIL),3041(DIL),3131(DIL),3419(DIL),3423(DIL)
3425(DIL),3440(DIL),3504(DIL),3505(DIL),3506(DIL)
3507(DIL),3508(DIL),3509(DIL),3510(DIL),3511(DIL)
3512(DIL),3513(DIL),3514(DIL),3515(DIL),3516(DIL)
3517(DIL),3518(DIL),3521(DIL),3525(DIL),3591(DIL)
3681(DIL),3687(DIL),3908(DIL)

.....

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 810.0000
Div Limit: 12.16 acft. PERIOD OF USE: 05/01 TO 11/30

*==========

SUPPLEMENTAL GROUP NO.: **614804.** Water Rights Appurtenant to the following use(s):
91-408(DIL),660(DIL),665(DIL),667(DIL),1678(DIL)
1679(DIL),1680(DIL),1681(DIL),2233(DIL),2341(DIL)
2647(DIL),3041(DIL),3131(DIL),3419(DIL),3421(DIL)
3423(DIL),3425(DIL),3440(DIL),3504(DIL),3505(DIL)
3506(DIL),3507(DIL),3508(DIL),3509(DIL),3510(DIL)
3511(DIL),3512(DIL),3513(DIL),3514(DIL),3515(DIL)
3516(DIL),3517(DIL),3518(DIL),3521(DIL),3525(DIL)
3591(DIL),3681(DIL),3687(DIL),3908(DIL)

.....

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 810.0000
Div Limit: 12.16 acft. PERIOD OF USE: 05/01 TO 11/30

*==========

SUPPLEMENTAL GROUP NO.: **614805.** Water Rights Appurtenant to the following use(s):
91-408(DIL),660(DIL),665(DIL),667(DIL),1678(DIL)
1679(DIL),1680(DIL),1681(DIL),2233(DIL),2341(DIL)
2647(DIL),3041(DIL),3131(DIL),3419(DIL),3421(DIL)
3423(DIL),3425(DIL),3440(DIL),3504(DIL),3505(DIL)
3506(DIL),3507(DIL),3508(DIL),3509(DIL),3510(DIL)
3511(DIL),3512(DIL),3513(DIL),3514(DIL),3515(DIL)
3516(DIL),3517(DIL),3518(DIL),3525(DIL),3591(DIL)
3681(DIL),3687(DIL),3908(DIL)

.....

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 810.0000
Div Limit: 12.16 acft. PERIOD OF USE: 05/01 TO 11/30

*==========

SUPPLEMENTAL GROUP NO.: **614817.** Water Rights Appurtenant to the following use(s):
91-408(DIL),660(DIL),665(DIL),667(DIL),1678(DIL)
1679(DIL),1680(DIL),1681(DIL),2233(DIL),2341(DIL)
2647(DIL),3041(DIL),3131(DIL),3419(DIL),3421(DIL)
3423(DIL),3425(DIL),3440(DIL),3504(DIL),3505(DIL)
3506(DIL),3507(DIL),3508(DIL),3509(DIL),3510(DIL)
3511(DIL),3512(DIL),3513(DIL),3514(DIL),3515(DIL)

3516(DIL),3517(DIL),3518(DIL),3525(DIL),3591(DIL)
3681(DIL),3687(DIL)

.....
  STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 810.0000
Div Limit: 12.16 acft. PERIOD OF USE: 03/01 TO 11/30
==========
PLACE OF USE for
STOCKWATERING********

	NORTH-WEST¼				NORTH-EAST¼				SOUTH-WEST¼				SOUTH-EAST¼			
	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE
Sec 21 T 12S R 7E SLBM	*	:	:	:	*	*	:	:	X:	*	*	:	:	:	*	*

**********E N D O F D A T A**********

WATER RIGHT: **91-1475** APPLICATION/CLAIM NO.: CERT. NO.:
OWNERSHIP********

NAME: Clarence Anderson Estate
ADDR: General Delivery
      Price UT 84501
==========
DATES,
ETC.********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1902|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/22/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [29b]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS**----------
----------*
Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: SOURCE: Hopkins Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on reservoir located at N 660 ft. W 660 ft. from E4 corner, Sec 27, T12S, R7E, SLBM.
  COMMENT: Administratively updated by State Engineer.
==========
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***
==========

SUPPLEMENTAL GROUP NO.: **614068.** Water Rights Appurtenant to the following use(s):
91-352(DIL),640(DIL),740(DIL),1221(DIL),1396(DIL)
1397(DIL),1398(DIL),1399(DIL),1400(DIL),1401(DIL)
1402(DIL),1403(DIL),1475(DIL),3279(DIL)

.....
STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 556.0000
Div Limit: 8.18 acft. PERIOD OF USE: 05/01 TO 11/01
*===
SUPPLEMENTAL GROUP NO.: **614088.** Water Rights Appurtenant to the following use(s):
91-352(DIL),640(DIL),740(DIL),1221(DIL),1396(DIL)
1397(DIL),1398(DIL),1399(DIL),1400(DIL),1401(DIL)
1402(DIL),1475(DIL)

.....
STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 556.0000
Div Limit: 8.18 acft. PERIOD OF USE: 05/01 TO 11/01
==========
PLACE OF USE for STOCKWATERING********

	NORTH-WEST¼				NORTH-EAST¼				SOUTH-WEST¼				SOUTH-EAST¼			
	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE
Sec 27 T 12S R 7E SLBM	*	:	:	:	*	*	:	:	: X*	*	:	:	:	*	:	:	:	*

==========
Storage from 01/01 to 12/31, inclusive, in Lower Miller Canyon Res. with a maximum capacity of 0.250 acre-feet, located in:

Height of Dam:	NORTH-WEST¼				NORTH-EAST¼				SOUTH-WEST¼				SOUTH-EAST¼			
Area Inundated:	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE
Sec 27 T 12S R 7E SLBM	*	:	:	:	*	*	:	:	: X*	*	:	:	:	*	:	:	:	*

Small Dam Required?: No
**********E N D O F D A T A*****

WATER RIGHT: **91-4107** APPLICATION/CLAIM NO.: CERT. NO.:
OWNERSHIP********

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
349 East 200 South
Pleasant Grove UT 84062
INTEREST: 100% REMARKS:
==========
DATES, ETC.********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:

ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-]|MAP: [29b]|PUB DATE:

TYPE -- DOCUMENT -- STATUS--

Type of Right: Pending Adjudication Claim Source of Info: Water User's Claim Status:

===

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

===

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on spring located at S 660 ft. E 660 ft. from N4 corner, Sec 27, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

===

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

****

WATER RIGHT: **91-2978** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:

DATES, ETC.*

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/10/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

TYPE -- DOCUMENT -- STATUS--

Type of Right: Decree Source of Info: Proposed Determination Status:

===

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

FLOW: 0.683 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
==
SUPPLEMENTAL GROUP NO.: **614284.** Water Rights Appurtenant to the following use(s):
91-2187(DIL),2974(DEC),2975(DEC),2976(DEC),2978(DEC)
3644(DIL),3742(DIL),3743(DIL),3744(DIL),3749(DIL)
3750(DIL),3751(DIL),3868(DIL)
STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 710.0000
Div Limit: 10.66 acft. PERIOD OF USE: 05/01 TO 11/30
*===
SUPPLEMENTAL GROUP NO.: **614598.**
91-2978(DEC)

....
IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 4.1
Div Limit: 16.4 acft. PERIOD OF USE: 03/01 TO 11/30
....
....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 05 T 13S R 7E SLBM
*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______| 4.1000|_______* 4.1000

GROUP ACREAGE TOTAL: 4.1000
==
OTHER COMMENTS*
Morse Decree, 1st Class
**E N D O F D A T
****
****

WATER RIGHT: **91-2979** APPLICATION/CLAIM NO.: CERT. NO.:
==
OWNERSHIP

NAME: Fred and Shelia Jensen
ADDR: P.O. Box 113
Goshen UT 84633
INTEREST: 100% REMARKS:

DATES, ETC.*

LAND OWNED BY APPLICANT? Yes   COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No   ]|HEARNG HLD: |SE ACTION:
[   ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[   ]|ELEC/PROOF: |CERT/WUC:
07/26/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2   ]|MAP: [28d   ]|PUB DATE:

TYPE -- DOCUMENT -- STATUS--

Type of Right: Decree   Source of Info: Proposed Determination   Status:

==

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

==

FLOW: 0.453 cfs   SOURCE: Clear Creek
COUNTY: Carbon   COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
      Diverting Works:
Source:

Stream Alt Required?: No

==

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

==

SUPPLEMENTAL GROUP NO.: **614599.**

....

  IRRIGATION: 27.2 acres
Div Limit: 108.8 acft.   PERIOD OF USE: 03/01 TO 11/30

....

  ###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*   Section

	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	Totals
Sec 05 T 13S R 7E SLBM	_______	_______	_______	_______	_______	_______	13.7000	_______	_______	_______	_______	13.5000	_______	_______	_______	_______	27.2000

GROUP ACREAGE TOTAL: 27.2000

==

OTHERCOMMENTS*

     Morse Decree, 1st Class

E N D O F D A T A****

****

****

WATER RIGHT: **91-2980** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP********

NAME: Frank T. Jr. & Pamela G. Helsten
ADDR: 1339 East 3955 South
Salt Lake City UT 84124
INTEREST: 100% REMARKS:
DATES,
ETC.********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/26/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:
TYPE -- DOCUMENT -- STATUS*******
****

Type of Right: Decree Source of Info: Proposed
Determination Status:
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

==========

SUPPLEMENTAL GROUP NO.: **614601.**

.....
IRRIGATION: 0.8 acres
Div Limit: 3.2 acft. PERIOD OF USE: 03/01 TO 11/30
.....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 05 T 13S R 7E SLBM *_____|_____|_____|_____*
0.8000|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____*
0.8000

GROUP ACREAGE TOTAL: 0.8000

OTHER COMMENTS

Morse Decree, 1st Class

E N D O F D A T A

WATER RIGHT: **91-2981** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: Orson Marsing
ADDR: Miller Creek UT
INTEREST: 100% REMARKS:

DATES, ETC.

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/03/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Decree Source of Info: Proposed
Determination Status:

LOCATION OF WATER RIGHT* (Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614602.**

IRRIGATION: 2.2 acres
Div Limit: 8.8 acft. PERIOD OF USE: 03/01 TO 11/30

```
  ###PLACE OF USE:       *-------NORTH WEST QUARTER------*-------NORTH EAST
QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------
*   Section
                         *  NW    |  NE    |  SW    |  SE    *  NW    |  NE    |
SW    |  SE    *  NW    |  NE    |  SW    |  SE    *  NW    |  NE    |  SW    |  SE
*   Totals
 Sec 05 T 13S R  7E SLBM *_______|_______|_______|_______*
2.2000|_______|_______|_______*_______|_______|_______|_______*_______|______
_|_______|_______*      2.2000

GROUP ACREAGE TOTAL:      2.2000
================================================================================
OTHER
COMMENTS*******************************************************************
     Morse Decree, 1st Class
*************************************************E N D   O F   D A T A***
*****************************************************************************
*****************************************************************************

WATER RIGHT: 91-2982      APPLICATION/CLAIM NO.:        CERT. NO.:
================================================================================
OWNERSHIP*******************************************************************

NAME: Lillie Pearson
ADDR: 315 South 7th East
      Salt Lake City UT
INTEREST: 100%       REMARKS:
================================================================================
DATES,
ETC.************************************************************************
LAND OWNED BY APPLICANT? Yes                 COUNTY TAX ID#:
FILED:               |PRIORITY:  00/00/1874|PUB BEGAN:           |PUB ENDED:
|NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[        ]|ActionDate:          |PROOF DUE:
EXTENSION:           |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
07/25/1967|LAP, ETC:            |LAPS LETTER:
RUSH LETTR:          |RENOVATE:            |RECON REQ:           |TYPE: [
]
PD BOOK: [  91-2    ]|MAP:  [28d          ]|PUB DATE:
*TYPE -- DOCUMENT -- STATUS-------------------------------------------------
-------------------------------------------------*
Type of Right: Decree                          Source of Info: Proposed
Determination        Status:
================================================================================
LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access
PLAT Program.)***********MAP VIEWER*****************
================================================================================
FLOW: 0.1 cfs                                      SOURCE: Clear Creek
COUNTY: Carbon       COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N  310 ft E  510 ft from S4 cor, Sec 05, T 13S, R  7E, SLBM
      Diverting Works:
Source:
```

Stream Alt Required?: No

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614603.**

IRRIGATION: 1.2 acres
Div Limit: 4.8 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section

	* NW	NE	SW	SE	* NW	NE	SW	SE	* NW	NE	SW	SE	* Totals
Sec 32 T 12S R 7E SLBM													
									1.2000				1.2000

GROUP ACREAGE TOTAL: 1.2000

OTHER COMMENTS
Morse Decree, 1st Class
END OF DATA

WATER RIGHT: **91-2983** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: Thomas Biggs Jr.
ADDR: Columbia UT
INTEREST: 100% REMARKS:

DATES, ETC.
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/05/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**
Type of Right: Decree Source of Info: Proposed
Determination Status: Water User's Claim

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

==========

SUPPLEMENTAL GROUP NO.: **614604.**

.....
IRRIGATION: 1.1 acres
Div Limit: 4.4 acft. PERIOD OF USE: 03/01 TO 11/30
.....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*
Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE *
Totals
Sec 32 T 12S R 7E SLBM
*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____* 1.1000* 1.1000

GROUP ACREAGE TOTAL: 1.1000

==========

OTHER COMMENTS********

Morse Decree, 1st Class

**********E N D O F D A T A***

****

****

(WARNING: Water Rights makes NO claims as to the accuracy of this data.) RUN DATE: 09/27/2010
WATER RIGHT: **91-2984** APPLICATION/CLAIM NO.: CERT. NO.:

==========

OWNERSHIP********

NAME: Waino E. Burton
ADDR: Scofield UT
INTEREST: 100% REMARKS:

==========

DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:

FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/02/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS---**

Type of Right: Decree Source of Info: Proposed Determination Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.)*** ******** ***EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614605.**

IRRIGATION: 0.6 acres
Div Limit: 2.4 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section Totals

Section	NW: NW	NW: NE	NW: SW	NW: SE	NE: NW	NE: NE	NE: SW	NE: SE	SW: NW	SW: NE	SW: SW	SW: SE	SE: NW	SE: NE	SE: SW	SE: SE	Totals
Sec 32 T 12S R 7E SLBM															0.6000		0.6000

GROUP ACREAGE TOTAL: 0.6000

OTHER COMMENTS

Morse Decree, 1st Class

E N D O F D A T A***

WATER RIGHT: **91-2985** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP********

NAME: Phyllis M. Conover
ADDR: 358 South 1st West
Provo UT 84601
INTEREST: 100% REMARKS:

==========

DATES, ETC

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/28/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**
----------*

Type of Right: Decree Source of Info: Proposed
Determination Status:

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

==========

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

==========

SUPPLEMENTAL GROUP NO.: **614606.**

.....
IRRIGATION: 0.3 acres
Div Limit: 1.2 acft. PERIOD OF USE: 03/01 TO 11/30
.....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 32 T 12S R 7E SLBM
*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____| 0.3000|_____* 0.3000

GROUP ACREAGE TOTAL: 0.3000

OTHER COMMENTS

Morse Decree, 1st Class

E N D O F D A T A

WATER RIGHT: **91-2986** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: James F. Levanger
ADDR: HC-35 Box 250
Helper UT 84526
INTEREST: 100% REMARKS:

DATES, ETC.

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
06/02/1969|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Decree Source of Info: Proposed
Determination Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.015 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614607.**

IRRIGATION: 0.9 acres
Div Limit: 3.6 acft. PERIOD OF USE: 03/01 TO 11/01

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

Section	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE
Totals												
Sec 32 T 12S R 7E SLBM												0.9000

GROUP ACREAGE TOTAL: 0.9000

COMMENTS
Morse Decree, 1st Class
E N D O F D A T A

WATER RIGHT: **91-2987** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: Leah B. Johnson
ADDR: 273 West Main
Spanish Fork UT 84660
INTEREST: 100% REMARKS:

DATES, ETC.
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/02/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**
Type of Right: Decree Source of Info: Proposed
Determination Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

FLOW: 0.1 cfs   SOURCE: Clear Creek
COUNTY: Carbon   COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
      Diverting Works:
Source:

Stream Alt Required?: No
==
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
==
SUPPLEMENTAL GROUP NO.: **614608.**

....
  IRRIGATION: 0.7 acres
Div Limit: 2.8 acft.   PERIOD OF USE: 03/01 TO 11/30
....
....
  ###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*   Section
                         * NW | NE | SW | SE   * NW | NE | SW | SE   * NW | NE | SW | SE   * NW | NE | SW | SE   *   Totals
 Sec 32 T 12S R 7E SLBM
*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______| 0.7000|_______*   0.7000

GROUP ACREAGE TOTAL: 0.7000
==
OTHER COMMENTS*
     Morse Decree, 1st Class.
***E N D   O F   D A T A**
****
****

WATER RIGHT: **91-2988**   APPLICATION/CLAIM NO.:   CERT. NO.:
==
OWNERSHIP*

NAME: Nolan G. and Larue H. Davis
ADDR: Helper UT 84526
INTEREST: 100%   REMARKS:
==
DATES, ETC.
LAND OWNED BY APPLICANT? Yes   COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No   ]|HEARNG HLD: |SE ACTION: [   ]|ActionDate: |PROOF DUE:

EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 09/22/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

TYPE -- DOCUMENT -- STATUS---

Type of Right: Decree Source of Info: Proposed Determination Status:

==

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

==

FLOW: SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

==

SUPPLEMENTAL GROUP NO.: **614609.**

....
IRRIGATION: 0.7 acres
Div Limit: 2.8 acft. PERIOD OF USE: 03/01 TO 11/30
....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 32 T 12S R 7E SLBM
*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______| 0.7000|_______* 0.7000

GROUP ACREAGE TOTAL: 0.7000

==

OTHER COMMENTS

Morse Decree, 1st Class

E N D O F D A T A**

****

WATER RIGHT: **91-2989** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: Town of Scofield (Public Water Supplier)
ADDR: Scofield UT
INTEREST: 100% REMARKS:

DATES, ETC.

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/26/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Decree Source of Info: Proposed
Determination Status:

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614610.**
91-2989(DEC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 3.4
Div Limit: 13.6 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*
Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE *
Totals

Sec 32 T 12S R 7E SLBM
*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____| 1.4000| 2.0000* 3.4000

GROUP ACREAGE TOTAL: 3.4000
*==========
SUPPLEMENTAL GROUP NO.: 615095. Water Rights Appurtenant to the following use(s):
91-830(REJ),2989(DEC),3094(DIL),4195(DEC),E1784(APP)
E2567(APP)

.....
MUNICIPAL: Scofield
PERIOD OF USE: 01/01 TO 12/31
Acre Feet Contributed by this Right for this Use: Unevaluated
.....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*
Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 17 T 13S R 7E SLBM *_____|X
|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____|_____*_____|_____|_____|_____* 0.0000

GROUP ACREAGE TOTAL: 3.4000
==========
OTHER
COMMENTS**********
Morse Decree, 1st Class
**********E N D O F D A T A***
****
****

WATER RIGHT: **91-2990** APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP**********

NAME: Della L. Madsen
ADDR: Meadow UT 84644
INTEREST: 100% REMARKS:
==========
DATES,
ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
09/11/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

TYPE -- DOCUMENT -- STATUS---
Type of Right: Decree   Source of Info: Proposed Determination   Status:
===
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************
===
FLOW: 1.166 cfs   SOURCE: Clear Creek
COUNTY: Carbon   COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
      Diverting Works:
Source:

Stream Alt Required?: No
===
USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
===
SUPPLEMENTAL GROUP NO.: **614611.**

....
IRRIGATION: 70.0 acres   Div
Limit: 280.0 acft.   PERIOD OF USE: 03/01 TO 11/30
....
  ###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*   Section
                         * NW | NE | SW | SE   * NW | NE | SW | SE   * NW | NE | SW | SE   * NW | NE | SW | SE   *   Totals
 Sec 32 T 12S R 7E SLBM *_______|_______|_______|_______*_______|_______|6.3000|37.7000*_______|_______|_______|_______*6.1000|19.9000|_______|_______*   70.0000

GROUP ACREAGE TOTAL: 70.0000
===
OTHER COMMENTS
     Morse Decree, 1st Class
END OF DATA*

WATER RIGHT: **91-2991**   APPLICATION/CLAIM NO.:   CERT. NO.:
CHANGES: a11884   Withdrawn
OWNERSHIP*

NAME: John B. Jones
ADDR: Rt. 2 Box 96
      Spanish Fork UT 84660
===

DATES, ETC.********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:

FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:

ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:

EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/20/1967|LAP, ETC: |LAPS LETTER:

RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]

PD BOOK: [91-]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Decree Source of Info: Water User's Claim Status: Water User's Claim

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

==========

FLOW: SOURCE: Clear Creek

COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:

(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM

Diverting Works:

Source:

Stream Alt Required?: No

==========

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

==========

SUPPLEMENTAL GROUP NO.: **614612.**

91-2991(WUC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 66.9

Div Limit: 267.6 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section

	* NW	NE	SW	SE	* NW	NE	SW	SE	* NW	NE	SW	SE	* Totals
Sec 32 T 12S R 7E SLBM					* 1.8000	23.8000	7.4000		*				*
					26.6000		1.9000		* 61.5000				
Sec 33 T 12S R 7E SLBM					*				*				
					5.4000				* 5.4000				

GROUP ACREAGE TOTAL: 66.9000

SUPPLEMENTAL GROUP NO.: **614613.** Water Rights Appurtenant to the following use(s):

91-2991(WUC),2992(WUC)

```
.....................................................................
  IRRIGATION: Sole Supply: UNEVALUATED acres     Group Total: 141.5
Div Limit: 566.0 acft.     PERIOD OF USE: 03/01 TO 11/30
.....................................................................
.....................................................
  ###PLACE OF USE:       *-------NORTH WEST QUARTER------*-------NORTH EAST
QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------
*   Section
                          *  NW    |  NE    |  SW    |  SE    *  NW    |  NE    |
SW    |  SE    *  NW    |  NE    |  SW    |  SE    *  NW    |  NE    |  SW    |  SE
*   Totals
 Sec 28 T 12S R  7E SLBM
*_______|_______|_______|_______*_______|_______|_______|_______*22.2000|____
___|15.0000|_______*_______|_______|_______|_______*     37.2000
 Sec 29 T 12S R  7E SLBM
*_______|_______|_______|_______*_______|_______|_______|_______*_______|____
___|_______|_______* 4.7000|34.1000| 5.7000|40.0000*     84.5000
 Sec 32 T 12S R  7E SLBM *_______|_______|_______|_______*
4.3000|14.2000|_______|_______*_______|_______|_______|_______*_______|______
_|_______|_______*     18.5000
 Sec 33 T 12S R  7E SLBM *_______|_______|_______|_______*_______|
1.3000|_______|_______*_______|_______|_______|_______*_______|_______|______
_|_______*      1.3000

GROUP ACREAGE TOTAL:    141.5000
=======================================================================
This Right (91-2991) has an evaluated sole-supply total for irrigation of
0.0000 acres.
=======================================================================
This Right (91-2991) is a member of 2 supplemental water right groups with
irrigated acreage totaling 208.4000 acres.
=======================================================================
OTHER
COMMENTS*************************************************************
     Morse Decree - 1st Class.
     WUCs 91-2991, 2992, 2993 are limited to the irrigation requirements of
267.5
     acres and 4.458 cfs.
*********************************************E N D   O F   D A T A**
***********************************************************************************
***********************************************************************************


WATER RIGHT: 91-3622      APPLICATION/CLAIM NO.:        CERT. NO.:
OWNERSHIP************************************************************

NAME: Mae Nicolodemas
ADDR: Scofield UT 84538
INTEREST: 100%       REMARKS:
=======================================================================
DATES,
ETC.*****************************************************************
LAND OWNED BY APPLICANT? Yes                COUNTY TAX ID#:
```

FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/13/1969|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

TYPE -- DOCUMENT -- STATUS---

Type of Right: Decree Source of Info: Proposed Determination Status: Water User's Claim

==

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

==

FLOW: 0.016 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.)*** ******** ***EDU -- Equivalent Domestic Unit or 1 Family***

==

SUPPLEMENTAL GROUP NO.: **614843.**

....
IRRIGATION: 1.0 acres
Div Limit: 4.0 acft. PERIOD OF USE: 03/01 TO 11/30
....

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section

	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	Totals
Sec 05 T 13S R 7E SLBM					1.0000												1.0000

GROUP ACREAGE TOTAL: 1.0000

==

OTHER COMMENTS

Morse Decree, 1st Class

*************************E N D O F D A T A*****

****

****

WATER RIGHT: **91-3640** APPLICATION/CLAIM NO.: CERT. NO.:

==========
OWNERSHIP********

NAME: Angelo Georgedes c/o Luke Pappas
ADDR: Price UT 84501
INTEREST: 100% REMARKS:
==========
DATES, ETC.********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 10/30/1970|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [39]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Diligence Claim Source of Info: Proposed Determination Status: Water User's Claim
==========
LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
==========
FLOW: SOURCE: Hopkins Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at N 660 ft. W 660 ft. from S4 corner, Sec 10, T13S, R7E, SLBM,
to a point at S 660 ft. E 1980 ft. from W4 corner, Sec 31, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
==========
USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

WATER RIGHT: **91-3405** APPLICATION/CLAIM NO.: CERT. NO.:
OWNERSHIP**********

NAME: Mattie B. Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660

REMARKS: undv inter/w Mattie B. Cornaby Family Trust

DATES, ETC.

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
09/05/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:

TYPE -- DOCUMENT -- STATUS----------

Type of Right: Decree Source of Info: Proposed
Determination Status: Water User's Claim

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

FLOW: 0.5 cfs SOURCE: Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 540 ft W 1610 ft from E4 cor, Sec 31, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614247.** Water Rights Appurtenant to the following use(s):
91-2146(WUC),2288(WUC),2494(WUC),2495(WUC),2496(WUC)
3405(WUC)
Period of use for this water right is March 1 through November 30.

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 100.0000
Div Limit: 2.1 acft. PERIOD OF USE: 06/01 TO 11/30

SUPPLEMENTAL GROUP NO.: **614337.** Water Rights Appurtenant to the following use(s):
91-2288(WUC),2494(WUC),2495(WUC),3405(WUC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 18.0
Div Limit: 72.0 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section

```
                          *  NW   |  NE   |  SW   |  SE   *  NW   |  NE   |
SW   |  SE   *  NW   |  NE   |  SW   |  SE   *  NW   |  NE   |  SW   |  SE
*   Totals
 Sec 31 T 12S R  7E SLBM
*_______|_______|_______|_______*_______|_______|_______|
9.6000*_______|_______|_______|_______*_______| 1.7000|_______|_______*
11.3000
 Sec 32 T 12S R  7E SLBM *_______|_______|
5.8000|_______*_______|_______|_______|_______*
0.9000|_______|_______|_______*_______|_______|_______|_______*      6.7000

GROUP ACREAGE TOTAL:     18.0000
```

OTHER COMMENTS

Morse Decree, 1st Class.

************************E N D O F D A T A*************************

****

WATER RIGHT: **91-2288** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP

NAME: Mattie B. Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: Undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w Mattie B. Cornaby Family Trust

DATES, ETC.

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 09/06/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-1]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Diligence Claim Source of Info: Proposed Determination Status: Water User's Claim

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
(1)Stockwatering directly on spring located at S 660 ft. W 1980 ft. from E4 corner, Sec 31, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614247.** Water Rights Appurtenant to the following use(s):
91-2146(WUC),2288(WUC),2494(WUC),2495(WUC),2496(WUC)
3405(WUC)

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 100.0000
Div Limit: 2.1 acft. PERIOD OF USE: 06/01 TO 11/30

SUPPLEMENTAL GROUP NO.: **614337.** Water Rights Appurtenant to the following use(s):
91-2288(WUC),2494(WUC),2495(WUC),3405(WUC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 18.0
Div Limit: 72.0 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

Section	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	Totals
Sec 31 T 12S R 7E SLBM													
	9.6000					1.7000							11.3000
Sec 32 T 12S R 7E SLBM	5.8000												0.9000
													6.7000

GROUP ACREAGE TOTAL: 18.0000
**********E N D O F D A T A**********

WATER RIGHT: **91-2146** APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP********

NAME: Mattie B. Cornaby Family Trust

ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w Mattie B. Conaby Family Trust

DATES, ETC.

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 04/01/1966|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Diligence Claim Source of Info: Proposed Determination Status: Water User's Claim

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

FLOW: SOURCE: Winter Quarters Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
(1)Stockwatering directly on stream from a point at N 660 ft. E 660 ft. from W4 corner, Sec 05, T13S, R7E, SLBM,
to a point at N 660 ft. E 660 ft. from W4 corner, Sec 05, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614247.** Water Rights Appurtenant to the following use(s):
91-2146(WUC),2288(WUC),2494(WUC),2495(WUC),2496(WUC)
3405(WUC)

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 100.0000
Div Limit: 2.1 acft. PERIOD OF USE: 06/01 TO 11/30

PLACE OF USE for STOCKWATERING********

	NORTH-WEST¼			NORTH-EAST¼			SOUTH-WEST¼			SOUTH-EAST¼		
	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE
Sec 05 T 13S R 7E SLBM	*	:	: X:	*	*	:	:	:	*	*	:	:

E N D O F D A T A********

****

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WATER RIGHT: **91-483** APPLICATION/CLAIM NO.: CERT. NO.:
CHANGES: t26901 Lapsed
t34399 Lapsed

==========

OWNERSHIP********

NAME: Mattie B.Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: Undv inter in 8.1ac with William Cornaby Trust

NAME: Radakovich Ranch, LLC
ADDR: 2564 South Corral Drive
Grand Junction, CO 81505
REMARKS: (18.70 ac and all Stockwatering)

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter in 8.1ac with Mattie B. Cornaby Trust

==========

DATES, ETC.********

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 06/30/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2]|MAP: [28d]|PUB DATE:

TYPE -- DOCUMENT -- STATUS*******

Type of Right: Decree Source of Info: Proposed
Determination Status:

==========

LOCATION OF WATER RIGHT*(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

==========

FLOW: 0.443 cfs SOURCE: Winter Quarters Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 700 ft W 1400 ft from E4 cor, Sec 06, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

USES OF WATER RIGHT****** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

==========

SUPPLEMENTAL GROUP NO.: **615426.** Water Rights Appurtenant to the following use(s):
91-455(DIL),481(DIL),482(DIL),483(DEC)

.....

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 162.0000
Div Limit: 2.63 acft. PERIOD OF USE: 05/01 TO 12/15

*==========

SUPPLEMENTAL GROUP NO.: **615702.**
91-483(DEC)

.....

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 26.8
Div Limit: 107.2 acft. PERIOD OF USE: 03/01 TO 11/10

.....

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

Section	NW	NE	SW	SE	NW	NE	SW	SE	Totals
Sec 05 T 13S R 7E SLBM		16.8000						4.3000	5.7000
									26.8000

GROUP ACREAGE TOTAL: 26.8000

==========

OTHER COMMENTS********

Morse Decree, 1st Class.

**********E N D O F D A T A**********

Exhibit 14

Geotechnical Investigations

RB&G Response to Comment R645-301-242.110 and R645-301-553.130

The comment states:

'……No specific recommendations for fill slopes were made, except that the sandy lean clay soils are collapsible and have a friction angle of 20 degrees…..'

The reviewer is referred to the second paragraph of Page 17, which reads:

'It is anticipated that fill slopes will be created with on-site material. If this material is placed and compacted in accordance with recommendations provided in Section IV, fill slopes as steep as 1.5H:1V will have a factor of safety of at least 1.3 if constructed of the native clayey soils. Fill slopes shown on Sections A-A, B-B, and F-F will likely be constructed of this clayey on-site fill. Test pits in the vicinity of the fill areas shown on Sections C-C, D-D, and E-E encountered significant amounts of medium-dense silty sand. Fill slopes as steep as 1.8H:1V constructed of this silty sand material have a computed factor of safety of at least 1.3. Plots of stability analyses for typical fill slopes are included in the appendix.'

Note that the Direct Shear test on the sample of sandy lean clay which had a friction angle of 20 degrees also had cohesion of 15 psi. Two Triaxial Shear tests performed on samples of the lean clay had total stress friction angles of 29.6 and 32.5 degrees with 2 psi cohesion and effective stress friction angles of 36.0 and 36.7 degrees with 2 psi cohesion.

RB&G Response to Comment R645-301-534.130 and R645-301-121.200

The comment states:

'The Applicant must address the safety factor for roads within the text of the MRP.'

Recommendations provided in Section VI. SLOPE STABILITY of the Geotechnical Report are applicable to roadway cut and fills.

RB&G Response to Comment R645-301-533.100 and 533.110

The comment states:

'The Applicant did not specifically state the safety factor for Sediment Pond 1.'

See Addendum No. 1 to the Geotechnical Report, attached hereto.

RB&G ENGINEERING, INC.

KINNEY MINE
Scofield, Utah

Geotechnical Investigation
November 26, 2007

ADDENDUM NO. 1
September 28, 2010

Add the following to the end of Section VI. SLOPE STABILITY

Stability analyses were performed for the proposed Detention Pond for both Steady State and Sudden Drawdown conditions. The below ground pond was modeled with cut slopes of 3 horizontal to 1 vertical, extending 15 feet below the existing ground surface. It was assumed that the foundation soils will consist of native lean sandy clay. If fill is encountered in the excavation, it has been assumed that the cut will be over-excavated a distance of at least 10 feet into the side slope, and that this zone will be replaced with engineered fill as recommended in *Section V.I. – Detention Pond*. For the sudden drawdown condition, the phreatic surface was modeled to be within one foot of the slope surface 10 feet down-slope of the crest, exiting at the toe of the slope after full drawdown.

A factor of safety of 3.37 was obtained for the Steady State condition. For the Sudden Drawdown condition, the factor of safety reduces to 2.30.

1435 WEST 820 NORTH, PROVO, UTAH 84601-1343
PROVO 801-374-5771 SALT LAKE CITY 801-521-5771 FAX 801-374-5773

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PROVO 801-374-5771 SALT LAKE CITY 801-521-5771 FAX 801-374-5773

GEOTECHNICAL INVESTIGATION

KINNEY MINE

Scofield, Utah

Prepared for:
Carbon Resources LLC,
a New Mexico Limited Liability Company

November 2007

RB&G
ENGINEERING, INC.

200701-045

RB&G
ENGINEERING, INC.

November 26, 2007

Carbon Resources LLC,
a New Mexico Limited Liability Company
c/o Greg Hunt
Geo-Hunt Consulting, Inc.
16577 Columbine Lane
Cedarredge, CO 81413

Subject: Kinney Mine, Scofield, Utah
Geotechnical Investigation

Gentlemen:

A Geotechnical Investigation has been completed for the proposed Kinney Mine in Scofield, Utah. The results of the study are summarized in the report transmitted herewith.

We appreciate the opportunity of providing this service for you. If there are any questions relating to the information contained herein, please call.

Sincerely,

RB&G ENGINEERING, INC.

Bradford E. Price, P.E.

bep/jal

1435 WEST 820 NORTH, PROVO, UTAH 84601-1343
PROVO 801-374-5771 SALT LAKE CITY 801-521-5771 FAX 801-374-5773

Geotechnical Investigation

Kinney Mine

Scofield, Utah

Prepared for:
Carbon Resources LLC,
a New Mexico Limited Liability Company

November 2007

RB&G ENGINEERING, INC.

KINNEY MINE
Scofield, Utah

RB&G ENGINEERING, INC.

Geotechnical Investigation

INTRODUCTION

This report outlines the results of a geotechnical investigation performed for the proposed Kinney Mine surface facilities to be located north-northeast of Scofield, Utah at the approximate location shown in Figure 1. The purpose of this investigation was to determine the characteristics of the subsurface material throughout the site so that satisfactory substructures and slopes can be designed to support the proposed facilities. The results of the investigation, along with pertinent recommendations for design, are outlined in the following sections of this report.

The information contained in the report is discussed under the following headings: (1) Geologic Setting and Existing Site Conditions, (2) Field and Laboratory Testing Procedures, (3) Subsurface Soil and Water Conditions, (4) Site Preparation and Compacted Fill Requirements, (5) Foundation Considerations and Recommendations, and (6) Slope Stability Analyses.

I. GEOLOGIC SETTING AND EXISTING SITE CONDITIONS

The regional and site geology is being prepared by others and will be submitted under separate cover. The area is located in Seismic Zone 2B according to the 1997 edition of the Uniform Building Code. The site is located on the east side of Highway 96, rising to the east with the elevation ranging from about 7700 to 7900 feet. Adjacent to Highway 96, the southerly half of the site is relatively flat for a few hundred feet before rising to the east. This area has been used for mining activities in the past and has been reclaimed with topsoil overlying approximately 2 to 6 feet of coal and soil fill. The vegetative cover across the site consists of native grass and sagebrush with some aspen trees.

Scofield Reservoir is located 0.5 to 1 mile northwest of the site at about elevation 7620 feet. No major water conveyance facilities or other water bodies exist in the immediate vicinity, which would influence the groundwater level at this site. Other than the information provided above, no conditions appear to exist at this site which would adversely affect foundation performance.

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II. FIELD AND LABORATORY TESTING PROCEDURES

The subsurface investigation was performed with borings and test pits. The borings were drilled using a Simco 2800 drill rig and continuous flight auger to advance the boring, and a Longyear 44 with H.Q. core to advance the boring. Where coring was performed in overburden, split spoon samples were obtained at select intervals. Sampling was generally performed in the overburden at five-foot intervals throughout the depth investigated. Disturbed samples were obtained by driving a 2-inch split spoon sampling tube through a distance of 18 inches using a 140-pound weight dropped from a distance of 30 inches. The number of blows to drive the sampling spoon through each 6 inches of penetration is shown on the boring logs. The sum of the last two blow counts, which represents the number of blows to drive the sampling spoon through 12 inches, is defined as the standard penetration value. The standard penetration value, corrected for overburden and hammer energy, provides a good indication of the in-place density of sandy material; however, it only provides an indication of the relative stiffness of the cohesive material, since the penetration resistance of materials of this type is a function of the moisture content. Considerable care must be exercised in interpreting the standard penetration value in gravelly-type soils, particularly where the size of the granular particle exceeds the inside diameter of the sampling spoon. If the spoon can be driven through the full 18 inches with a reasonable core recovery, the standard penetration value provides a good indication of the in-place density of gravelly-type material.

It will be noted that it was not possible to drive the sampling spoon through the full 18 inches at some sampling locations. Where the sampling tube could not be driven through the full 18 inches, the number of blows to drive the spoon through a given depth of penetration is shown on the boring logs.

Miniature vane shear tests, which provide an indication of the undrained shearing strength of cohesive materials, were performed on samples of the clay soil during the field investigations. The results of these tests are shown on the boring logs as the torvane value in tsf.

The test pits were excavated using a John Deere 160 trackhoe. During the subsurface investigation, the test pits were logged and sampling was performed at about three-foot intervals throughout the depth investigated. Both disturbed and undisturbed samples were obtained during the field investigations. The in-place dry unit weight and the natural moisture content was determined in the field using a Troxler nuclear density gauge at select sample locations with the samples delivered to the laboratory to verify moisture content. Undisturbed samples were obtained by trimming block samples of the cohesive material encountered in the soil profile.

Each sample obtained in the field was classified in the laboratory according to the Modified Unified Soil Classification System. The symbol designating the soil type according to this system, is presented on the logs. A description of the Modified Unified Soil Classification System is presented in the appendix, and the meaning of the various symbols, shown on the logs, can be obtained from this figure.

Laboratory tests performed during this investigation to define the characteristics of the subsurface material throughout the proposed site included in-place dry unit weight, natural moisture content, Atterberg Limits, mechanical analyses, unconfined compressive strength, pH, resistivity, sulfate, direct shear, triaxial shear, and consolidation tests. Testing was performed following procedures outlined in the American Society for Testing and Materials (ASTM) standards.

III. SUBSURFACE SOIL AND WATER CONDITIONS

The characteristics of the subsurface material throughout the site were evaluated by drilling 6 borings to depths of between 25 and 76.5 feet and excavating 14 test pits to depths of between 8 and 19.5 feet at the approximate locations shown in Figure 2. The logs for the borings and test pits are presented in the appendix and the subsurface profile at each test hole location is included on the logs. Also included in the appendix are photos of the cores obtained in the borings.

No groundwater was encountered within the depth investigated at the time the field investigation was performed (August/September 2007).

The results of classification, density and moisture tests are presented on the test hole logs, and the results of all laboratory tests, with exception of the consolidation tests, are summarized in Tables 1 and 2 in the appendix. It will be noted from Table 1 that the in-place dry unit weight of the subsurface material varies from 86.6 to 118.5 pcf and that the natural moisture content of the cohesive soil ranges from 4.5 to 17.5%. The cohesive soil has 15 to 34% gravel, 19 to 42% sand, and 27 to 66% clay. The liquid limit of the lean clay and silt ranges from 19 to 42 and the plasticity index varies from 4 to 26. The non-plastic silty sand has 15 to 38% gravel size particles, 38 to 61% sand, and 9 to 28% silt. The gravelly material has 55 to 64% gravel, 23% sand, and 13 to 22% silt size particles. The unconfined compressive strength of the lean clay ranges from 2080 to 8280 psf.

One direct shear test was performed on a sample of the sandy lean clay obtained from Test Pit CV-5-1 at a depth of 12 feet. The results of this test are included in the appendix and summarized on Table 2. It will be noted that this sample has a friction angle of 20 degrees and a cohesion of 15 psi.

Two triaxial shear tests were performed on samples of the lean clay obtained from Boring CV-4-1 at a depth of 20 to 21.5 feet and from Boring SC-2 at 23 to 24 feet. The results of this test are also included in the appendix and summarized on Table 2. It will be observed that a friction angle of 29.6 and 32.5 degrees with 2 psi cohesion was obtained for the total stress envelopes.

In order to obtain an indication of the corrosive nature of the subsurface material at this site, four resistivity, pH, and sulfate tests were performed on samples obtained throughout the site. The results of these tests are presented on Table 2. It will be noted that the soils tested have relatively low corrosive characteristics. It is recommended that Type II cement be used for concrete in contact with soil.

The compressibility characteristics of the subsurface material were evaluated by performing eleven consolidation tests, and the results of these tests are also presented in the appendix. During the performance of the consolidation tests, each sample was loaded at the natural moisture content until a load intensity of 0.58 tsf had been reached. At this point in the loading cycle, each sample was permitted to absorb water without any increase in the load intensity. Soils having collapsible characteristics always settle without any increase in the load when they become wet or saturated, and expansive soils experience an increase in void ratio on absorbing water. It will be observed from these tests that five of the samples tested exhibited collapsible characteristics and that three of the samples showed expansive characteristics.

IV. SITE PREPARATION AND COMPACTED FILL REQUIREMENTS

Included on Figure 2 are the location of preliminary cut and fill sections. These sections are presented in Figures 3 through 8. In areas where structures will be located, it is recommended that clearing and grubbing be performed to remove excess organic matter. It is anticipated that this will require stripping of the upper 6 inches and grubbing of tree and sagebrush roots. This action should also be performed in parking areas and borrow areas. Where cut and fill operations will take place, it is recommended that the excavated material be moisture conditioned to within 2% of optimum moisture content, placed in 8 inch (maximum) lifts and compacted to an in-place unit weight equal to at least 92% of the maximum laboratory density as determined by ASTM D 1557 for fills outside of building areas and 95% for fills where structures will be located. A sheeps-foot or tamping-type roller should be used for compacting the clay soils.

V. FOUNDATION CONSIDERATIONS AND RECOMMENDATIONS

It is recommended that exterior structural foundations be located at a depth below finished grade sufficient to provide frost protection, which is about 4.5 feet in this area. If the foundations for

the proposed facilities are designed in accordance with the recommendations outlined below, the maximum settlement of any footing should not exceed one inch and differential settlement throughout the structure should not exceed 0.5 inch. It is generally recognized that the tolerable differential settlement for steel and concrete structures is about 0.002 times the column spacing. This criterion is tantamount to a differential settlement of about 0.5 inch for column spacings of 20 feet and 0.7 inch for column spacings of 30 feet. Since it is not anticipated that the column spacing for this structure will be less than 20 feet, a differential settlement of 0.5 inch should be satisfactory for the proposed facility. Additional potential settlement associated with collapsible type soil layers is discussed where applicable.

A. MINE DRY / OFFICE – (Test Pits MDF-1, MDF-2, & MDF-3)

Test Pits MDF-1, 2 and 3 define the characteristics of the subsurface profile in the vicinity of the Mine Dry / Office facility. It will be noted from the test pit logs that the soil profile for Test Pit MDF-1 consists of stiff lean clay throughout the depth investigated (15 feet). Test Pit MDF-2 encountered clayey sand with gravel and silty sand with gravel, cobbles and boulders to a depth of 9 feet, followed by stiff lean clay to a depth of 18 feet. Test Pit MDF-3 encountered 3 feet of coal fill, followed by silty sand and gravel with cobbles and boulders to a depth of 15 feet. Lean clay with sand was encountered from 15 feet to the bottom of the test pit at 20 feet.

It is our understanding that the floor level for this structure will be at about elevation 7727 feet. Tabulated below is the ground elevation at the three test pit locations:

MDF-1	7720.4 feet
MDF-2	7729.6 feet
MDF-3	7744.0 feet

It is apparent that about 7 feet of fill will be required to meet final grade on the westerly side of the building site (MDF-1), and that 17 feet of cut will be required on the easterly side of the building site (MDF-3). The native lean clay has relatively high dry strength; however, this material has collapsible characteristics and will experience significant settlement if it becomes wet.

Options for foundation support include (1) supporting the structure on spread footings and providing partial mitigation against settlement associated with collapsible soils, and (2) supporting the structure on deep foundations extending below the collapsible lean clay layers.

(1) Spread Footings

As indicated above, the native lean clay has relatively high dry strength. If these soils become wet, the soil matrix will collapse and settlement will occur. Up to 20 inches of settlement is possible under saturated conditions. If precautions are taken to prevent the native lean clay from becoming wet, the structure can be supported on spread footings. These precautions should include providing positive drainage away from the building and installing an impervious membrane extending at least 6 feet beyond the outside footings. While this action will reduce the risk of moisture entering the subgrade clay, the owner should be made aware that significant settlement will occur if these soils become wet.

An allowable soil bearing capacity of 2500 psf can be used for spread footings supported on the native lean clay and fill compacted to the recommendations outlined in Section IV. Shallow foundation support will be satisfactory provided that the native lean clay does not become wet during the design life of the structure.

(2) Deep Foundations

It is our opinion that drilled shafts represent the most efficient deep foundation option for this structure. To minimize downdrag forces if the collapsible soils become wet, it is recommended that 2 foot diameter drilled shafts be used with the ends belled for increased capacity. It is recommended that the shafts extend to elevation 7700 feet. Shown in the following table are allowable capacities for end bearing drilled shafts terminating in the stiff lean clay at a depth of about 27 feet below the finished pad level.

Procedures outlined in FHWA-H1-88-042, "*Drilled Shafts: Construction Procedures and Design Methods*" have been used to determine size and load capacities. It has been assumed that high quality construction, good specifications and excellent inspection will exist for the structure. The capacities are based upon end bearing only, and it is, therefore, essential that the base of the shafts be cleaned to remove all loose debris.

Based upon these assumptions, a factor of safety of 2.5 has been selected. The shafts can be belled to achieve the required base diameter.

Tabulated below are capacities for compression loading for various diameters of shafts.

Shaft Diameter (ft)	Total Compressive Capacity (kips)	Allowable Compressive Capacity (kips) – f.s. = 2.5
2	40	16
3	89	35
4	158	63
5	247	99

The design of rebar and concrete should follow established guidelines. If this option is used, it is recommended that inspection of the shaft excavations be made by the soils engineer prior to placement of concrete.

B. SHOP / WAREHOUSE – (Test Pits WSF-1, WSF-2, & WSF-3)

Test Pits WSF-1, 2 and 3 define the characteristics of the subsurface profile in the vicinity of the proposed Shop / Warehouse structure. It will be noted from the test pit logs that the soil profile includes a 1 foot sandy lean clay layer underlain by 3 to 5 feet of coal fill. In Test Pit WSF-1 a 2 foot layer of sandy clay was encountered below the coal fill, followed by highly weathered sandstone to the bottom of the test hole at 13 feet. Test Pit WSF-2 encountered loose silty sand with gravel below the coal fill from 3.5 to 8.5 feet. The silty sand was followed by layers of sandy clay and clayey sand from 8.5 to 12 feet, then gravel with cobbles and boulders to the bottom of the test pit at 16 feet. The profile in Test Pit WSF-3 consists of loose silty sand with gravel below the coal fill from 3 to 9 feet, followed by a 2.5 foot layer of sandy clay to 11.5 feet, then medium dense silty sand from 11.5 to 15 feet.

It is our understanding that the floor level for this structure will be at about elevation 7728 feet. Tabulated below is the ground elevation at the three test pit locations:

MSF-1	7719.5 feet
MSF-2	7721.6 feet
MSF-3	7718.7 feet

It is apparent that 6 to 9.5 feet of fill will be required to meet final grade throughout the building site. It is recommended that the loose coal fill be removed from beneath the building area prior to placement of fill. Assuming that the native soils (including lean clay, sand, and gravel) are used to establish final grade, and that compaction requirements outlined in Section IV are complied with, footings can be designed using an allowable soil bearing capacity of 3500 psf, except that in no case should the width of any footing be less than 2 feet.

Up to 3 feet of collapsible soils were encountered in Test Pits WSF-2 and 3. The sample from 9 feet in Test Pit WSF-3 experienced about 3% settlement upon wetting. It is estimated that 1 inch of additional settlement may occur if these soils become saturated.

C. COVERED STORAGE AND FUEL STRUCTURE – (Test Pits CS-1 and F-1)

Test Pits CS-1 and F-1 define the characteristics of the subsurface profile in the vicinity of the proposed Covered Storage and Fuel Structure sites. It will be noted from the test pit logs that the soil profile includes a 0.5 to 1 foot sandy lean clay layer underlain by 7 to 8.5 feet of loose fill consisting of coal, and layers of coal and clayey sand with gravel. In Test Pit CS-1, sandy lean clay was encountered below the coal fill, extending from 8.5 to 16 feet, followed by a 2 foot layer of sandy gravel. The lean clay exhibits collapse characteristics. Test Pit F-1 encountered 4 feet of sandy clay and clayey sand layers below the 7 feet of loose fill, followed by sand and gravel from 11 to 16 feet.

It is our understanding that the floor level for these structures will be at about elevation 7728 feet. Tabulated below is the ground elevation at the two test pit locations:

CS-1	7716.6 feet
F-1	7724.0 feet

It is apparent that 4 to 11 feet of fill will be required to meet final grade throughout the building sites. It is recommended that the loose coal fill be removed from beneath the building areas prior to placement of fill. Assuming that the native soils (including lean clay, sand, and gravel) are used to establish final grade, and that compaction requirements outlined in Section IV are complied with, footings can be designed using an allowable soil bearing capacity of 3500 psf, except that in no case should the width of any footing be less than 2 feet.

Up to 5 feet of collapsible soils were encountered in Test Pit CS-1 between 10 and 16 feet below the existing ground surface. It is estimated that up to 2 inches of additional settlement may occur if these soils become saturated. Since the moisture sensitive soils will be about 20 feet below final grade, it is our opinion that the risk of saturation and collapse of this layer once the structures are in place is relatively low.

D. CONVEYOR SECTION–1 (Boring Portal 1 and Test Pit TT-1-2)

Boring Portal-1 and Test Pit TT-1-2 were placed along the alignment for Conveyor Section-1. It will be noted from the boring log that the subsurface profile in the portal area consists of interbedded siltstone and sandstone gravels and cobbles in a sandy silt matrix with occasional clay layers to a depth of about 18 feet (elev. 7873'). A 4 foot coal layer was encountered between elevation 7873 and 7869 feet, followed by 6 inches of highly weathered mudstone; then relatively competent sandstone to the bottom of the boring at 25 feet (elev. 7865').

The ground elevation at Test Pit TT-1-2 was 7873.1 feet, and the profile consists predominantly of silty clay with gravel to a depth of 4 feet (elev. 7869'), followed by clayey gravel with cobbles to the bottom of the test pit at a depth of 8 feet (elev. 7865').

It is our understanding that the portal pad elevation will be at 7869 feet. Structures contemplated along this section include the portal entrance, conveyor supports and the transfer tower. At elevation 7869 feet, the portal excavation will extend into bedrock. It is recommended that supports not be founded on the coal or the highly weathered mudstone. We recommend that foundation support areas extend through these materials and into the underlying sandstone. It is recommended that the sandstone be treated as a very dense sand to evaluate allowable bearing capacity for footings. For footings located on the sandstone or granular fill overlying the sandstone and compacted to an in-place density equal to at least 95% of the maximum laboratory density as determined by ASTM D 1557, we recommend that footings be designed using the allowable bearing capacities shown in the following table:

FOOTING WIDTH (ft)	ALLOWABLE BEARING CAPACITY (psf) (assumes factor of safety = 2.5)
2	5800
3	6900
4	7950
5	9050
6	10,100
7	9,800
8	9,500
12	8,800
16	8,500

The above capacities assume a minimum embedment depth of 2 feet and a maximum total settlement of 1 inch with differential settlement less than 0.5 inch.

The clay encountered in Test Pit TT-1-2 to elevation 7869 feet has collapsible characteristics and we recommend that no foundations be supported on this material. It appears that foundations for the conveyor section will extend into the gravelly clay and clayey gravel with cobbles and boulders below an elevation of 7869 feet. If the conveyor is supported using spread footings, it is recommended that an allowable bearing capacity of 2500 psf be used for the clay soils.

For this conveyor section, capacities for drilled shafts extending 8 to 10 feet into the gravelly clay and clayey gravel are shown in the following table:

Shaft Diameter (ft)	Total Compressive Capacity (kips)	Allowable Compressive Capacity (kips) – f.s. = 2.5
2	42	17
3	84	34
4	141	56
5	211	84

It is recommended that lateral bearing be determined using procedures outlined in Section 1804 and 1805 of the 2006 edition of the International Building Code (IBC). It is recommended that Material Class 5 (CL) be used with a lateral bearing of 100 psf per foot. L-Pile Parameters can be provided upon request for specific locations.

It is apparent from Figures 2 and 8 that the transfer tower will be located on compacted fill. It is anticipated that the collapsible clay layer, which extended to a depth of about 4 feet, will also exist in the area where the transfer tower is planned. If the transfer tower is supported on spread footings, it is recommended that the collapsible clay layer be excavated prior to placement of fill. Under this scenario, the footings placed on compacted fill can be designed using an allowable bearing capacity of 3500 psf, following recommendations outlined in Section V.B.

E. CONVEYOR SECTION–2 (Test Pit CV-2-1, Boring CV-2-2, & Test Pit CV-2-3)

Test Pit CV-2-1, Boring CV-2-2, and Test Pit CV-2-3 were placed along the alignment for Conveyor Section-2. The soil profile for each of these test holes is discussed separately below:

Test Pit CV-2-1

This test pit encountered stiff lean clay with gravel and cobbles to a depth of 3.5 feet, followed by 6 inches of coal. Below the coal, the profile consists of cobbles and boulders in a silty sand matrix to a depth of 14 feet, followed by competent sandstone to the bottom of the boring at 19 feet.

Boring CV-2-2

The boring encountered sandy clay to a depth of 3 feet, followed by medium dense to dense silty sand with gravel to 24 feet. A layer of lean clay was encountered between 24 and 30 feet. The clay was underlain by dense silty sand with gravel to the bottom of the boring at 32 feet.

Test Pit CV-2-3

This test pit encountered stiff sandy lean clay with gravel fill to a depth of 6.5 feet, underlain by 6 inches of coal. Native very stiff sandy clay with gravel was encountered between a depth of 6 and 11 feet, followed by sandstone to the bottom of the test pit at 15 feet.

Foundations for this conveyor section can be designed using the recommendations provided for Conveyor Section 1 in Section V., except that no footings should be located on the existing clay fill. Where fill is encountered, it is recommended that the foundations either extend below the fill, or that the fill be excavated and replaced as compacted fill under controlled conditions.

F. CONVEYOR SECTION–3 (Borings NS-1 and S-1)

Borings NS-1 and S-1 were placed along the alignment for Conveyor Section-3. It will be noted from the boring logs that the subsurface profile at each of these locations consists predominantly of very stiff sandy lean clay with some gravel and occasional cobbles and boulders lower in the profile. The borings extended to a depth of about 50 feet, terminating at elevation 7735 feet.

It will be noted from Figure 4 that a significant excavation will be required on the westerly side of the stockpile area and that some filling will be required on the easterly side to provide the pad elevation at 7780 feet. The ground elevation at the boring locations is at about 7785 feet. Some samples of the clay in the upper 5 feet have a pinhole type structure characteristic of collapsible soils. Samples deeper in the profile between elevation 7730 and 7715 feet exhibited expansive characteristics for load intensities less than about 2 tsf. The allowable bearing capacity for spread footings located between elevation 7775 and 7755 feet will be controlled by the stiff lean clay.

It is recommended that spread footings be designed using an allowable bearing capacity of 2500 psf. The magnitude of large area loads associated with the coal stockpiles are not known as of the preparation of this report. If the area loads exceed 500 psf, it is recommended that an analysis be performed to evaluate the settlement associated with large area loads.

G. CONVEYOR SECTION–4 (Borings CV-4-1 and SC-2)

Borings CV-4-1 and SC-2 were placed along the alignment for Conveyor Section-4, with SC-2 located at the location of the proposed screening and crushing facility. Boring CV-4-1 was

located at elevation 7776 feet and encountered lean clay with gravel and occasional cobbles and boulders throughout the depth investigated, terminating at a depth of 71 feet (elev. 7705'). Boring SC-2 was located at ground elevation 7741 feet and extended to a depth of about 31 feet (elev. 7710'). It will be noted from the boring log that no sampling was performed in the upper 19 feet. At the time drilling was performed, it was assumed that this material would be removed.

It will be noted from Figure 2 that the pad elevation for the Screening and Crushing facility is at 7742 feet. It is recommended that this structure be supported on drilled shafts extending to a depth of at least 25 feet. Recommendations provided in Section V.A. Mine Dry / Office *(2) Deep Foundations* are applicable to this site.

It is recommended that foundations for the conveyor along this section also be supported on drilled shafts extending to a depth of 8 to 10 feet in the vicinity of Boring CV-4-1 and 25 feet in Boring SC-2. Foundations for this conveyor section can be designed using the recommendations provided for Conveyor Section 1 in Section V., except that no footings should be located on the existing clay fill.

H. CONVEYOR SECTION–5 (Test Pits CV-5-1 and CV-5-2)

Test Pits CV-5-1 and CV-5-2 were placed along the alignment for Conveyor Section-5. Each of the test pits encountered fill consisting of lean clay with layers of coal and silt to a depth of 5 feet in Test Pit CV-5-1 and 11.5 feet in Test Pit CV-5-2. The fill was underlain by sandy lean clay which exhibited a pinhole structure characteristic of collapsible-type soils. The sample obtained at a depth of 9 feet in Test Pit CV-5-1 settled approximately 8% when saturated. The sample obtained at a depth of 12 feet in Test Pit CV-5-2 exhibited a 2% swell when saturated.

The proposed pad elevation for this area is at 7232 feet. The elevation of the two test pits are as follows:

CV-5-1	7737.7 feet
CV-5-2	7749.8 feet

It will be noted that Test Pit CV-5-2 located near the Truck Loadout only extended to elevation 7730 feet, 2 feet below the pad level. It is recommended that foundations for the Truck Loadout facility bypass the moisture sensitive clay in the upper portion of the soil profile. Based upon the two test pits, it appears that these clays extend to at least elevation 7715 feet. We recommend that the structure be supported on drilled shafts extending to an estimated depth of 30 feet below the pad level, to about elevation 7702 feet. We recommend

that an additional boring be located at the Truck Loadout site to evaluate the characteristics of the subsurface soil. We recommend that the conveyor system also be supported on drilled shafts extending to a depth of 8 to 10 feet below the pad level.

Recommendations provided in Section V.A. Mine Dry / Office (2) Deep Foundations are applicable to this area.

I. DETENTION POND

It is our understanding that a below ground detention pond is planned at the north side of the property at the approximate location shown in Figure 2. We understand that the pond will be sized to hold between 2.5 and 2.7 acre feet with the bottom 12 to 15 feet below the existing ground surface. No test holes were located in the detention pond area; however, test pits CV-5-1 and CV-5-2 located a few hundred feet south of the area both encountered fill to depths varying from 5 to 12 feet. The fill has interbedded layers of coal, sandy gravel and lean clay. It is recommended that the excavation side slopes be cut at 3 horizontal to 1 vertical. If fill is encountered, it is recommended that the cut be over-excavated a distance of at least 10 feet into the side slope, and that this zone be replaced with engineered fill. On site material can be used as engineered fill provided that it is placed in lifts not exceeding 8 inches, moisture conditioned and compacted in accordance with the recommendations provided in Section IV of this report. It is also recommended that the detention pond be lined with 18 inches of compacted lean clay obtained from on-site excavations and that a 6 inch layer of sandy gravel be placed over the liner to protect the clay from cracking.

J. ROADWAYS

The project will require cuts and fills for roadway construction throughout the development. For shallow cuts less than 20 feet in the native clayey soils, we recommend that slopes of 1.25H:1V or flatter be used. Fill slopes less than 20 feet high and constructed of clayey soils may slope as steeply at 1.5H:1V. Fill slopes constructed of sandy soils should be sloped at 1.8H:1V or flatter. Slopes for roadway fills and cuts with heights or depths greater than 20 feet should be designed in conformance with the slope stability recommendations in Section VI of this report.

K. SEISMIC CONSIDERATIONS

As indicated earlier in this report, the site is located in Seismic Zone 2B according to the 1997 edition of the Uniform Building Code. Soil profile type S_D should be used for structural

seismic design, with the Uniform Building Code. The site is classified as Site Class D, as per Section 1613 of the 2006 International Building Code.

The site is located at latitude 39.7330° North and longitude 111.1535° West. Probabilistic peak ground acceleration (PGA) values are tabulated below:

Probabilistic ground motion values in %g.

	10%PE in 50 yr	2%PE in 50 yr
PGA	12.19	27.94
0.2 sec SA	28.21	64.33
1.0 sec SA	9.46	21.94

The allowable soil bearing pressure indicated above may be increased by one-third where seismic forces are involved in the structural loads. If the passive pressures associated with footings and walls are used to resist seismic forces, and if backfilling is performed using granular material, we recommend that the passive pressures be calculated from the lateral earth pressure equation using an earth pressure coefficient of 2.0. If the frictional resistance of the footings and floor slabs are used to resist seismic forces, we recommend a coefficient of friction of 0.40 be used to calculate these forces.

Since the groundwater level is at a substantial depth below the ground surface and since the subsurface soil profile consists predominantly of lean clay and gravel, problems associated with liquefaction during a seismic event are unlikely at this location, and no special mitigation of the foundation soils is required.

VI. SLOPE STABILITY

The proposed development will require earthwork to establish roadways, level structure areas, and a detention basin on the hillside. Figures 3 through 8 show sections cut at locations as shown in Figure 2. The purpose of these sections is to evaluate the stability of the proposed cut and fill slopes.

It will be noted from the section drawings that the proposed fill slopes range from about 1.5H:1V to 2H:1V. The proposed cut slopes are steeper, varying from about 0.8H:1V to 1.4H:1V. The section drawings also show the locations of test holes performed in the vicinity of the section lines. The holes applicable to each section are summarized on the table below, along with the predominant soil types and brief descriptions of the proposed earthwork in the area.

Section	Earthwork Description (as shown on sections)	Test Hole No.	Depth (ft)	Soil / Rock Description
A-A	Cut Slopes 0.8H:1V to 1.4H1V Fill Slope 1.5H:1V	CV-5-1 TH	19.5	Stiff Sandy Lean Clay
		CV-4-1 DRL	71.5	Stiff Sandy and Gravelly Lean Clay
		SC-2 DRL	30.5	Stiff Sandy Lean Clay (not sampled above 19')
B-B	Cut Slope 0.8H:1V File Slope 1.5H:1V	NS-1 DRL	50	Stiff Lean Clay, with some dense Sand and Gravel layers
		S-1 DRL	76.5	Stiff Sandy Lean Clay
C-C	Cut Slope 0.8H:1V Fill Slope 1.8H:1V	CV-2-2 DRL	31.5	Silty Clay to 3', Silty Sand from 3' to 24' Stiff Lean Clay from 24' to 30.5', then Sand
D-D	Cut Slope 1.25H:1V Fill Slope 2H:1V	WSF-3 TH	19.5	Silty Sand and Lean Clay layers, some coal in upper 3'
		WSF-2 TH	16	Silty Sand and Lean Clay layers, some coal in upper 3', gravel below 12'
E-E	Cut Slope 1H:1V Fill Slopes 2H:1V	MDF-1 TH	19.5	Stiff Sandy Lean Clay
		MDF-2 TH	19.5	Stiff Sandy Lean Clay with Silty Sand layer
		MDF-3 TH	19.5	Silty Sand, Gravel and Lean Clay layers, some coal in upper 2'
F-F	Cut Slope 0.8H:1V Fill Slope 1.8H:1V	TT-1-2 TH	8	Silty Clay to 4', then Gravel with Clay
		Portal-1 DRL	25	Silty Gravel with some Clay layers to 14' Sandstone, Mudstone, Coal from 14' to 25'

Stability analyses were performed using the computer program Slope/W. Spencer's method, which satisfies both force and moment equilibrium requirements, was used to compute factors of safety. Potential circular failure surfaces were evaluated using a grid and radius approach.

Stability analyses were performed primarily for Sections A-A, B-B and F-F. At Sections A-A and B-B, the predominant soil type was assumed to be stiff lean clay. Based on the results of field and laboratory testing, this material was assigned an internal friction angle of 30 degrees with cohesion of 250 psf. At Section F-F, the portal drill hole encountered gravelly material in a silty matrix in the upper 10 to 15 feet, underlain by lean clay and rock. This gravelly material was modeled using a friction angle of 35 degrees and 100 psf cohesion.

At Sections A-A, B-B and F-F, the cut slopes were initially modeled as shown on the section drawings, with slopes as steep as 0.8H:1V. For these slopes, the computed factors of safety were in the range of 1.0 to 1.2. Following the initial stability analyses, additional calculations were performed to estimate factors of safety for flatter cut slopes. A summary of computed factors of safety is shown below, and the critical failure surfaces are shown in the appendix.

Section	Cut Slope	Approximate Depth of Cut (ft)	Factor of Safety
A-A	0.8H:1V	35	1.17
	1H:1V	39	1.24
	1.25H:1V	44	1.35
	1.5H:1V	56	1.41
	1.75H:1V	67	1.50
B-B	0.8H:1V	69	0.91
	1H:1V	75	1.00
	1.25H:1V	88	1.10
	1.5H:1V	113	1.19
	1.75H:1V	153	1.29
F-F	0.8H:1V	23	1.07
	1H:1V	30	1.19
	1.25H:1V	35	1.32
	1.5H:1V	40	1.45
	1.75H:1V	45	1.57

The acceptable factor of safety for a given slope depends upon several factors, including the level of certainty and conservatism of model parameters, as well as the nature of the slope and potential consequences of failure. For static, long-term conditions, required minimum factors of safety typically range from about 1.3 to 1.5, with the 1.5 factor used for more critical facilities. For Sections A-A and F-F, an estimated factor of safety of 1.3 or better is achieved for slopes of 1.25H:1V. To achieve an estimated factor of safety of 1.5, the slopes would have to be flattened to about 1.75H:1V. It will be noted that the deep cut on Section B-B has a factor of safety of almost 1.3 only if flattened to 1.75H:1V.

We recommend that permanent cut slopes greater than 10 feet deep in the native silty gravel and lean clay materials be no steeper than 1.25H:1V, in order to provide an estimated factor of safety of 1.3. A greater factor of safety may be required by regulatory agencies, policies, or the facility owner, and can be achieved by further flattening the cut slopes.

It is likely that cut slopes for the pads on the easterly side of the development will be located on the upthrown side of the fault which runs through the site. It appears that the borings throughout this area were located on the downthrown side of the fault. The geology report for the project (prepared by others) references sandstone outcrops and prior boring logs which show a dominance of sandstone to be the norm in the area. Near-vertical sandstone outcrops were observed east of the borings on the north end of the site by RB&G's geologist during field exploration work.

Where the proposed cuts encounter bedrock, they can be performed at near vertical angles in sandstone, and at relatively steep overall angles in interbedded sandstone/mudstone without jeopardizing overall slope stability. Problems associated with the interbedded degradable clay/mudstone layers limit the steepness of the cut, however. It is recommended that the overall

cut slope at these locations be no steeper than 0.8H:1V. It is also recommended that horizontal benches be constructed at the top of degradable clay and mudstone layers, such that a resultant slope in these layers of 1.5H:1V can be achieved without undercutting the overlying ledge rock. If the horizontal benches are not feasible, long term maintenance associated with ledge rock fall should be planned as the mudstone weathers and degrades, resulting in undercutting of the ledges.

It is anticipated that fill slopes will be created with on-site material. If this material is placed and compacted in accordance with recommendations provided in Section IV, fill slopes as steep as 1.5H:1V will have a factor of safety of at least 1.3 if constructed of the native clayey soils. Fill slopes shown on Sections A-A, B-B, and FF will likely be constructed of this clayey on-site fill. Test pits in the vicinity of the fill areas shown on Sections C-C, D-D, and E-E encountered significant amounts of medium-dense silty sand. Fill slopes as steep as 1.8H:1V constructed of this silty sand material have a computed factor of safety of at least 1.3. Plots of stability analyses for typical fill slopes are included in the appendix.

Cut and fill slopes will be susceptible to erosion and shallow surficial failures – particularly for slopes steeper than 2H:1V. We recommend that soil slopes be seeded and erosion control blankets provided where necessary to minimize such problems on bare slopes.

VII. LIMITATIONS

The conclusions and recommendations presented in this report are based upon the results of the field and laboratory tests. It should be recognized that soil materials are inherently heterogeneous and that conditions may exist throughout this site which could not be defined during this investigation. Since the bearing capacity for foundation design and slope stability are dependent upon adequate compaction of fill, it is requested that testing of the fill be performed under the direct supervision of the soils engineer.

It is recommended that a soils engineer observe the foundation excavations prior to placement of footings. If during construction, conditions are encountered which appear to be different than those presented in this report, it is requested that we be advised in order that appropriate action may be taken.

The information contained in this report is provided for the specific location and purpose of the client named herein and is not intended or suitable for reuse by any other person or entity whether for the specified use, or for any other use. Any such unauthorized reuse, by any other party is at that party's sole risk and RB&G Engineering, Inc. does not accept any liability or responsibility for its use.

Figures

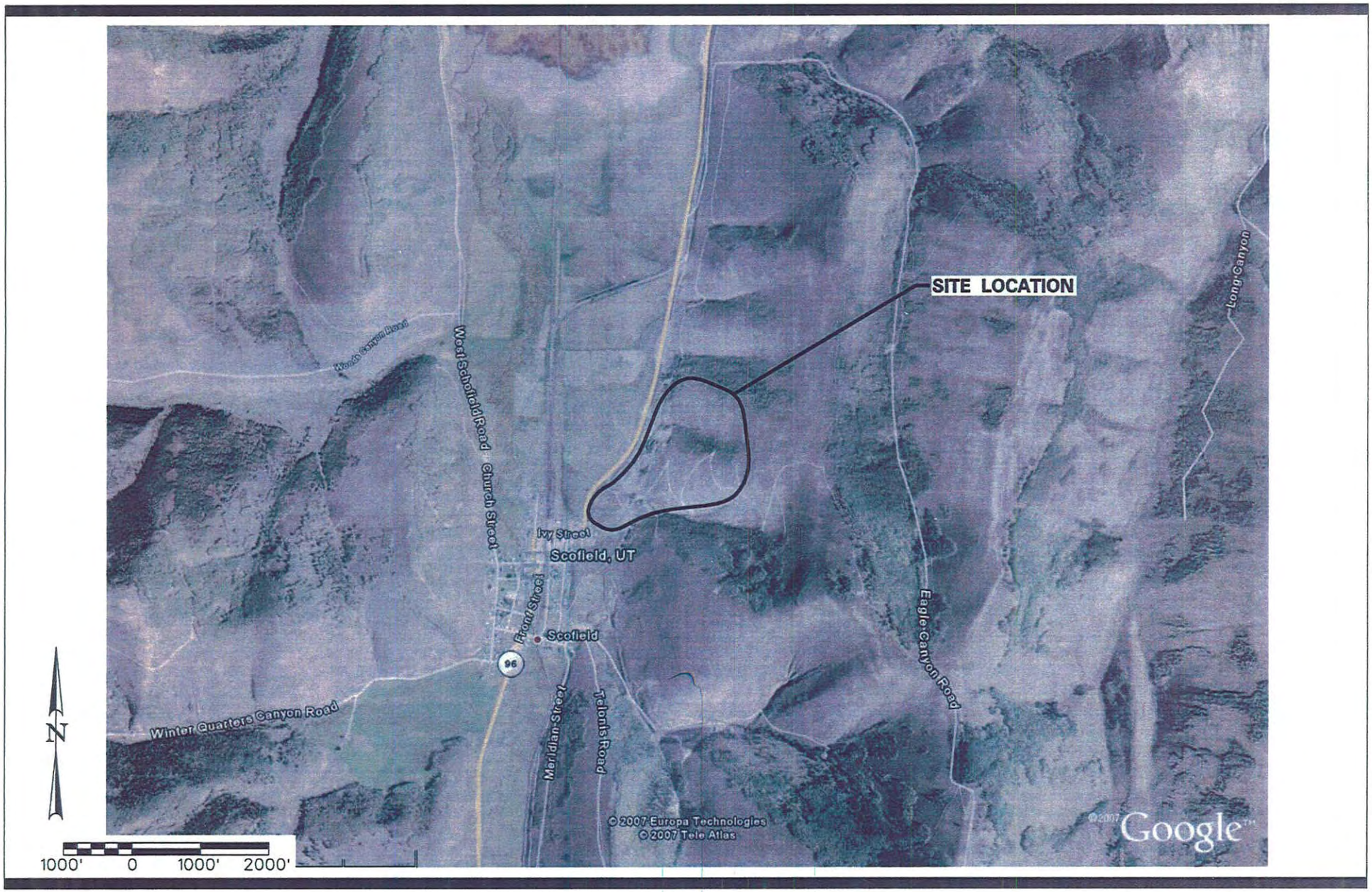

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Figure 1 VICINITY MAP

Kinney Mine

Scofield, Utah

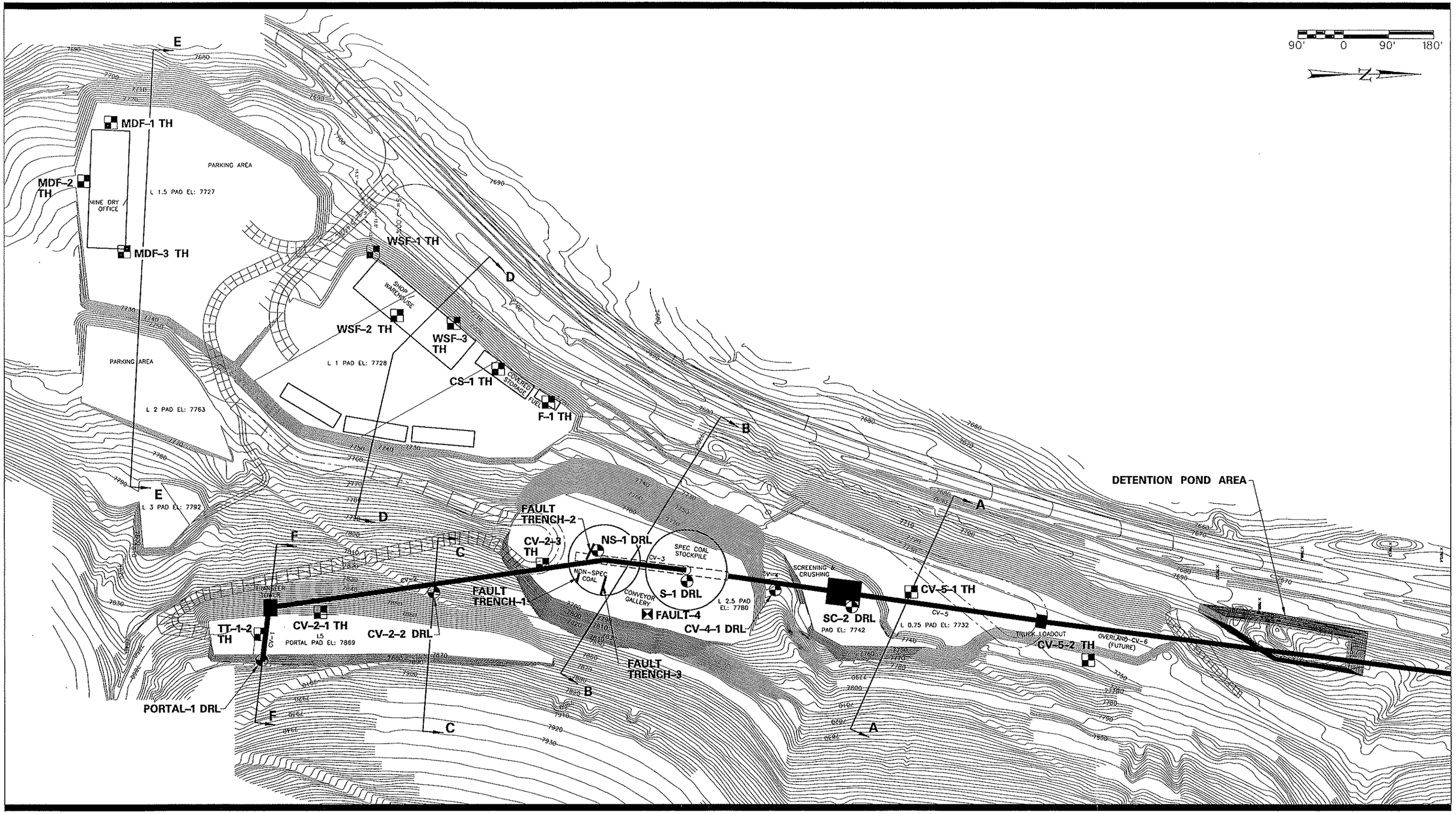

Figure 2

RB&G ENGINEERING INC.
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KINNEY MINE
Scofield, Utah

Site Plan Wth Test Hole & Section Locations

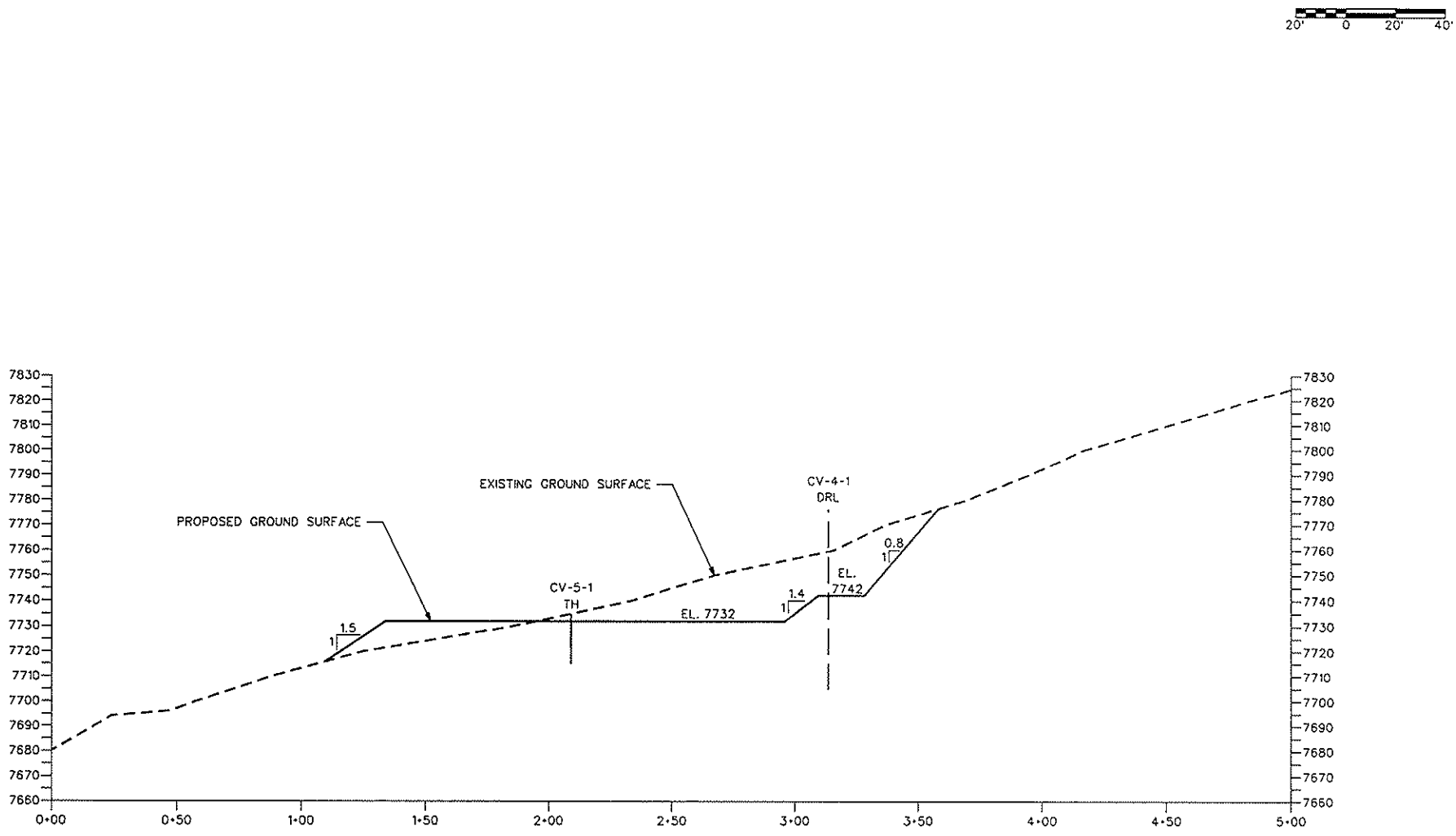

Figure 3

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Kinney Mine
Scofield, Utah

Section A–A

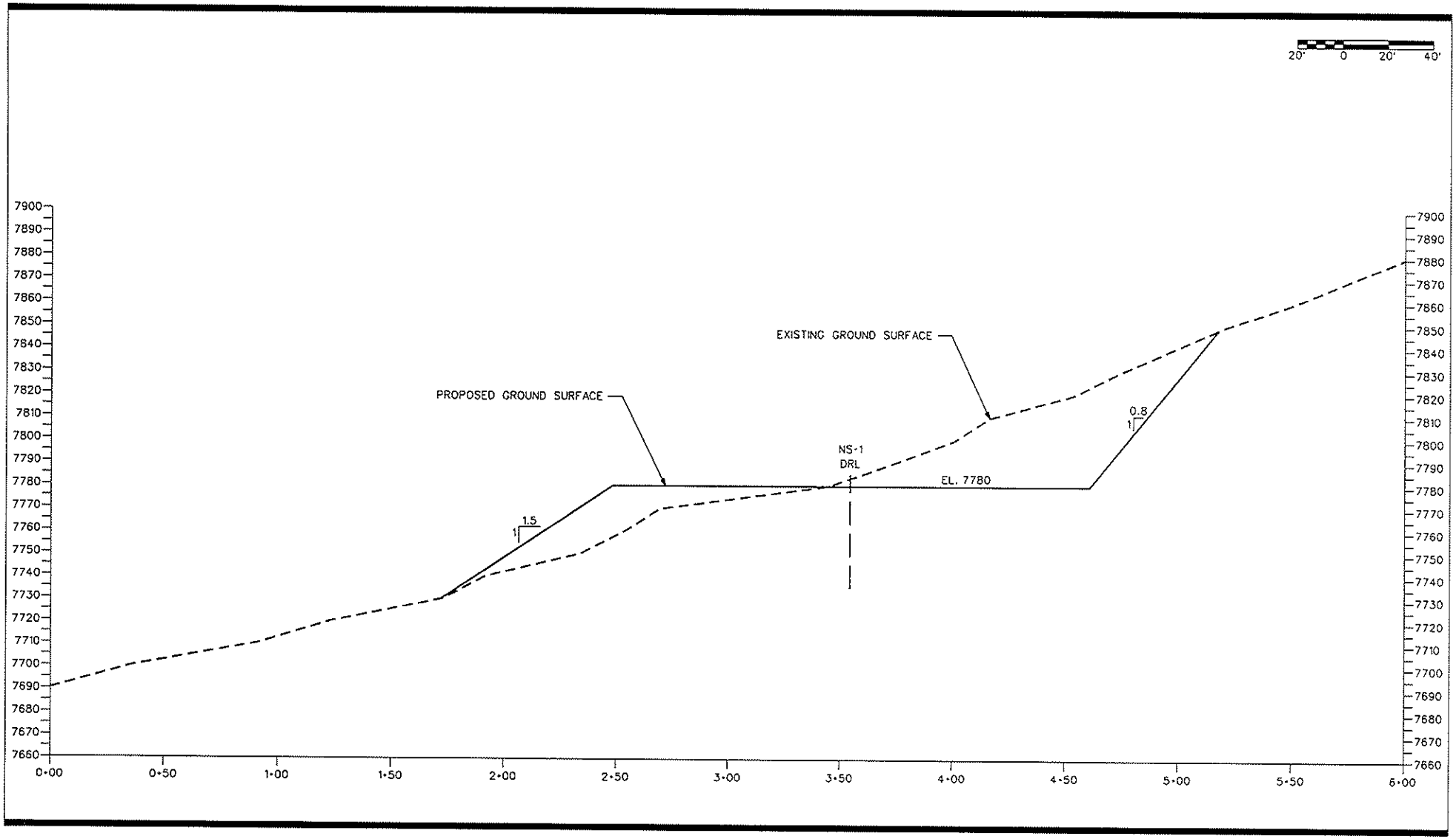

Figure 4

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Kinney Mine
Scofield, Utah

Section B-B

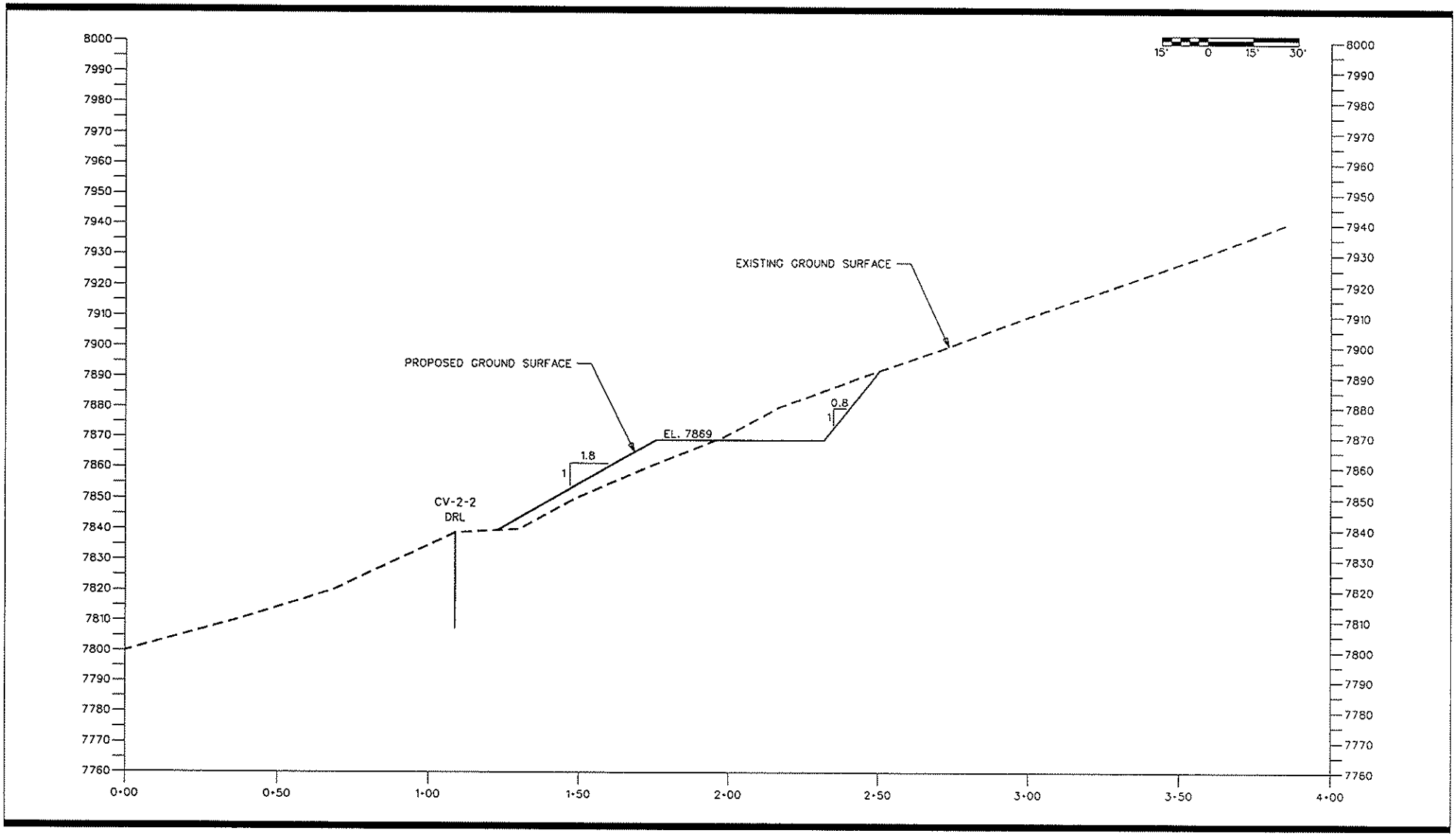

Figure 5

RB&G ENGINEERING INC.
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Kinney Mine
Scofield, Utah

Section C-C

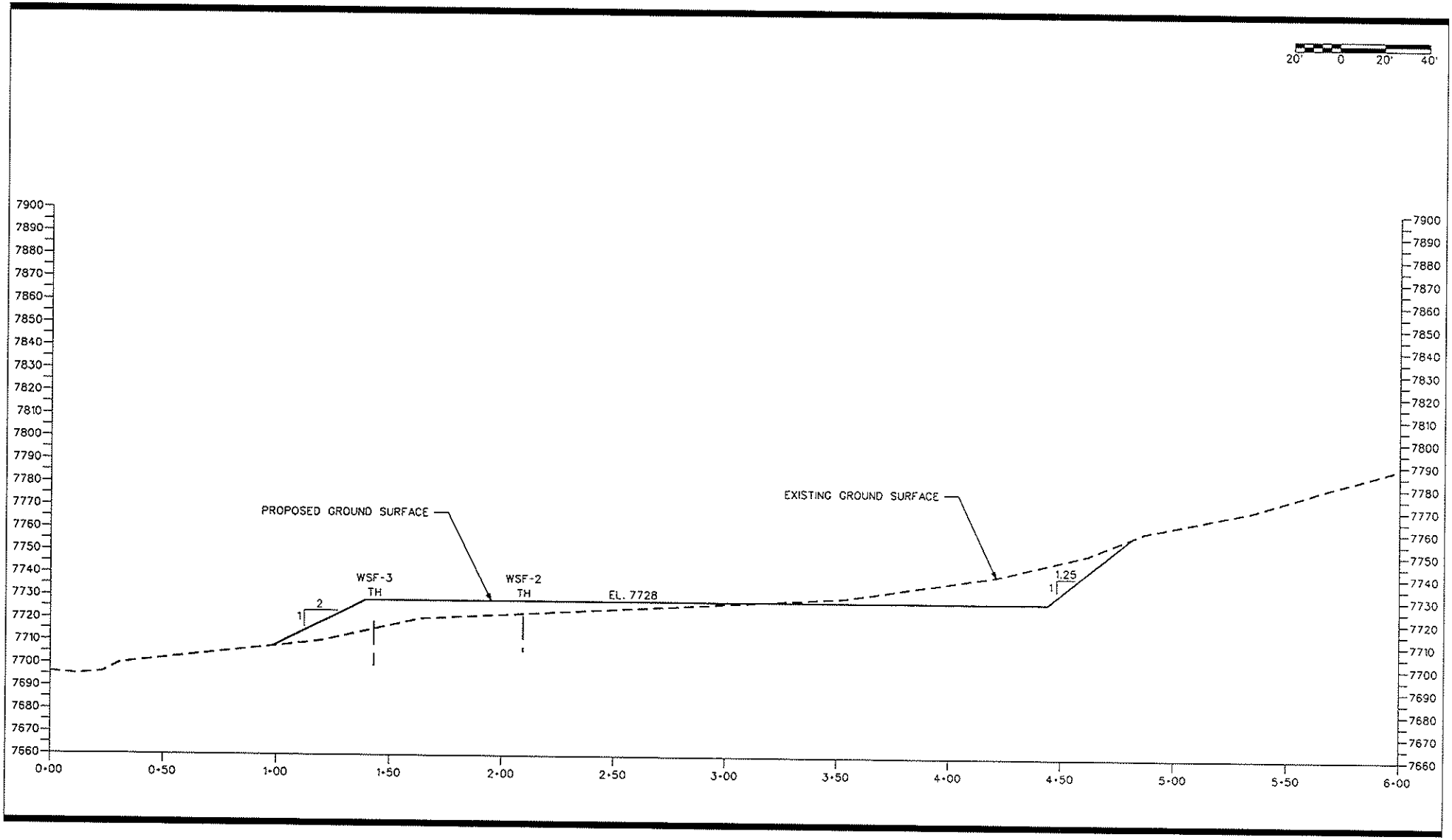

Figure 6

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Kinney Mine
Scofield, Utah

Section D–D

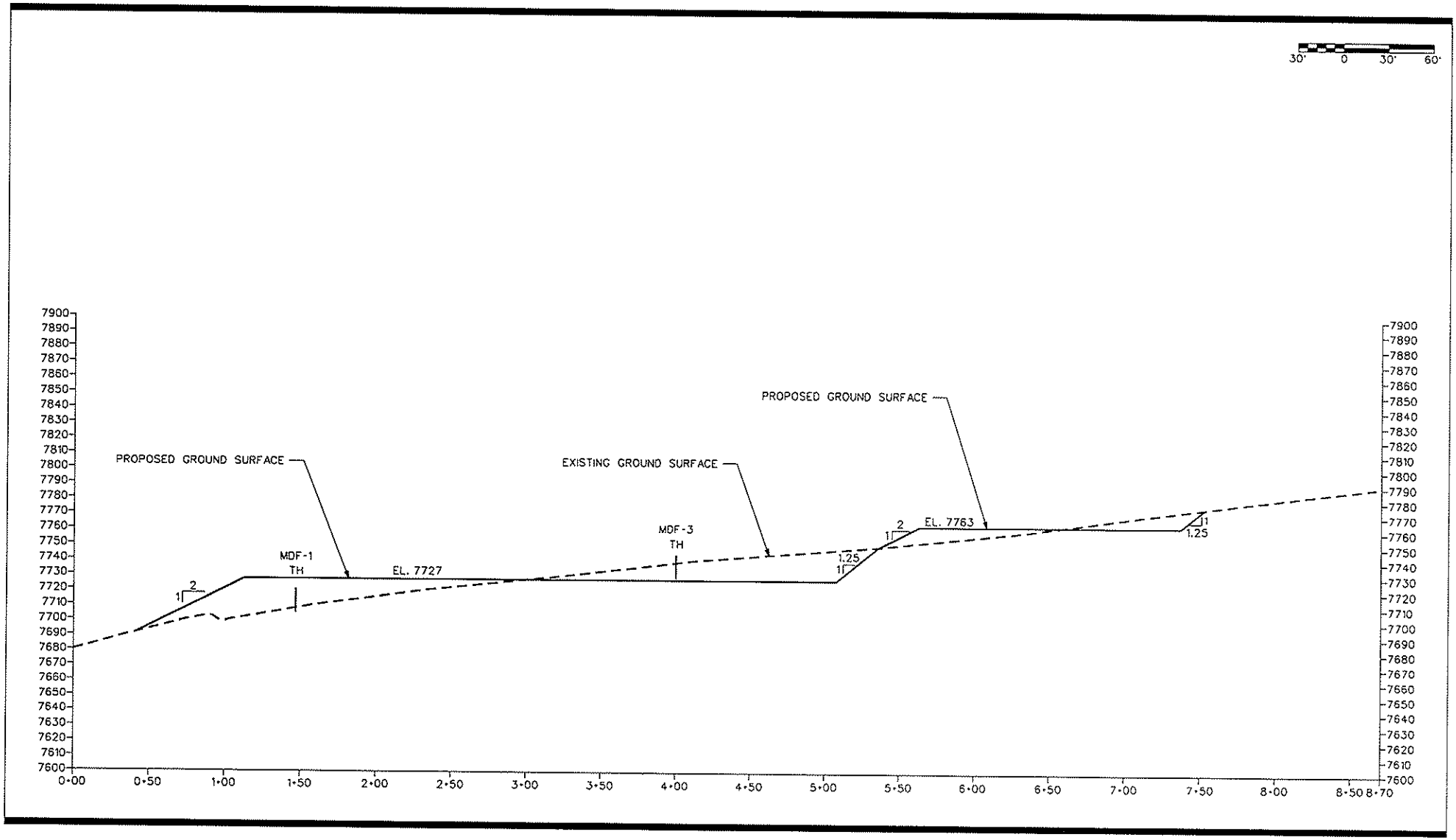

Figure 7

RB&G ENGINEERING INC.
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Kinney Mine
Scofield, Utah

Section E–E

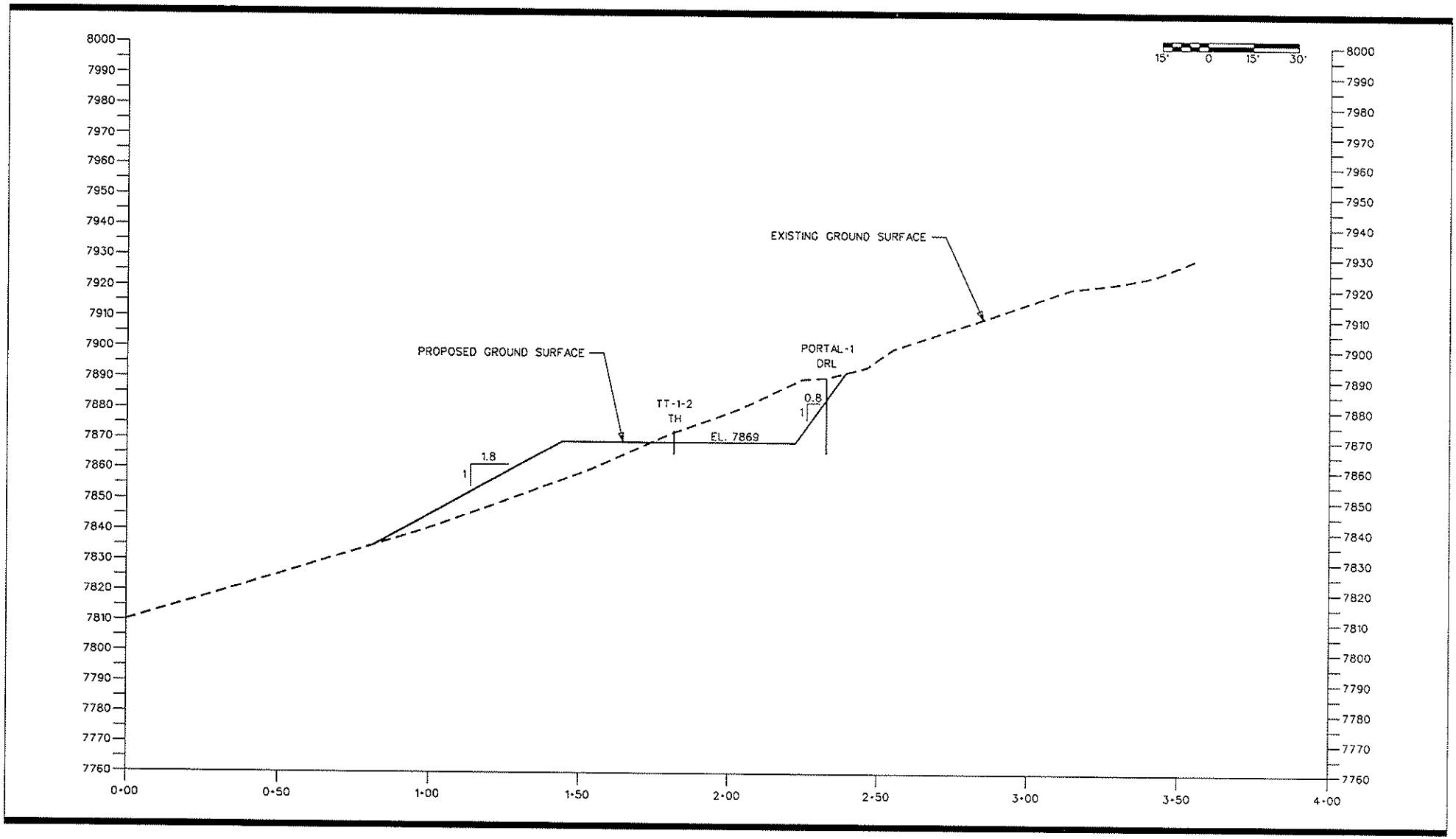

Figure 8

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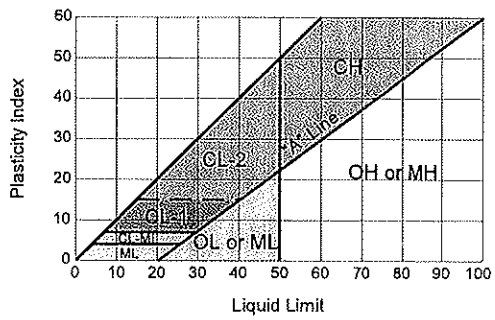
Kinney Mine
Scofield, Utah

Section F–F

Appendix

Unified Soil Classification System

Major Divisions			Group Symbols		Typical Names	Laboratory Classification Criteria		
COARSE-GRAINED SOILS *more than half of material is larger than No. 200 sieve*	Gravels *more than half of coarse fraction is larger than No. 4 sieve size*	Clean Gravels *little or no fines*	GW		Well graded gravels, gravel-sand mixtures, little or no fines	*For laboratory classification of coarse-grained soils*	$C_u = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels With Fines *appreciable amount of fines*	GM*	d u	Silty gravels, poorly graded gravel-sand-silt mixtures	Determine percentage of gravel and sand from grain-size curve. Depending on percentage of fines *(fraction smaller than No. 200 sieve size)*, coarse-grained soils are classified as follows: Less than 5% GW, GP, SW, SP More than 12% GM, GC, SM, SC 5% to 12% Borderline cases requiring use of dual symbols**	Atterberg limits below "A" line, or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring uses of dual symbols
			GC		Clayey gravels, poorly graded gravel-sand-clay mixtures		Atterberg limits above "A" line, or PI greater	
	Sands *more than half of coarse fraction is smaller than No. 4 sieve size*	Clean Sands *little or no fines*	SW		Well graded sands, gravelly sands, little or no fines		$C_u = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3	
			SP		Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands with Fines *appreciable amount of fines*	SM*	d u	Silty sands, poorly graded sand-silt mixtures		Atterberg limits below "A" line, or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring uses of dual symbols
			SC		Clayey sands, poorly graded sand-clay mixtures		Atterberg limits above "A" line, or PI greater	
FINE-GRAINED SOILS *more than half of material is smaller than No. 200 sieve*	Silts and Clays *liquid limit is less than 50*		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	*For laboratory classification of fine-grained soils*	 Plasticity Chart	
			CL	1 2	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL		Organic silts and organic silt-clays of low plasticity			
	Silts and Clays *liquid limit is greater than 50*		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH		Inorganic clays of high plasticity, fat clays			
			OH		Organic clays of medium to high plasticity, organic silts			
HIGHLY ORGANIC SOILS			Pt		Peat and other highly organic soils			

NOTE: USCS Modified to include CL-type subcategories

*Division of GM and SM groups into subdivisions of d and u for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when liquid limit is 28 or less and the PI is 6 or less, the suffix u used when liquid limit is greater than 28.

***Borderline classification*: Soils possessing characteristics of two groups are designated by combinations of group symbols. (For example GW-GC, well graded gravel-sand mixture with clay biner.)

MINE DRY / OFFICE

TEST PITS MDF-1, MDF-2 & MDF-3

TEST PIT LOG

TEST PIT NO. MDF-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: MINE DRY FACILITY / N:73,774 E:37,860
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7720.4'
LOGGED BY: J. BOONE

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
7720	0					CL	brown, dry — SANDY LEAN CLAY								
						CL-ML	brown, slightly moist — GRAVELLY SILTY CLAY W/SAND	102.7	4.9	20	4				CT
7715	5				0.70	CL	brown, slightly moist, stiff	94.8	9.9						
					0.81	CL-1	brown, slightly moist, stiff	86.6	8.4	25	11				CT
7710	10						LEAN CLAY W/SAND pinhole structure, ~10% cobbles								
					0.95	CL	brown, moist, stiff								
7705	15				0.87	CL	brown, moist, stiff								
					0.69	CL-1	brown, moist, stiff — SANDY LEAN CLAY pinhole structure	108.7	10.8	23	10				CT

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

TEST PIT LOG

TEST PIT NO. MDF-2 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: MINE DRY FACILITY / N:73,721 E:37,976
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7729.6'
LOGGED BY: J. BOONE

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
						CL	brown, dry — SANDY LEAN CLAY W/GRAVEL								
						SC-SM	brown, slightly moist — SILTY CLAYEY SAND W/GRAVEL, >20% cobbles	108.6	4.6	20	5	34	38	28	
7725	5					SM	brown, slightly moist, med. dense — SILTY SAND W/GRAVEL, >30% cobbles & boulders	118.5	3.8		NP	38	47	15	
7720	10				0.95	CL	lt. brown, slightly moist, stiff								
7715	15				0.88	CL-1	SANDY LEAN CLAY, gravel seams, pinhole structure — lt. brown, moist, stiff	94.8	9.3	23	9	6	38	56	CT
					0.85	CL	lt. brown, slightly moist, stiff								
7710															

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

TEST PIT LOG

TEST PIT NO. MDF-3 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: MINE DRY FACILITY / N:73,800 E:38,115
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7744.0'
LOGGED BY: J. BOONE

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
						CL	brown, dry — GRAVELLY LEAN CLAY W/SAND								
						-	COAL (fill)								
						CL	brown, dry, very stiff — LEAN CLAY W/SAND								
7740						SM	brown, slightly moist	106.5	6.1						
	5						SILTY SAND W/GRAVEL >30% cobbles & boulders								
						SM	brown, slightly moist	102.9	5.8		NP	34	39	27	
7735						GP-GM	brown, dry								
	10						GRAVEL W/SILT & SAND >50% cobbles & boulders								
						GP-GM	brown, dry								
7730															
	15														
					0.99+	CL-1	lt. brown, slightly moist, stiff		7.5	22	10				
							LEAN CLAY W/SAND slight pinhole structure								
7725					0.99+	CL-1	lt. brown, slightly moist to dry, stiff		5.3	21	8				

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

Table 1

SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

HOLE NO.	DEPTH BELOW GROUND SURFACE (ft)	STANDARD PENETRATION BLOWS PER FOOT	IN-PLACE		UNCONFINED COMPRESSIVE STRENGTH (psf)	ATTERBERG LIMITS			MECHANICAL ANALYSIS			UNIFIED SOIL CLASSIFICATION SYSTEM (modified)
			DRY UNIT WEIGHT (pcf)	MOISTURE (%)		LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	PERCENT GRAVEL	PERCENT SAND	PERCENT SILT & CLAY	
CV-2-1 TH	3	Grab	95.0	9.0		32	15	17				CL-2
	6	Grab		3.1				NP	64	23	13	GM
CV-2-3 TH	3	Grab	106.1	7.6	4000+*	25	13	12				CL-1
	6	Grab	88.6	6.5	4000+*	23	17	6				CL-ML
	9	Grab	97.1	4.8	4000+*	19	15	4				CL-ML / SC-SM
CV-5-1 TH	3	Grab	89.8	5.8	4000+*	22	15	7				CL-1
	9	Grab	90.7	7.1	4000+*	21	17	4				CL-ML
	12	Grab	95.8	9.7	4000+*	22	12	10				CL-1
	19	Grab		9.6	4000+*	23	13	10				CL-1
CL-5-2 TH	12	Grab	112.7	13.8	4000+*	42	16	26				CL-2
	15	Grab		14.1	4000+*	33	15	18				CL-2
WSF-1 TH	6	Grab	97.9	4.5	2827	21	16	5				CL-ML
WSF-2 TH	3	Grab	91.0	4.6				NP	29	45	26	SM
	9	Grab		4.7		19	15	4				CL-ML / SC-SM
WSF-3 TH	6	Grab	89.6	4.6				NP	34	38	28	SM
	9	Grab	96.3	10.1	3000*	22	14	8				CL-1
	12	Grab		6.1	3320*			NP	34	38	28	SM
MDF-1 TH	3	Grab	102.7	4.9		20	16	4				CL-ML / SC-SM
	9	Grab	86.6	8.4	3240*	25	14	11				CL-1
	18.5	Grab	108.7	10.8	2760*	23	13	10				CL-1
MDF-2 TH	3	Grab	108.6	4.6		20	15	5	34	38	28	SC-SM
	6	Grab	118.5	3.8				NP	38	47	15	SM
	15	Grab	94.8	9.3	3520*	23	14	9				CL-1
MDF-3 TH	6	Grab	102.9	5.8				NP	34	39	27	SM
	15	Grab		7.5	4000+*	22	12	10				CL-1
	18	Grab		5.3	4000+*	21	13	8				CL-1
CS-1 TH	6	Grab										Coal
	9	Grab		8.8	2080*	23	14	9				CL-1
	12	Grab		15.5	2240*	24	16	8				CL-1
F-1 TH	6	Grab	91.3	5.6		22	18	4	18	42	40	SC-SM
	9	Grab		6.1		21	16	5				CL-ML / SC-SM

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE

CHEMICAL TESTS					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	pH	RESISTIVITY (ohm-cm)	SULFATE (%)	USCS (MODIFIED) / AASHTO CLASSIFICATION
3-NS-1	6-7.5	8.0	6761	0.0031	CL-1
11-MDF-2	3	8.2	7202	0.0064	SC-SM
9-WSF-1	6	7.3	3322	0.0195	CL-ML
13-WSF-2	3	7.8	6502	0.0315	SM

DIRECT SHEAR TESTS CONSOLIDATED DRAINED					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	DRY DENSITY (pcf)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	USCS (MODIFIED) / AASHTO CLASSIFICATION
07-CV-5-1 TH	12	95.8	20	15	CL-1

TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS						
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	TOTAL STRESS		EFFECTIVE STRESS		USCS (MODIFIED) / AASHTO CLASSIFICATION
		FRICTION ANGLE $\Phi_{(cu)}$ (degrees)	COHESION $c_{(cu)}$ (psi)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	
CV-4-1 DRL	20-21.5	29.6	2	36.0	2	CL
SC-2 DRL	23-24	32.5	2	36.7	2	CL-1

* Visual Classification
**Bulk Sample

RB&G ENGINEERING INC.
1435 West 820 North, Provo, Utah 84601
801 374-5771 Provo
801 521-5771 Salt Lake City

PROJECT NO.	200701.045
REPORT NO.	-

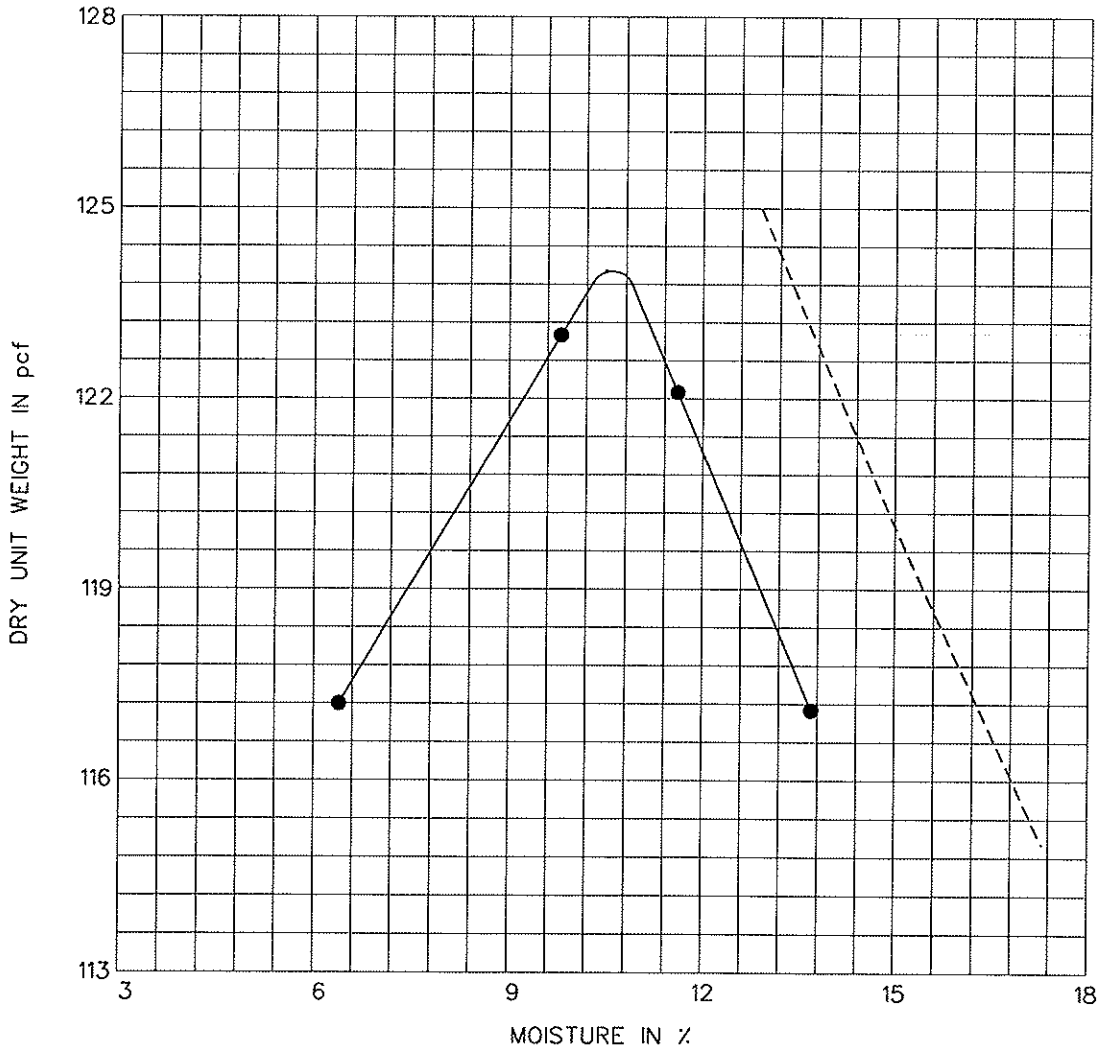
MOISTURE-DENSITY RELATION (PROCTOR)

Project	KINNEY MINE			Date	9/6/07
Location / No.	SCOFIELD, UTAH / MDF-1 TH AT 3'-10'			Technician	G. PEASLEE
Material Description	BROWN SANDY LEAN CLAY	USCS	CL	Method	ASTM D 1557

Procedure Used[1]	B
Classification Procedure[2]	Visual

[1] A-No. 4 Sieve, B-3/8" Sieve, C-3/4" Sieve
[2] Visual as per ASTM D 2488, Test as per ASTM D 2487

Preparation Method	Moist
Rammer Used	Manual
As-Received Moisture Content (%)	6.0



Maximum Dry Density (pcf)	124.0
Optimum Moisture Content (%)	10.5
Corrected Maximum Density (pcf)	**124.0**
Corrected Optimum Moisture Content (%)	**10.5**

– – – – – 100% Saturation Curve

Specific Gravity of Soil	2.70	Est.

OVERSIZE CORRECTION-ASTM D 4718

Specific Gravity of Soil +3/4	2.70	Est.
Percent Oversize	0.0	

Type of Specific Gravity is BULK Unless Otherwise Indicated

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801 374-5771 Provo
801 521-5771 Salt Lake City

PROJECT NO.	200701.045
REPORT NO.	-

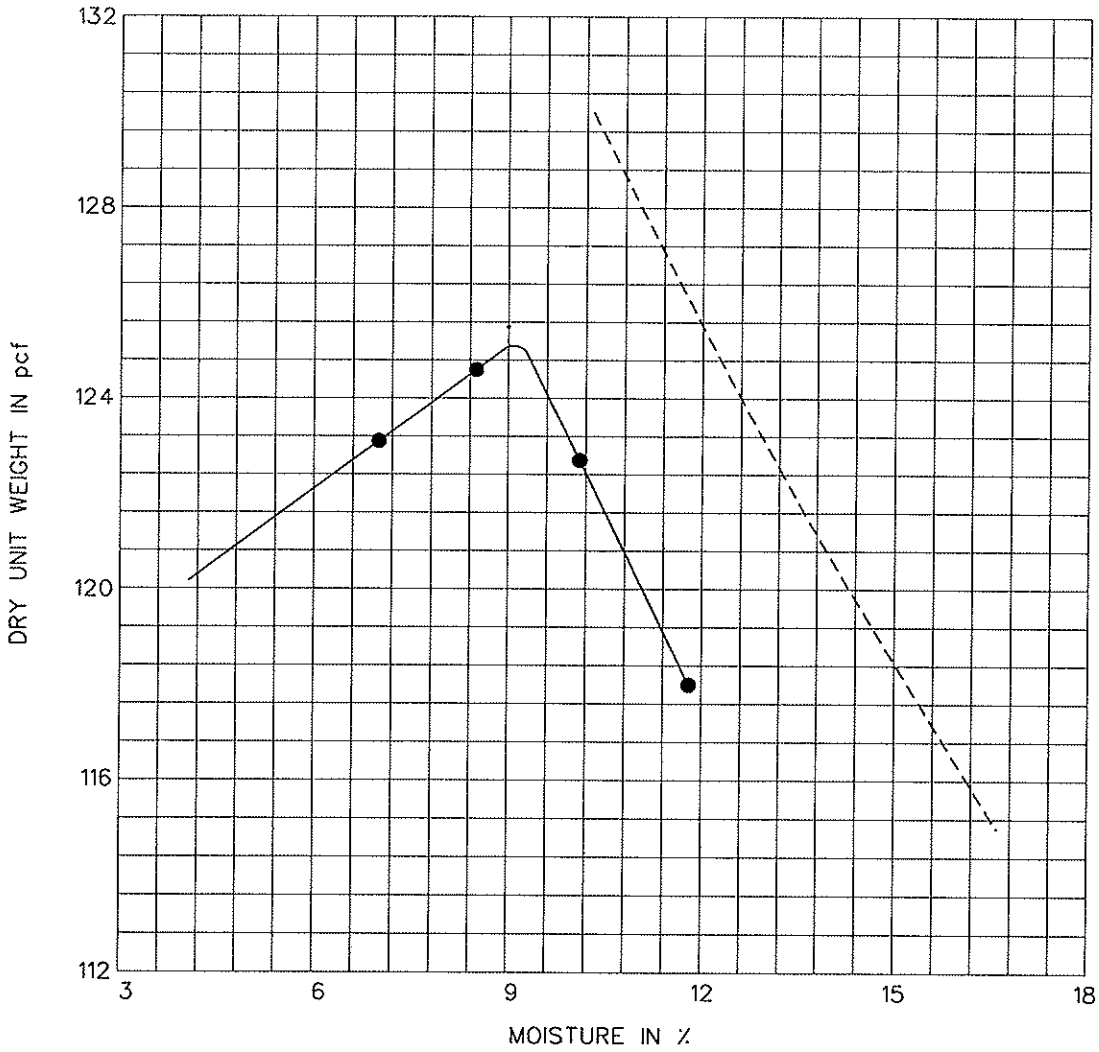
MOISTURE-DENSITY RELATION (PROCTOR)

Project	KINNEY MINE			Date	9/6/07
Location / No.	SCOFIELD, UTAH / WSF-2 TH AT 3'-8'			Technician	G. PEASLEE
Material Description	LT. BROWN SILTY SAND W/GRAVEL	USCS	SM	Method	ASTM D 1557

Procedure Used[1]	C
Classification Procedure[2]	Visual

[1] A-No. 4 Sieve, B-3/8" Sieve, C-3/4" Sieve
[2] Visual as per ASTM D 2488, Test as per ASTM D 2487

Preparation Method	Moist
Rammer Used	Manual
As-Received Moisture Content (%)	5.0



Maximum Dry Density (pcf)	125.5
Optimum Moisture Content (%)	9.0
Corrected Maximum Density (pcf)	128.0
Corrected Optimum Moisture Content (%)	8.5

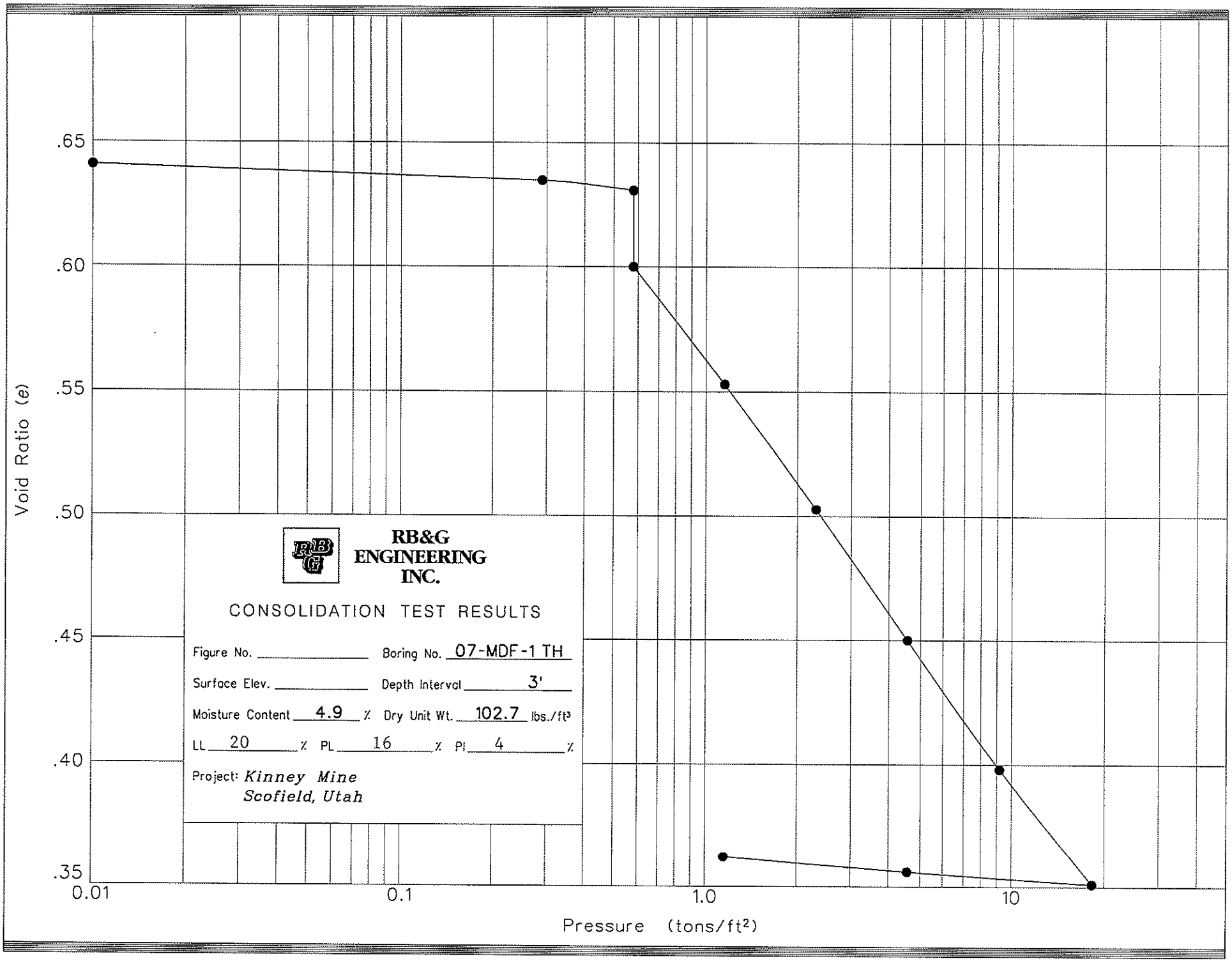
----- 100% Saturation Curve

Specific Gravity of Soil	2.65	Est.

OVERSIZE CORRECTION-ASTM D 4718

Specific Gravity of Soil +3/4	2.65	Est.
Percent Oversize	10.0	

Type of Specific Gravity is BULK Unless Otherwise Indicated



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CONSOLIDATION TEST RESULTS

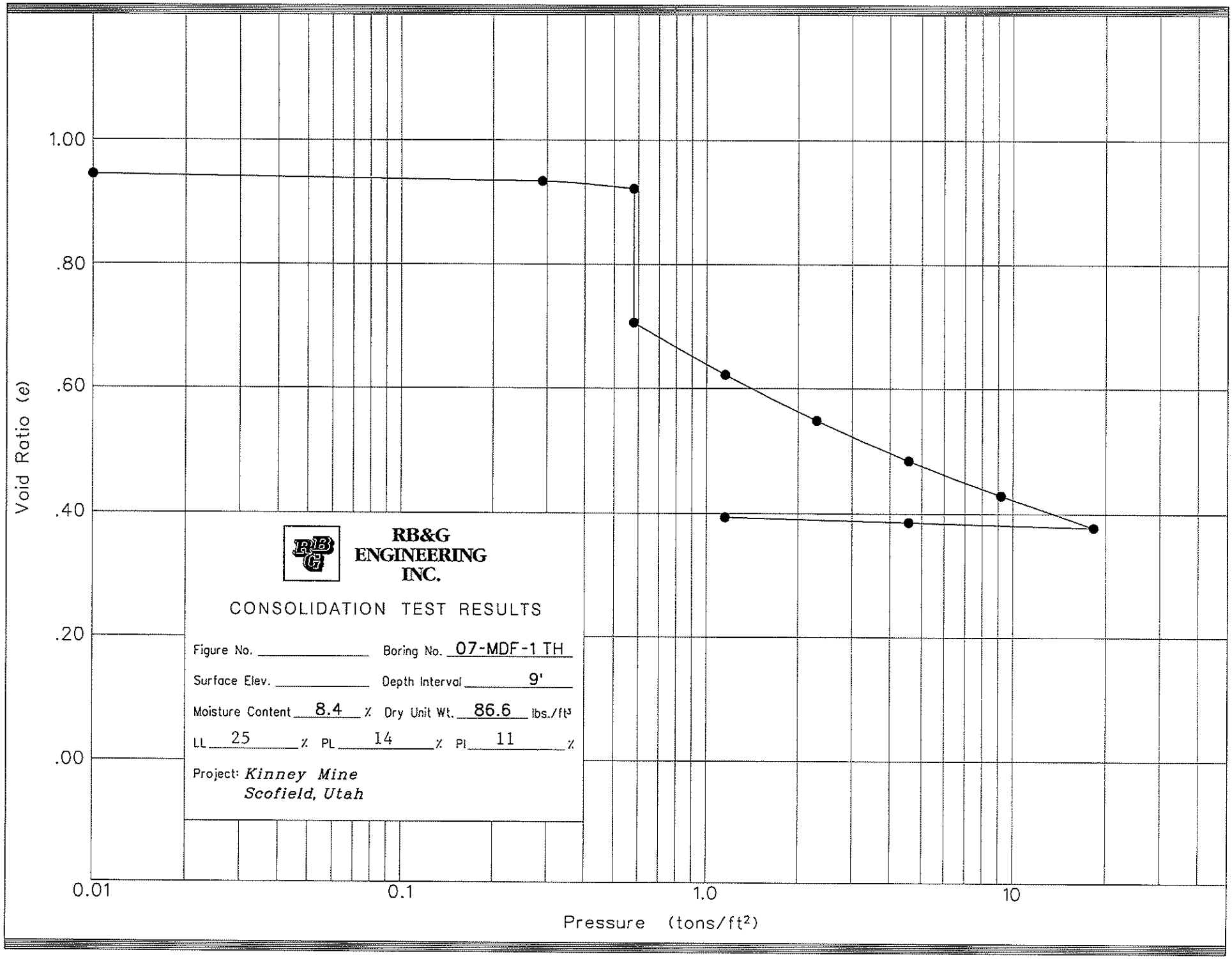
Figure No. _____ Boring No. 07-MDF-1 TH

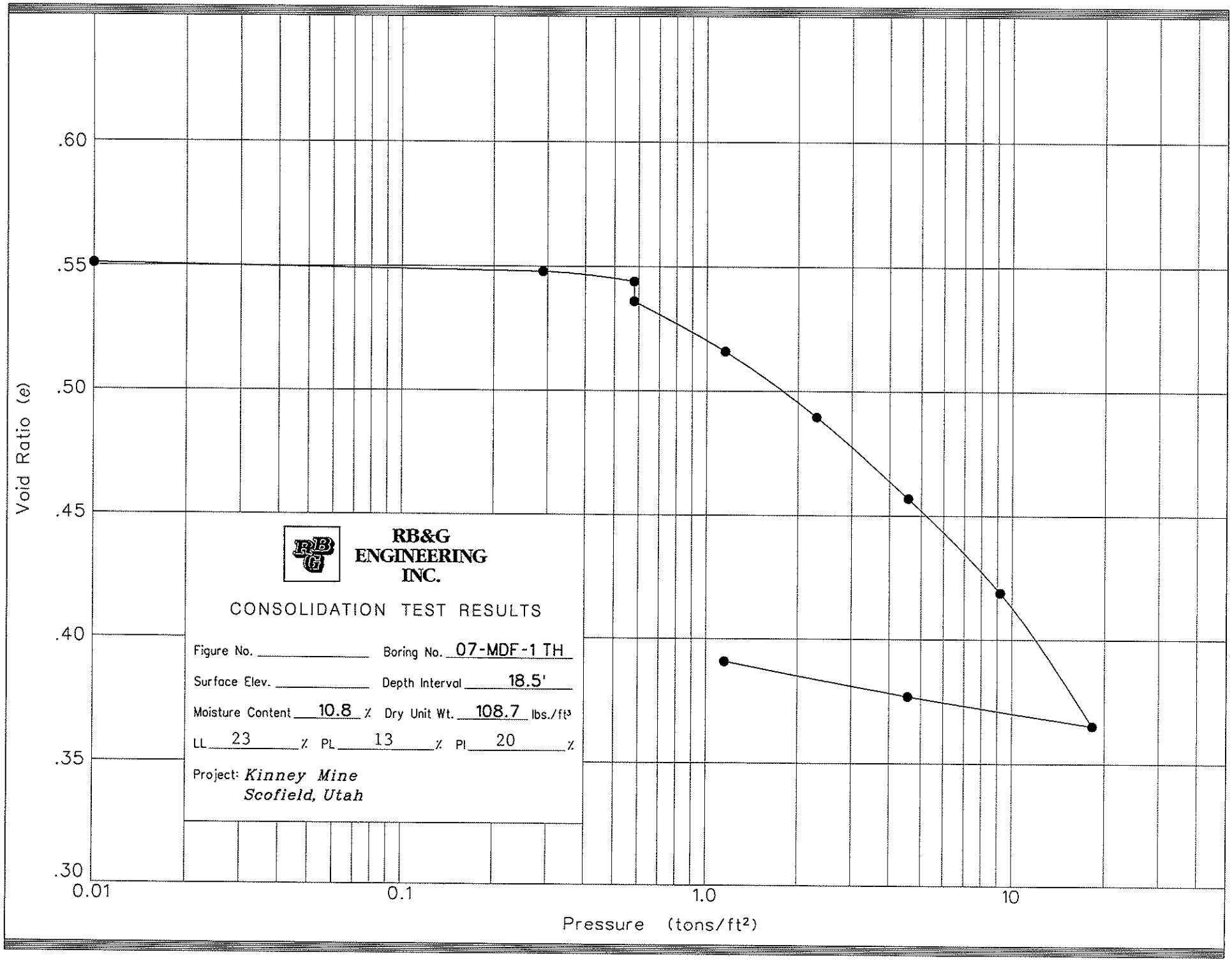
Surface Elev. _____ Depth Interval 3'

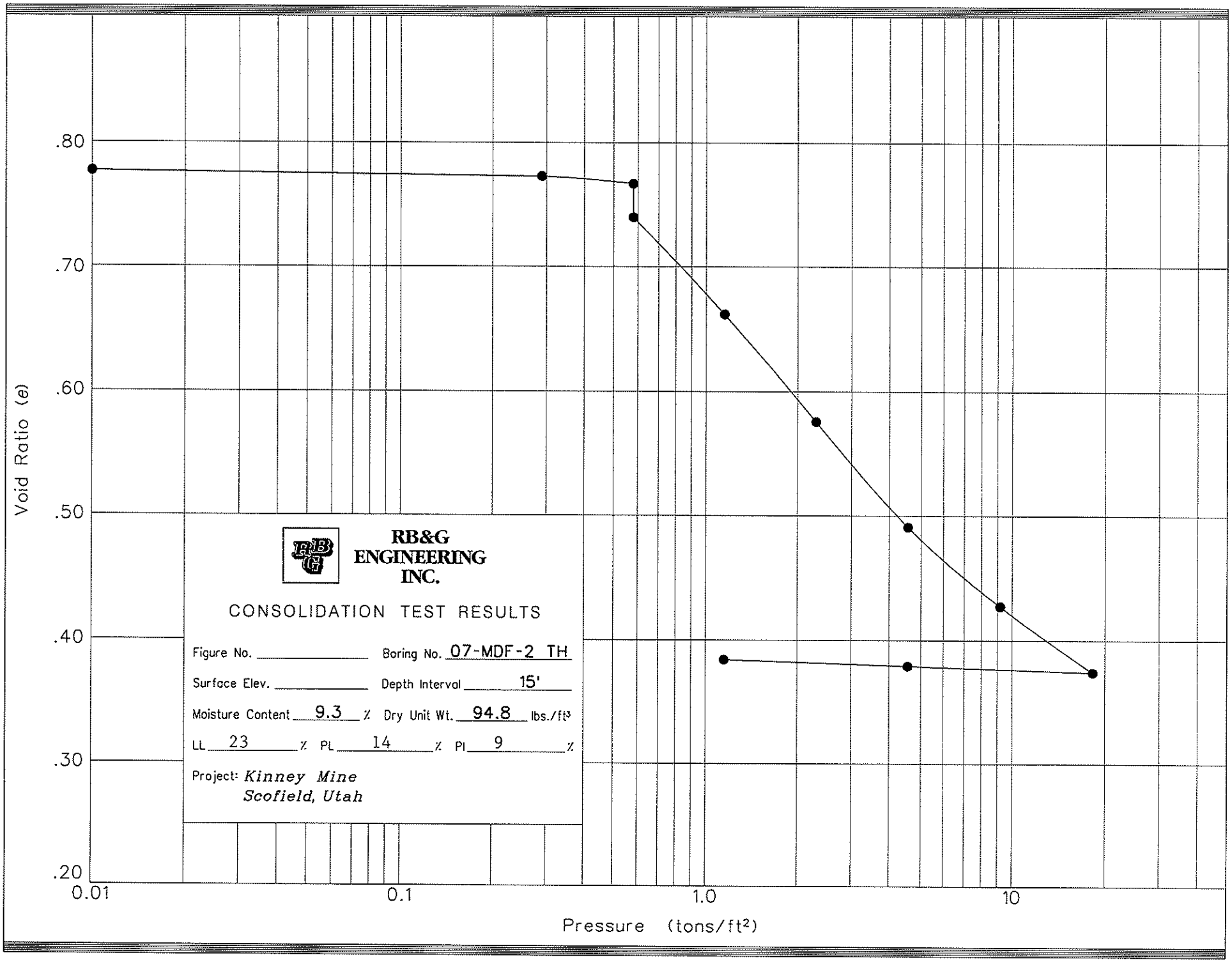
Moisture Content 4.9 % Dry Unit Wt. 102.7 lbs./ft³

LL 20 % PL 16 % PI 4 %

Project: *Kinney Mine*
Scofield, Utah


1.00
.80
.60
.40
.20
.00
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-MDF-1 TH
Surface Elev. _____ Depth Interval 9'
Moisture Content 8.4 % Dry Unit Wt. 86.6 lbs./ft³
LL 25 % PL 14 % PI 11 %
Project: Kinney Mine
Scofield, Utah


.60
.55
.50
.45
.40
.35
.30
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-MDF-1 TH
Surface Elev. _____ Depth Interval 18.5'
Moisture Content 10.8 % Dry Unit Wt. 108.7 lbs./ft³
LL 23 % PL 13 % PI 20 %
Project: Kinney Mine
Scofield, Utah


.80
.70
.60
.50
.40
.30
.20
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-MDF-2 TH
Surface Elev. _____ Depth Interval 15'
Moisture Content 9.3 % Dry Unit Wt. 94.8 lbs./ft³
LL 23 % PL 14 % PI 9 %
Project: Kinney Mine
Scofield, Utah

SHOP / WAREHOUSE

TEST PITS WSF-1, WSF-2 & WSF-3

TEST PIT LOG

TEST PIT NO. WSF-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: WARWEHOUSE & SHOP FACILITY / N:74,287 E:38,116
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7719.5'
LOGGED BY: J. BOONE

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
7715	5					CL-ML	brown, dry — SILTY SANDY CLAY (fill)								
						-	COAL (fill)								
					+1.00	CL-ML	SANDY SILTY CLAY — brown, dry, hard	97.9	4.5	21	5				UC
7710	10					-	lt. brown, dry, dense — SANDSTONE very weathered, more competent w/depth								
7705	15						Trackhoe unable to excavate deeper								
7700															

TP_LOGV1_KINNEYMINE_TP.GPJ_US_EVAL.GDT 10/29/07

LEGEND:

DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

RB&G ENGINEERING INC.
PROVO, UTAH

TEST PIT LOG

TEST PIT NO. WSF-2 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE

CLIENT: GEO-HUNT CONSULTING, LLC

LOCATION: WARWEHOUSE & SHOP FACILITY / N:74,287 E:38,116

DIGGING METHOD: JOHN DEERE 160 TRACKHOE

OPERATOR:

DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045

DATE STARTED: 9/7/07

DATE COMPLETED: 9/7/07

GROUND ELEVATION: 7721.6'

LOGGED BY: J. LINDO

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
						CL	dk. brown, dry — SANDY LEAN CLAY								
7720						-	black, dry — COAL (fill)								
						SM	dk. brown, slightly moist, loose	91	4.6		NP	29	45	26	
	5					SM	dk. brown, slightly moist, loose — SILTY SAND W/GRAVEL occasional cobbles	89.4	6.5						
7715						CL-ML/ SC-SM	brown, slightly moist — SANDY SILTY CLAY TO SILTY CLAYEY SAND slight pinhole structure		4.7	19	4				
7710	10					GM	lt. brown, dry — SILTY GRAVEL W/SAND cobbles & boulders increasing w/depth								
	15					GM	lt. brown, dry								
7705							Bottom of excavation very rocky, trackhoe unable to excavate deeper								

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE

UNDISTURBED SAMPLE

Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

TEST PIT LOG

TEST PIT NO. WSF-3 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: WARWEHOUSE & SHOP FACILITY / N:74,287 E:38,116
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/7/07
DATE COMPLETED: 9/7/07
GROUND ELEVATION: 7718.7'
LOGGED BY: J. LINDO

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
						CL	dk. brown, dry — SANDY LEAN CLAY								
						-	black, dry — COAL (fill)								
7715	5					SM	dk. brown, very moist, loose — SILTY SAND W/GRAVEL	84.7	18						
						SM	dk. brown, slightly moist, loose	89.6	4.6		NP	34	38	28	
7710	10				0.75	CL-1	lt. brown, slightly moist, stiff — SANDY LEAN CLAY W/GRAVEL slight pinhole structure	96.3	10.1	22	8				CT
					0.83	SM	lt. brown, moist, med. dense — SILTY SAND clay layers to 4" thick		6.1		NP	34	38	28	
7705	15				0.70	CL	lt. brown, moist, stiff — SANDY LEAN CLAY W/GRAVEL >20% cobbles & boulders								
7700					+1.00	CL	lt. brown, moist, very stiff								

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

Table 1

SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

HOLE NO.	DEPTH BELOW GROUND SURFACE (ft)	STANDARD PENETRATION BLOWS PER FOOT	IN-PLACE		UNCONFINED COMPRESSIVE STRENGTH (psf)	ATTERBERG LIMITS			MECHANICAL ANALYSIS			UNIFIED SOIL CLASSIFICATION SYSTEM (modified)
			DRY UNIT WEIGHT (pcf)	MOISTURE (%)		LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	PERCENT GRAVEL	PERCENT SAND	PERCENT SILT & CLAY	
CV-2-1 TH	3	Grab	95.0	9.0		32	15	17				CL-2
	6	Grab		3.1				NP	64	23	13	GM
CV-2-3 TH	3	Grab	106.1	7.6	4000+*	25	13	12				CL-1
	6	Grab	88.6	6.5	4000+*	23	17	6				CL-ML
	9	Grab	97.1	4.8	4000+*	19	15	4				CL-ML / SC-SM
CV-5-1 TH	3	Grab	89.8	5.8	4000+*	22	15	7				CL-1
	9	Grab	90.7	7.1	4000+*	21	17	4				CL-ML
	12	Grab	95.8	9.7	4000+*	22	12	10				CL-1
	19	Grab		9.6	4000+*	23	13	10				CL-1
CL-5-2 TH	12	Grab	112.7	13.8	4000+*	42	16	26				CL-2
	15	Grab		14.1	4000+*	33	15	18				CL-2
WSF-1 TH	6	Grab	97.9	4.5	2827	21	16	5				CL-ML
WSF-2 TH	3	Grab	91.0	4.6				NP	29	45	26	SM
	9	Grab		4.7		19	15	4				CL-ML / SC-SM
WSF-3 TH	6	Grab	89.6	4.6				NP	34	38	28	SM
	9	Grab	96.3	10.1	3000*	22	14	8				CL-1
	12	Grab		6.1	3320*			NP	34	38	28	SM
MDF-1 TH	3	Grab	102.7	4.9		20	16	4				CL-ML / SC-SM
	9	Grab	86.6	8.4	3240*	25	14	11				CL-1
	18.5	Grab	108.7	10.8	2760*	23	13	10				CL-1
MDF-2 TH	3	Grab	108.6	4.6		20	15	5	34	38	28	SC-SM
	6	Grab	118.5	3.8				NP	38	47	15	SM
	15	Grab	94.8	9.3	3520*	23	14	9				CL-1
MDF-3 TH	6	Grab	102.9	5.8				NP	34	39	27	SM
	15	Grab		7.5	4000+*	22	12	10				CL-1
	18	Grab		5.3	4000+*	21	13	8				CL-1
CS-1 TH	6	Grab										Coal
	9	Grab		8.8	2080*	23	14	9				CL-1
	12	Grab		15.5	2240*	24	16	8				CL-1
F-1 TH	6	Grab	91.3	5.6		22	18	4	18	42	40	SC-SM
	9	Grab		6.1		21	16	5				CL-ML / SC-SM

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

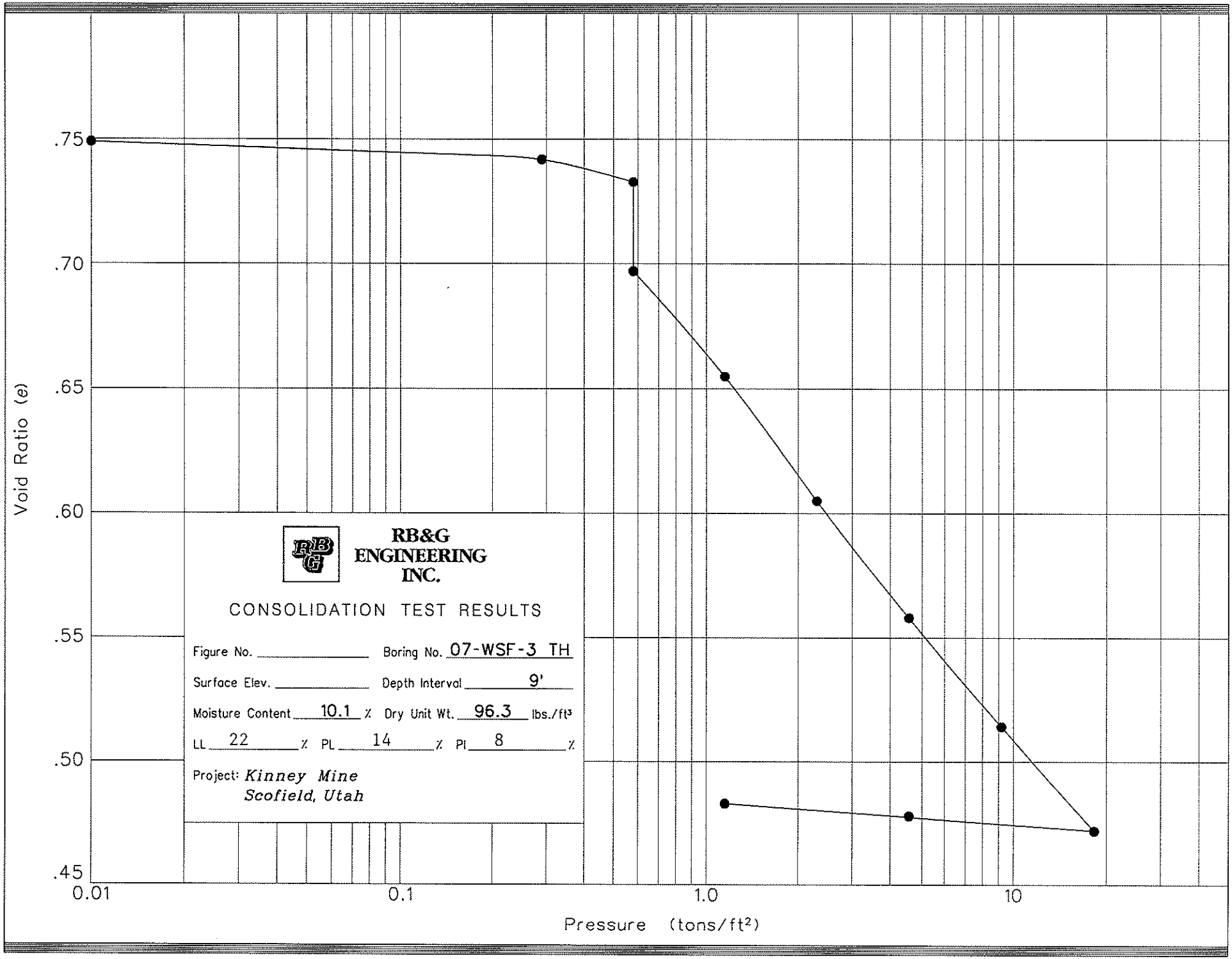
PROJECT NO. 200701-045
FEATURE

CHEMICAL TESTS					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	pH	RESISTIVITY (ohm-cm)	SULFATE (%)	USCS (MODIFIED) / AASHTO CLASSIFICATION
3-NS-1	6-7.5	8.0	6761	0.0031	CL-1
11-MDF-2	3	8.2	7202	0.0064	SC-SM
9-WSF-1	6	7.3	3322	0.0195	CL-ML
13-WSF-2	3	7.8	6502	0.0315	SM

DIRECT SHEAR TESTS CONSOLIDATED DRAINED					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	DRY DENSITY (pcf)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	USCS (MODIFIED) / AASHTO CLASSIFICATION
07-CV-5-1 TH	12	95.8	20	15	CL-1

TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS						
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	TOTAL STRESS		EFFECTIVE STRESS		USCS (MODIFIED) / AASHTO CLASSIFICATION
		FRICTION ANGLE $\Phi_{(cu)}$ (degrees)	COHESION $c_{(cu)}$ (psi)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	
CV-4-1 DRL	20-21.5	29.6	2	36.0	2	CL
SC-2 DRL	23-24	32.5	2	36.7	2	CL-1

* Visual Classification
**Bulk Sample


.75
.70
.65
.60
.55
.50
.45
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-WSF-3 TH
Surface Elev. _____ Depth Interval 9'
Moisture Content 10.1 % Dry Unit Wt. 96.3 lbs./ft³
LL 22 % PL 14 % PI 8 %
Project: Kinney Mine
Scofield, Utah

COVERED STORAGE & FUEL STRUCTURE

TEST PITS CS-1 & F-1

TEST PIT LOG

TEST PIT NO. CS-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: COVERED STORAGE / N:74,530 E:38,348
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7716.6'
LOGGED BY: J. BOONE

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
						CL	dk. brown, dry — SANDY LEAN CLAY W/GRAVEL								
7715						-	black, dry								
	5						COAL fine grained, occasional gravel layer (fill)								
7710						-	black, dry								
					0.52	CL-1	dk. brown, slightly moist, stiff — SANDY LEAN CLAY (fill?)		8.8	23	9				
	10														
7705					0.56	CL-1	orange-brown, moist, stiff		15.5	24	8				
							SANDY LEAN CLAY W/GRAVEL pinhole structure								
	15				0.55	CL	orange-brown, moist, stiff								
7700						GM	orange-brown, moist — SILTY GRAVEL W/SAND								
					0.85	CL	lt. brown, moist, stiff — LEAN CLAY W/SAND								

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:
DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)
UNDISTURBED SAMPLE

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

TEST PIT LOG

TEST PIT NO. F-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: FUEL / N:74,629 E:38,415
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/7/07
DATE COMPLETED: 9/7/07
GROUND ELEVATION: 7724.0'
LOGGED BY: J. LINDO

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
						CL	dk. brown, dry — SANDY LEAN CLAY								
7720	5					SC-SM	brown, slightly moist, loose — SILTY CLAYEY SAND W/GRAVEL coal layers (fill)	89.3	6.2						
						SC-SM	brown, slightly moist, loose	91.3	5.6	22	4	18	42	40	
7715	10					CL-ML/ SC-SM	dk. brown, slightly moist — SANDY SILTY CLAY TO SILTY CLAYEY SAND		6.1	21	5				
						SM	lt. brown, slightly moist — SILTY SAND W/GRAVEL more gravel w/depth								
7710	15					GM	lt. brown, slightly moist, dense — SILTY GRAVEL W/SAND								
7705															

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

Table 1

SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

HOLE NO.	DEPTH BELOW GROUND SURFACE (ft)	STANDARD PENETRATION BLOWS PER FOOT	IN-PLACE		UNCONFINED COMPRESSIVE STRENGTH (psf)	ATTERBERG LIMITS			MECHANICAL ANALYSIS			UNIFIED SOIL CLASSIFICATION SYSTEM (modified)
			DRY UNIT WEIGHT (pcf)	MOISTURE (%)		LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	PERCENT GRAVEL	PERCENT SAND	PERCENT SILT & CLAY	
CV-2-1 TH	3	Grab	95.0	9.0		32	15	17				CL-2
	6	Grab		3.1				NP	64	23	13	GM
CV-2-3 TH	3	Grab	106.1	7.6	4000+*	25	13	12				CL-1
	6	Grab	88.6	6.5	4000+*	23	17	6				CL-ML
	9	Grab	97.1	4.8	4000+*	19	15	4				CL-ML / SC-SM
CV-5-1 TH	3	Grab	89.8	5.8	4000+*	22	15	7				CL-1
	9	Grab	90.7	7.1	4000+*	21	17	4				CL-ML
	12	Grab	95.8	9.7	4000+*	22	12	10				CL-1
	19	Grab		9.6	4000+*	23	13	10				CL-1
CL-5-2 TH	12	Grab	112.7	13.8	4000+*	42	16	26				CL-2
	15	Grab		14.1	4000+*	33	15	18				CL-2
WSF-1 TH	6	Grab	97.9	4.5	2827	21	16	5				CL-ML
WSF-2 TH	3	Grab	91.0	4.6				NP	29	45	26	SM
	9	Grab		4.7		19	15	4				CL-ML / SC-SM
WSF-3 TH	6	Grab	89.6	4.6				NP	34	38	28	SM
	9	Grab	96.3	10.1	3000*	22	14	8				CL-1
	12	Grab		6.1	3320*			NP	34	38	28	SM
MDF-1 TH	3	Grab	102.7	4.9		20	16	4				CL-ML / SC-SM
	9	Grab	86.6	8.4	3240*	25	14	11				CL-1
	18.5	Grab	108.7	10.8	2760*	23	13	10				CL-1
MDF-2 TH	3	Grab	108.6	4.6		20	15	5	34	38	28	SC-SM
	6	Grab	118.5	3.8				NP	38	47	15	SM
	15	Grab	94.8	9.3	3520*	23	14	9				CL-1
MDF-3 TH	6	Grab	102.9	5.8				NP	34	39	27	SM
	15	Grab		7.5	4000+*	22	12	10				CL-1
	18	Grab		5.3	4000+*	21	13	8				CL-1
CS-1 TH	6	Grab										Coal
	9	Grab		8.8	2080*	23	14	9				CL-1
	12	Grab		15.5	2240*	24	16	8				CL-1
F-1 TH	6	Grab	91.3	5.6		22	18	4	18	42	40	SC-SM
	9	Grab		6.1		21	16	5				CL-ML / SC-SM

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

CONVEYOR SECTION-1

BORING PORTAL-1 & TEST PIT TT-1-2

DRILL HOLE LOG

BORING NO. PORTAL-1 DRL

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: TRANSFER TOWER / N:74,072 E:38,924
DRILLING METHOD: SIMCO 2800 / C.F. AUGER & H.Q. CORE W/AIR
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 8/31/07
DATE COMPLETED: 8/31/07
GROUND ELEVATION: 7890.6'
LOGGED BY: M. HANSEN

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
7890															
				10	6,10	CL-ML	lt. brown, dry — SANDY SILTY CLAY								
						GM	lt. brown, dry								
	5			13	Core 55,0	GM	yellow & lt. brown, dry								
7885							INTERBEDDED SILTSTONE & SANDSTONE GRAVELS & COBBLES IN A SANDY SILT MATRIX occasional clay layers to 1" thick								
				13	Core 28,0	GM	yellow & lt. brown, dry								
	10														
7880				10	5,10,7	GM	yellow & lt. brown, dry, loose		5		NP	55	23	22	
				0	Core 0,0	-									
				9	9,5,2 0.39	CL	gray-brown, slightly moist, firm — LEAN CLAY W/SAND								
	15			0	Core 0,0	-									
7875							SILTY SANDSTONE VERY HIGHLY WEATHERED								
				2	14,11,10	GM	yellow, dry								
					1.88	CL	dk. brown, very stiff — LEAN CLAY								
				18	Core 100,0	OH	black, dry								
	20			11	4,6,10	OH	black, dry, med. dense — COAL very highly weathered		72	78	4	0	41	59	
7870															
				0	Core 0,0	-									
							CLAYEY MUDSTONE very highly weathered								
				42	Core 117,50	GM	lt. brown, dry — SANDSTONE more competent w/depth								

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 11/1/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE: 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)
CORE: CORE 95,60 ← Rock Quality Designation (% RQD); ← Percent Sample Recovery
UNDISTURBED SAMPLE: PUSHED; 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

TEST PIT LOG

TEST PIT NO. TT-1-2 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: TRANSFER TOWER / N:74,070 E:38,873
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7873.1'
LOGGED BY: M.N.H.

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
						ML	lt. brown w/some green, dry — SANDY SILT W/ORGANICS								
7870						CL-ML	lt. brown, dry — SILTY CLAY W/GRAVEL some pinhole structure, flagstone cobbles of sandstone								
	5					GC	dry — COBBLES & GRAVEL W/CLAY								
						CL/GC	lt. brown, dry — GRAVELLY CLAY TO CLAYEY GRAVEL								
						CL-ML	dk. brown, dry — SILTY CLAY W/GRAVEL								
7865						GC	lt. brown, dry — GRAVEL W/CLAY cobbles & boulders								

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

TT-1-DH

Table 1

SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

HOLE NO.	DEPTH BELOW GROUND SURFACE (ft)	STANDARD PENETRATION BLOWS PER FOOT	IN-PLACE		UNCONFINED COMPRESSIVE STRENGTH (psf)	ATTERBERG LIMITS			MECHANICAL ANALYSIS			UNIFIED SOIL CLASSIFICATION SYSTEM (modified)
			DRY UNIT WEIGHT (pcf)	MOISTURE (%)		LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	PERCENT GRAVEL	PERCENT SAND	PERCENT SILT & CLAY	
Portal 1-DRL	10-11.5	17		5.0				NP	55	23	22	GM
	19-20.5	16		72.0		78	74	4	0	41	59	OH
CV-2-2 DRL	3-4.5	52		3.6				NP	15	59	26	SM
	9-10.5	11		4.9				NP	17	61	22	SM
	15-16.5	19		4.4				NP	42	49	9	SP-SM
	25-26.5	19		10.7		31	15	16				CL-2
NS-1 DRL	6-7.5	28		5.3		22	13	9				CL-1
	9-10.5	52		6.1		26	13	13				CL-1
	15-16.5	46		5.3				NP	6	25	69	ML
	22.5-24	23		11.8		26	13	13				CL-1
	31.5-31.9		109.6	18.8								CL
S-1 DRL	10-11.5	23		7.8		28	14	14				CL-1
	20-21.5	19		12.9		24	14	10				CL-1
	30-31.5	27		12.8		26	14	12				CL-1
	40-41.5	25		17.5	6280*	28	15	13				CL-1
	50-51.5	29		16.2	5840*	34	15	19				CL-2
	57		113.9	16.3								
	66		103.4	18.1								CL
	70-71.5	35		17.2	8280*	35	14	21				CL-2
CV-4-1 DRL	5-6.5	21		10.0		25	18	7				CL-1
	10.5-15	Core		9.2		20	13	7	24	24	52	CL-1
	15-16.5	55		10.2		21	11	10				CL-1
	21.5-25	Core		11.9	3600*	22	12	10				CL-1
	25-26.5	22		13.8	2240*	26	10	16				CL-2
	31.5-35	Core		10.5	2220*	21	10	11				CL-1
	35-36.5	9		17.1	3200*	21	11	10				CL-1
	41.5-45	Core		17.1		29	13	16				CL-2
	45-46.5	74		14.6	3320*	30	14	16				CL-2
	55-60	Core		12.6	4000*	21	14	7				CL-1
	66.5-70	Core		12.6	4000*	29	11	18	15	19	66	CL-2
SC-2 DRL	23-24					24	12	12				CL-1

NP=Nonplastic
*Torvane value used to estimate unconfined compressive strength.

CONVEYOR SECTION-2

TEST PIT CV-2-1, BORING CV-2-2, & TEST PIT CV-2-3

TEST PIT LOG

TEST PIT NO. CV-2-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:74,184 E:38,833
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7862.7'
LOGGED BY: J. BOONE

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
							SANDY LEAN CLAY W/GRAVEL ~30% cobbles & boulders								
7860						CL-2	brown, slightly moist, stiff	95	9	32	17				
							COAL								
	5					GM	lt. brown, dry, dense		3.1		NP	64	23	13	
7855							COBBLES & BOULDERS IN SILTY SAND MATRIX >80% gravel, cobbles & boulders; fractured & weathered sandstone								
	10					GM	lt. brown, dry, dense								
7850															
	15					-	lt. brown, dry								
							SANDSTONE competent, trackhoe able to excavate w/difficulty								
7845															

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

DRILL HOLE LOG

BORING NO. CV-2-2 DRL

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:74,404 E:38,793
DRILLING METHOD: SIMCO 2800 / C.F. AUGER
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/1/07
DATE COMPLETED: 9/1/07
GROUND ELEVATION: 7841.2'
LOGGED BY: M. HANSEN

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
7840	0														
				18	4,5,5	CL-ML	gray-brown, dry, firm — SANDY SILTY CLAY								
						CL-ML	lt. brown, dry								
				16	9,27,25	SM	yellow-brown, dry, very dense		3.6		NP	15	59	26	
7835	5			12	30,21,12	SM	yellow-brown, dry, dense — SILTY SAND W/GRAVEL very highly weathered sandstone								
				18	4,5,6	SM	yellow-brown, dry, med. dense		4.9		NP	17	61	22	
7830	10			11	3,6,7	SM	yellow-brown, dry, med. dense								
				12	11,9,10	SP-SM	lt. brown, dry, med. dense — SAND W/SILT & GRAVEL very highly weathered sandstone		4.4		NP	42	49	9	
7825	15														
				11	4,5,7	SP-SM	lt. brown, dry, med. dense								
7820	20														
				15	4,7,12	CL-2	gray-brown, slightly moist, stiff — LEAN CLAY W/SAND very highly weathered mudstone		10.7	31	16				
7815	25														
						CL	yellow-brown, slightly moist, stiff								
	30			12	7,11,36	SM	yellow-brown — SILTY SAND W/GRAVEL very highly weathered sandstone								
7810															

DH_LOGV3_KINNEYMINE_DH.GPJ_US EVAL.GDT 11/1/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6" ; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE — PUSHED ; 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

TEST PIT LOG

TEST PIT NO. CV-2-3 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:74,617 E:38,738
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7805.2'
LOGGED BY: J. BOONE

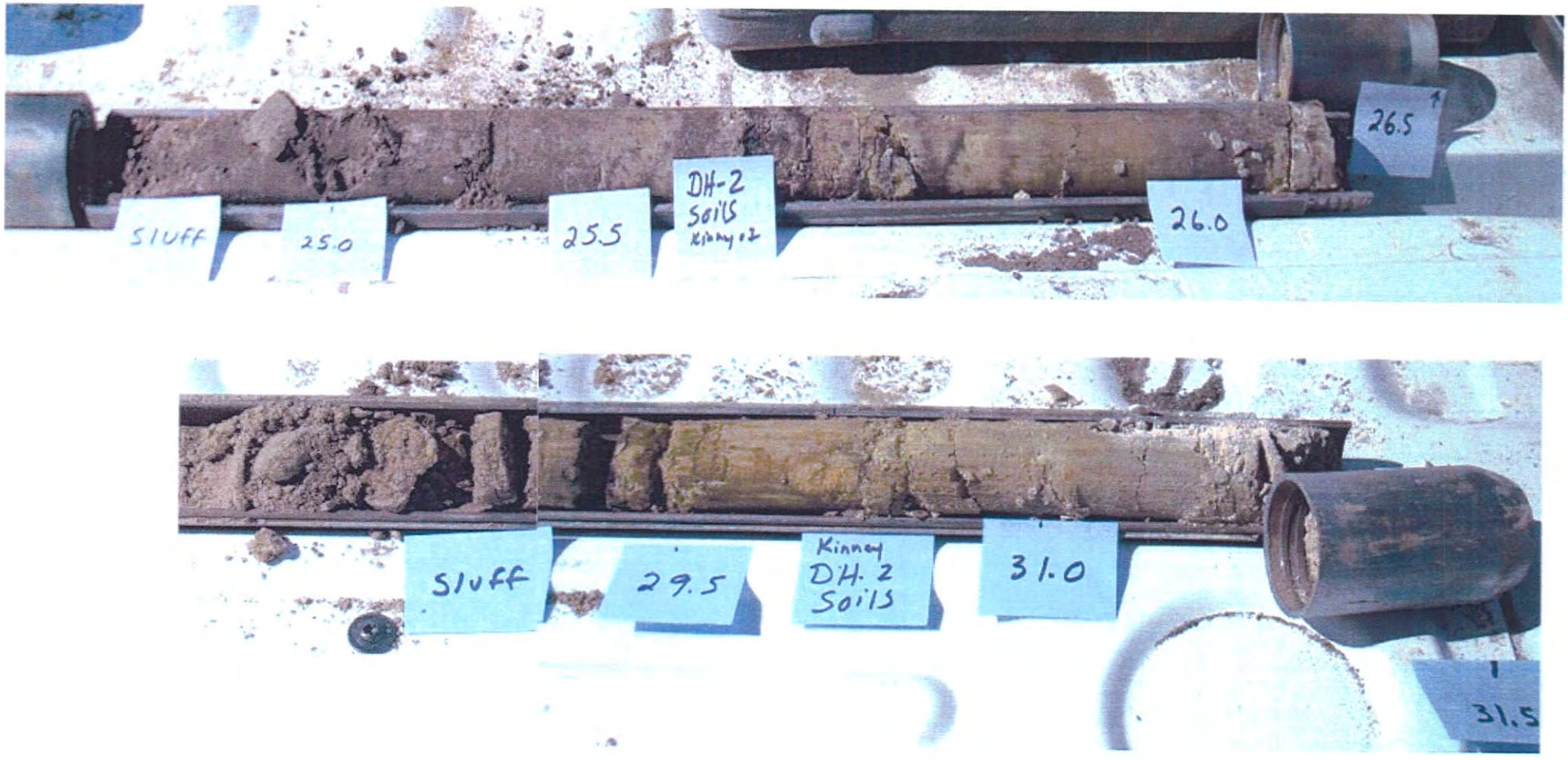
Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
7805															
					+1.00	CL-1	dk. brown, dry to slightly moist, very stiff — SANDY LEAN CLAY W/GRAVEL (fill)	106.1	7.6	25	12				
7800	5						COAL & ORGANIC LAYER								
					+1.00	CL-ML	lt. brown, dry, very stiff — SANDY SILTY CLAY W/GRAVEL very blocky	88.6	6.5	23	6				
					+1.00	CL-ML/ SC-SM	lt. brown, dry, very stiff — SANDY SILTY CLAY TO SILTY CLAYEY SAND pinhole structure	97.1	4.8	19	4				
7795	10					-	lt. brown, dry, dense — SANDSTONE weathered, becomes more competent w/depth								
7790	15														

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio


SIUFF
25.0
25.5
DH-2
SOILS
26.0
26.5
SIUFF
29.5
Kinney
DH. 2
SOILS
31.0
31.5

CV-2

Table 1

SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

HOLE NO.	DEPTH BELOW GROUND SURFACE (ft)	STANDARD PENETRATION BLOWS PER FOOT	IN-PLACE		UNCONFINED COMPRESSIVE STRENGTH (psf)	ATTERBERG LIMITS			MECHANICAL ANALYSIS			UNIFIED SOIL CLASSIFICATION SYSTEM (modified)
			DRY UNIT WEIGHT (pcf)	MOISTURE (%)		LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	PERCENT GRAVEL	PERCENT SAND	PERCENT SILT & CLAY	
Portal 1-DRL	10-11.5	17		5.0				NP	55	23	22	GM
	19-20.5	16		72.0		78	74	4	0	41	59	OH
CV-2-2 DRL	3-4.5	52		3.6				NP	15	59	26	SM
	9-10.5	11		4.9				NP	17	61	22	SM
	15-16.5	19		4.4				NP	42	49	9	SP-SM
	25-26.5	19		10.7		31	15	16				CL-2
NS-1 DRL	6-7.5	28		5.3		22	13	9				CL-1
	9-10.5	52		6.1		26	13	13				CL-1
	15-16.5	46		5.3				NP	6	25	69	ML
	22.5-24	23		11.8		26	13	13				CL-1
	31.5-31.9		109.6	18.8								CL
S-1 DRL	10-11.5	23		7.8		28	14	14				CL-1
	20-21.5	19		12.9		24	14	10				CL-1
	30-31.5	27		12.8		26	14	12				CL-1
	40-41.5	25		17.5	6280*	28	15	13				CL-1
	50-51.5	29		16.2	5840*	34	15	19				CL-2
	57		113.9	16.3								
	66		103.4	18.1								CL
	70-71.5	35		17.2	8280*	35	14	21				CL-2
CV-4-1 DRL	5-6.5	21		10.0		25	18	7				CL-1
	10.5-15	Core		9.2		20	13	7	24	24	52	CL-1
	15-16.5	55		10.2		21	11	10				CL-1
	21.5-25	Core		11.9	3600*	22	12	10				CL-1
	25-26.5	22		13.8	2240*	26	10	16				CL-2
	31.5-35	Core		10.5	2220*	21	10	11				CL-1
	35-36.5	9		17.1	3200*	21	11	10				CL-1
	41.5-45	Core		17.1		29	13	16				CL-2
	45-46.5	74		14.6	3320*	30	14	16				CL-2
	55-60	Core		12.6	4000*	21	14	7				CL-1
	66.5-70	Core		12.6	4000*	29	11	18	15	19	66	CL-2
SC-2 DRL	23-24					24	12	12				CL-1

NP=Nonplastic
*Torvane value used to estimate unconfined compressive strength.

Table 1

SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

HOLE NO.	DEPTH BELOW GROUND SURFACE (ft)	STANDARD PENETRATION BLOWS PER FOOT	IN-PLACE		UNCONFINED COMPRESSIVE STRENGTH (psf)	ATTERBERG LIMITS			MECHANICAL ANALYSIS			UNIFIED SOIL CLASSIFICATION SYSTEM (modified)
			DRY UNIT WEIGHT (pcf)	MOISTURE (%)		LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	PERCENT GRAVEL	PERCENT SAND	PERCENT SILT & CLAY	
CV-2-1 TH	3	Grab	95.0	9.0		32	15	17				CL-2
	6	Grab		3.1				NP	64	23	13	GM
CV-2-3 TH	3	Grab	106.1	7.6	4000+*	25	13	12				CL-1
	6	Grab	88.6	6.5	4000+*	23	17	6				CL-ML
	9	Grab	97.1	4.8	4000+*	19	15	4				CL-ML / SC-SM
CV-5-1 TH	3	Grab	89.8	5.8	4000+*	22	15	7				CL-1
	9	Grab	90.7	7.1	4000+*	21	17	4				CL-ML
	12	Grab	95.8	9.7	4000+*	22	12	10				CL-1
	19	Grab		9.6	4000+*	23	13	10				CL-1
CL-5-2 TH	12	Grab	112.7	13.8	4000+*	42	16	26				CL-2
	15	Grab		14.1	4000+*	33	15	18				CL-2
WSF-1 TH	6	Grab	97.9	4.5	2827	21	16	5				CL-ML
WSF-2 TH	3	Grab	91.0	4.6				NP	29	45	26	SM
	9	Grab		4.7		19	15	4				CL-ML / SC-SM
WSF-3 TH	6	Grab	89.6	4.6				NP	34	38	28	SM
	9	Grab	96.3	10.1	3000*	22	14	8				CL-1
	12	Grab		6.1	3320*			NP	34	38	28	SM
MDF-1 TH	3	Grab	102.7	4.9		20	16	4				CL-ML / SC-SM
	9	Grab	86.6	8.4	3240*	25	14	11				CL-1
	18.5	Grab	108.7	10.8	2760*	23	13	10				CL-1
MDF-2 TH	3	Grab	108.6	4.6		20	15	5	34	38	28	SC-SM
	6	Grab	118.5	3.8				NP	38	47	15	SM
	15	Grab	94.8	9.3	3520*	23	14	9				CL-1
MDF-3 TH	6	Grab	102.9	5.8				NP	34	39	27	SM
	15	Grab		7.5	4000+*	22	12	10				CL-1
	18	Grab		5.3	4000+*	21	13	8				CL-1
CS-1 TH	6	Grab										Coal
	9	Grab		8.8	2080*	23	14	9				CL-1
	12	Grab		15.5	2240*	24	16	8				CL-1
F-1 TH	6	Grab	91.3	5.6		22	18	4	18	42	40	SC-SM
	9	Grab		6.1		21	16	5				CL-ML / SC-SM

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

CONVEYOR SECTION-3

BORINGS NS-1 & S-1

DRILL HOLE LOG

BORING NO. NS-1 DRL

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: NON-SPEC COAL STOCKPILE / N:74,729 E:74,72938,707
DRILLING METHOD: SIMCO 2800 / C.F. AUGER & H.Q. CORE
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 8/30/07
DATE COMPLETED: 9/1/07
GROUND ELEVATION: 7785.2'
LOGGED BY: M.N.H., G.L.H.

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
				11	13,16,16	CL-ML	gray-brown, dry, very stiff								
				13	7,7,10	CL-ML	dk. brown, dry, stiff, slight pinhole structure; SANDY SILTY CLAY occasional cobbles								
7780	5														
				11	11,13,15	CL-1	mottled rust & brown, dry, very stiff		5.3	22	9				
							SANDY LEAN CLAY								
7775	10			15	9,24,28	CL-1	mottled gray-brown, dry, hard		6.1	26	13				
				9	32,50/3"	GC-GM	gray-brown, dry, dense; SILTY CLAYEY GRAVEL W/SAND possible cobbles								
7770	15					OH	black, dry; COAL very highly weathered								
				13	11,19,27	ML	lt. brown, dry, dense; SANDY SILT very highly weathered siltstone		5.3		NP	6	25	69	
				5	19,50/3"	SM	lt. brown, dry, dense								
				6	Core 50,30	SM	lt. brown, dry; SILTY SAND W/GRAVEL very highly weathered sandstone, more competent w/depth								
7765	20			0	Core 0,0	-									
				0	0,0	-									
				15	Core 0,0	CL-1	brown, slightly moist, stiff		11.8	26	13				
					7,10,13										
7760	25			2	0.80 10,10,14	CL	brown, slightly moist, stiff; SANDY LEAN CLAY W/GRAVEL								
7755	30			18	5,10,12	CL	lt. brown, yellow-brown & gray, moist, very stiff								
				0	0.90+ Core 0,0	-		109.6	18.8						CT
				30	Core 1.78 50,0	CL	lt. brown & yellow-brown, moist, very stiff								
7750	35			42	Core 100,0	CL,GM	tan, dk. gray & yellow-brown, slightly moist, very stiff								
7745	40			35	Core 100,0	CL,GM	lt. brown & yellow-brown, slightly moist; SANDY LEAN CLAY W/GRAVEL sandstone cobbles and/or boulders								
				25	Core 72,0	CL,GM	lt. brown, gray & yellow-brown, slightly moist								
7740	45			19	Core 76,0	CL,GM	lt. brown, rust & gray, slightly moist								
				36	Core 97,0	CL,GM	lt. brown, gray & yellow-brown, slightly moist								

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 12/13/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)

CORE — CORE 95,60 ← Rock Quality Designation (% RQD); ← Percent Sample Recovery

UNDISTURBED SAMPLE — PUSHED 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

DRILL HOLE LOG

BORING NO. S-1 DRL

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: SPEC COAL STOCKPILE / N:74,730 E:38,707
DRILLING METHOD: LONGYEAR 44 & CME-2800 / C.F. AUGER & H.Q. CORE
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/2/07
DATE COMPLETED: 9/12/07
GROUND ELEVATION: 7784.6'
LOGGED BY: G.L.H., M.N.H

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	Sample USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
				12	12,16,21	CL-ML	dk. brown to black, dry, very stiff								
				18	10,11,15	CL-ML	brown, dry, very stiff, slight pinhole structure								
7780	5						SANDY SILTY CLAY coal & sandstone gravels, occasional cobbles								
7775	10			18	10,13,26	CL-1	dk. gray to brown, dry to slightly moist, hard		7.8	28	14				
7770	15			13	10,16,20	CL	dk. gray to lt. gray-brown, dry to slightly moist, hard								
7765	20			18	7,10,9	CL-1	lt. brown to gray, slightly moist, very stiff		12.9	24	10				
7760	25			18	13,10,10	CL	dk. gray to brown, slightly moist, very stiff								
							SANDY LEAN CLAY W/GRAVEL sandstone cobbles & boulders, sand layers to 3" thick								
7755	30			18	7,10,17	CL-1	lt. brown, slightly moist, very stiff		12.8	26	12				
				34	Core 2.20 100,0	CL	lt. orange-brown, slightly moist, very stiff								
7750	35			0	Core -										
				2	0,0 14,10,11	CL	rust-brown, very moist, very stiff								
				22	Core 1.45 51,29	CL	gray-brown, moist, very stiff								
7745	40			8	7,13,12 1.57	CL-1	orange-brown, moist, very stiff		17.5	28	13				
				41	Core 1.63 97,86	CL	gray-brown, moist, very stiff								
7740	45			2	4,6,7 0.91	CL	gray, moist, stiff								
				24	Core 0.85 57,57	CL	gray to lt. brown, moist, stiff to very stiff								
7735															

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 12/13/07

LEGEND:

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)

CORE — CORE 95,60 ← Rock Quality Designation (% RQD); ← Percent Sample Recovery

UNDISTURBED SAMPLE — PUSHED 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

RB&G ENGINEERING INC.
PROVO, UTAH

DRILL HOLE LOG

BORING NO. S-1 DRL

SHEET 2 OF 2

PROJECT: KINNEY MINE

CLIENT: GEO-HUNT CONSULTING, LLC — PROJECT NUMBER: 200701.045

LOCATION: SPEC COAL STOCKPILE / N:74,730 E:38,707 — DATE STARTED: 9/2/07

DRILLING METHOD: LONGYEAR 44 & CME-2800 / C.F. AUGER & H.Q. CORE — DATE COMPLETED: 9/12/07

DRILLER: S. MCCRAKEN — GROUND ELEVATION: 7784.6'

DEPTH TO WATER - INITIAL: ▽ DRY' — AFTER 24 HOURS: ▼ N.M. — LOGGED BY: G.L.H., M.N.H

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
				18	8,13,16 *1.46*	CL-2	lt. gray-brown, moist, very stiff		16.2	34	19				
				42	Core *100,0*	CL	lt. orange-brown, moist, very stiff SANDY LEAN CLAY W/GRAVEL sandstone cobbles & boulders, sand layers to 3" thick								
7730	55			18	8,19,24 *0.90+*	CL	lt. brown, moist, very stiff to hard								
				42	Core *1.37* *100,63*	CL	gray to rusty-brown & lt. brown, moist, hard	113.9	16.3						CT
7725	60			22	Core *0.90* *36,0*	CL	yellow-brown to brown, moist, stiff								
7720	65			62	Core *2.37* *104,100*	CL	SANDY LEAN CLAY W/GRAVEL sandstone & mudstone cobbles & boulders gray-brown & yellow-brown, moist, hard	103.4	18.1						CT
7715	70			18	10,17,18 *2.07*	CL-2	brown, moist, hard		17.2	35	21				
				42	Core *2.14* *100,100*	CL	brown, moist, hard								
7710	75			18	10,19,20 *0.90+*	CL	brown to lt. brown, moist, hard								
7705	80														
7700	85														
7695	90														
7690	95														
7685															

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 12/13/07

LEGEND:

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6"; *0.45* ← Torvane (tsf)

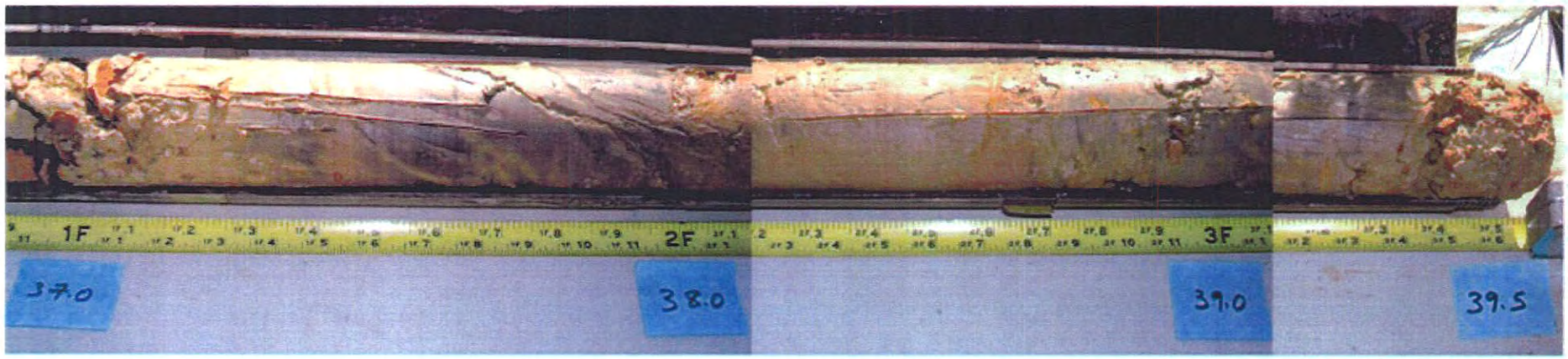
CORE — CORE *95,60* ← Rock Quality Designation (% RQD); Percent Sample Recovery

UNDISTURBED SAMPLE — PUSHED; *0.45* ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

RB&G ENGINEERING INC.
PROVO, UTAH

Photo Loss

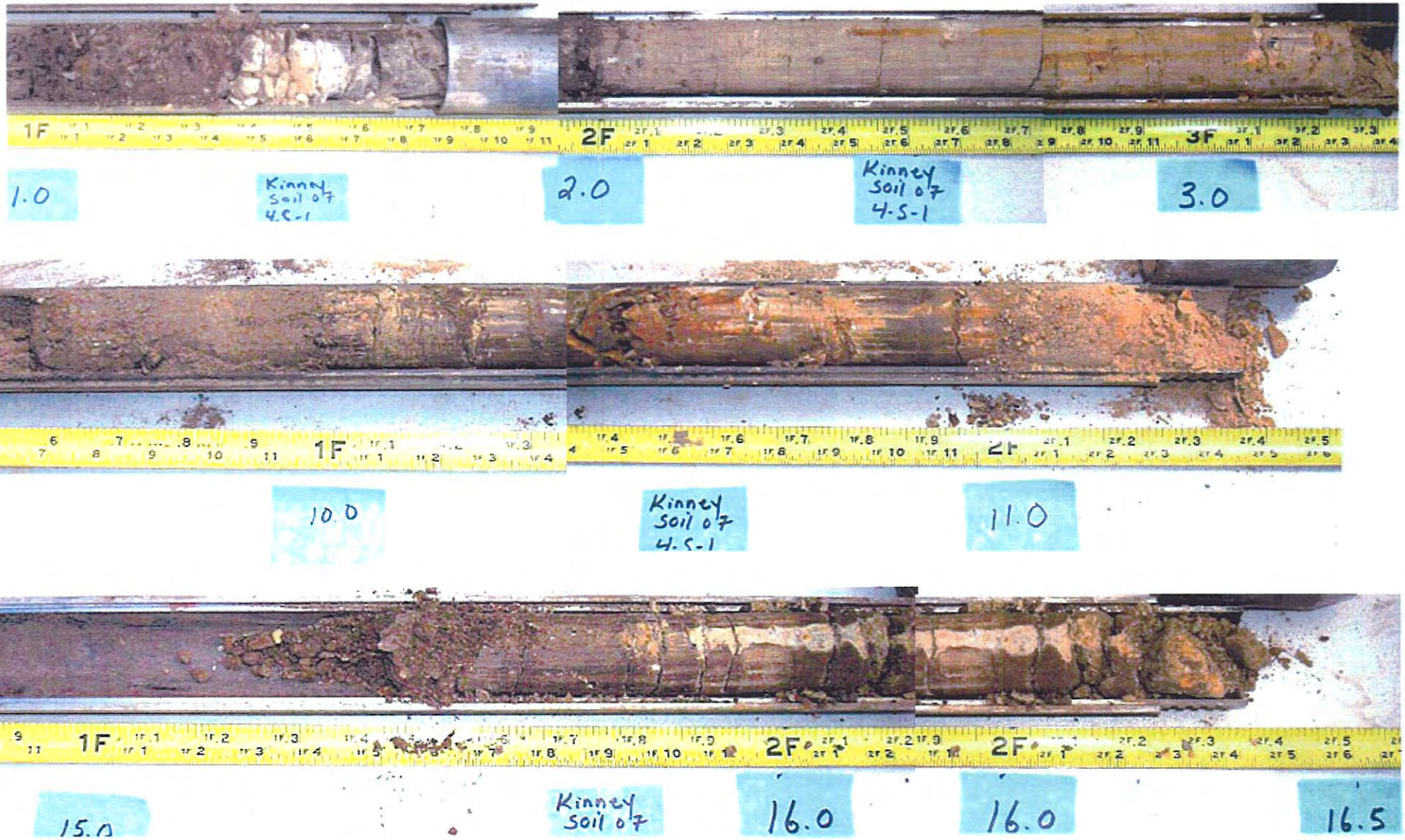


1F
Kinney Soil
3-NS-1

2F
3F
47.0
Kinney soil 07
3-NS-1
48.0

3F
4F
48.0
Kinney soil 07
3-NS-1
49.0

4F
5F
9.0
Kinney soil 07
3-NS-1
50.0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2F
3F
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Kinney Soil 07 4-S-1
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Kinney Soil 07 4-S-1
3.0
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10.0
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11.0
1F
2F
2F
15.0
Kinney Soil 07
16.0
16.0
16.5

20.0
Kinney
Soil 07
4-S-1
21.0
21.5
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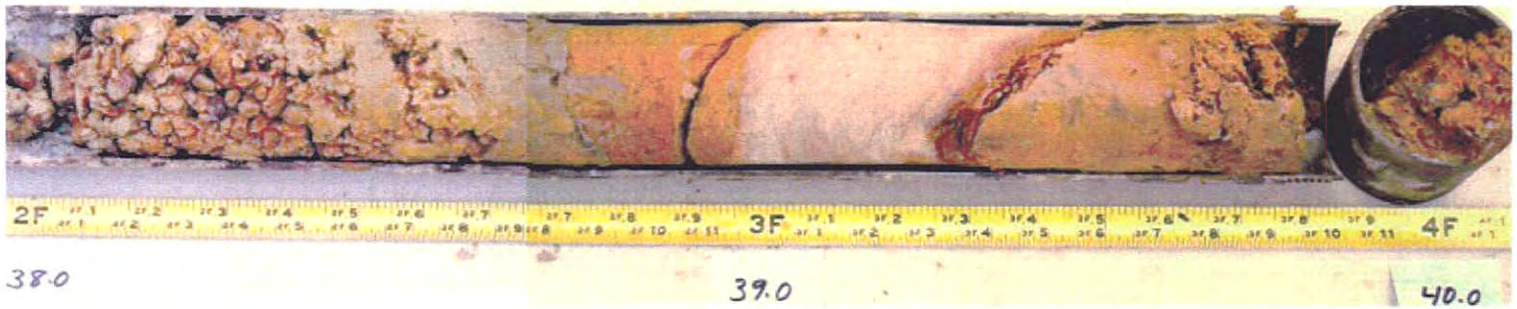
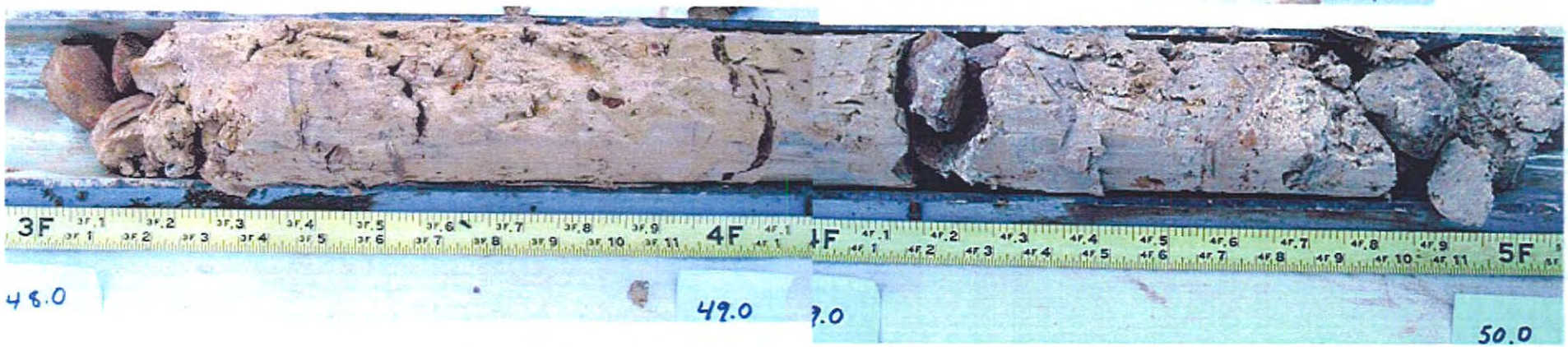
Kinney
Soil 07
4-S-1
31.0
31.5



40.0 - 41.5 Core Loss

Core Loss

Core Loss



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Re-Blast
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Core Loss

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4-S-1
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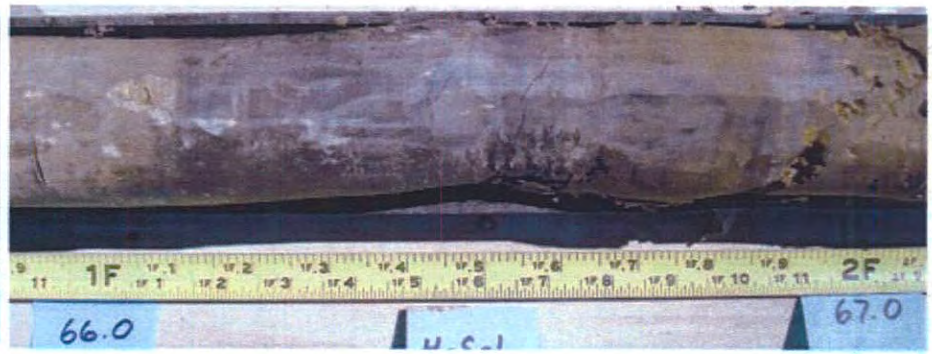
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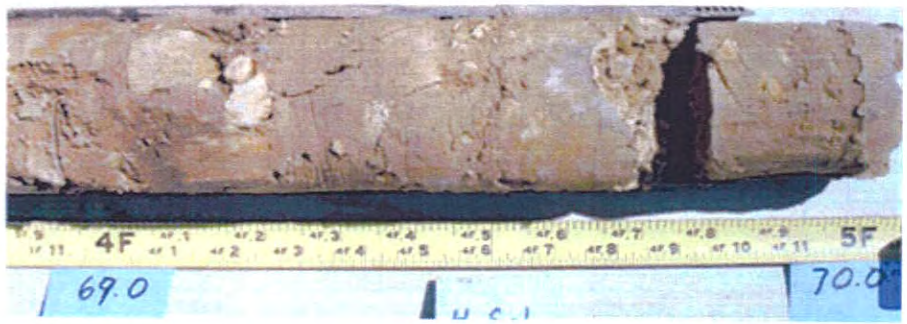
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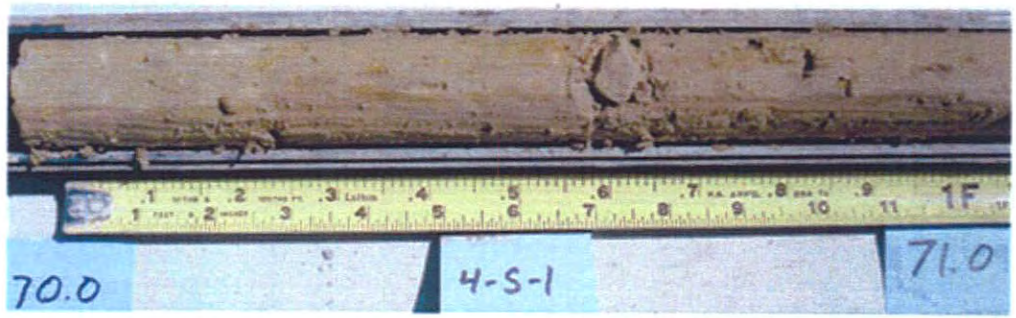
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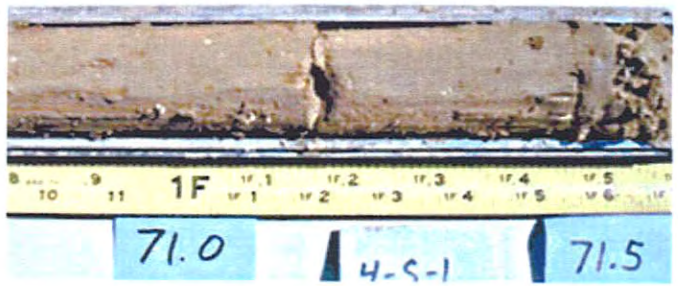
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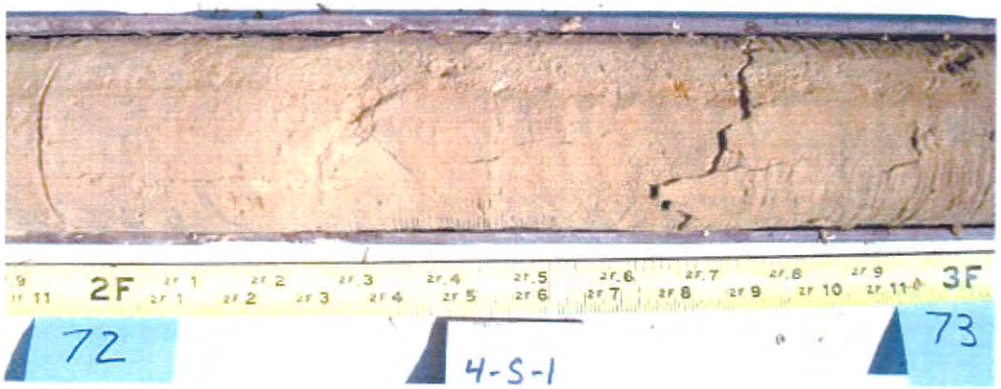
4-S-1
71.5

2F
71.5
72


2F
3F
72
4-S-1
73

3F
4F
73
4-S-1
74

4F
5F
74
4-S-1
75.0

1F
75.0
4-S-1
76.0

1F
76.0
4-S-1
76.5

TD

Table 1

SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

HOLE NO.	DEPTH BELOW GROUND SURFACE (ft)	STANDARD PENETRATION BLOWS PER FOOT	IN-PLACE		UNCONFINED COMPRESSIVE STRENGTH (psf)	ATTERBERG LIMITS			MECHANICAL ANALYSIS			UNIFIED SOIL CLASSIFICATION SYSTEM (modified)
			DRY UNIT WEIGHT (pcf)	MOISTURE (%)		LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	PERCENT GRAVEL	PERCENT SAND	PERCENT SILT & CLAY	
Portal 1-DRL	10-11.5	17		5.0				NP	55	23	22	GM
	19-20.5	16		72.0		78	74	4	0	41	59	OH
CV-2-2 DRL	3-4.5	52		3.6				NP	15	59	26	SM
	9-10.5	11		4.9				NP	17	61	22	SM
	15-16.5	19		4.4				NP	42	49	9	SP-SM
	25-26.5	19		10.7		31	15	16				CL-2
NS-1 DRL	6-7.5	28		5.3		22	13	9				CL-1
	9-10.5	52		6.1		26	13	13				CL-1
	15-16.5	46		5.3				NP	6	25	69	ML
	22.5-24	23		11.8		26	13	13				CL-1
	31.5-31.9		109.6	18.8								CL
S-1 DRL	10-11.5	23		7.8		28	14	14				CL-1
	20-21.5	19		12.9		24	14	10				CL-1
	30-31.5	27		12.8		26	14	12				CL-1
	40-41.5	25		17.5	6280*	28	15	13				CL-1
	50-51.5	29		16.2	5840*	34	15	19				CL-2
	57		113.9	16.3								
	66		103.4	18.1								CL
	70-71.5	35		17.2	8280*	35	14	21				CL-2
CV-4-1 DRL	5-6.5	21		10.0		25	18	7				CL-1
	10.5-15	Core		9.2		20	13	7	24	24	52	CL-1
	15-16.5	55		10.2		21	11	10				CL-1
	21.5-25	Core		11.9	3600*	22	12	10				CL-1
	25-26.5	22		13.8	2240*	26	10	16				CL-2
	31.5-35	Core		10.5	2220*	21	10	11				CL-1
	35-36.5	9		17.1	3200*	21	11	10				CL-1
	41.5-45	Core		17.1		29	13	16				CL-2
	45-46.5	74		14.6	3320*	30	14	16				CL-2
	55-60	Core		12.6	4000*	21	14	7				CL-1
	66.5-70	Core		12.6	4000*	29	11	18	15	19	66	CL-2
SC-2 DRL	23-24					24	12	12				CL-1

NP=Nonplastic
*Torvane value used to estimate unconfined compressive strength.

OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

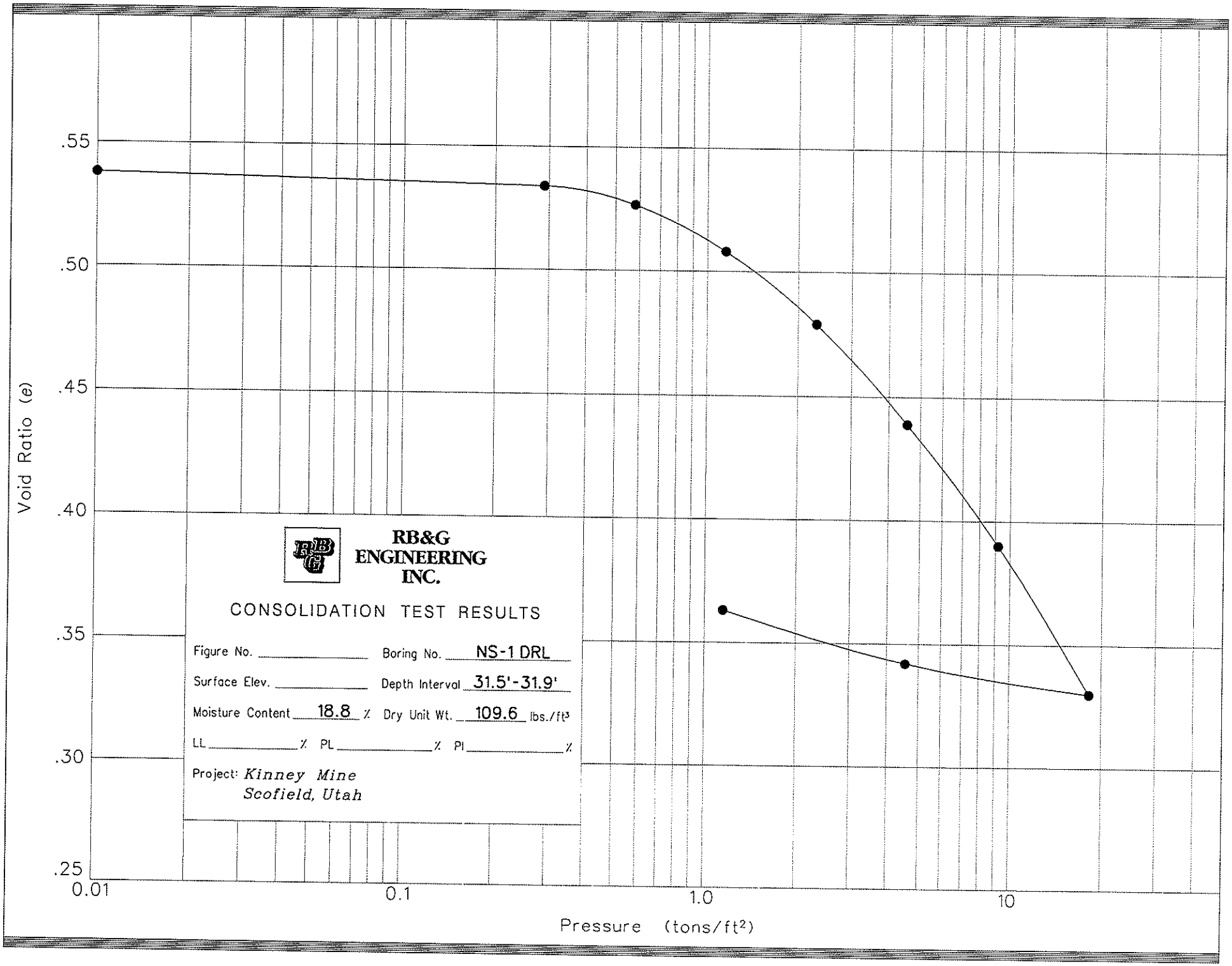
PROJECT NO. 200701-045
FEATURE

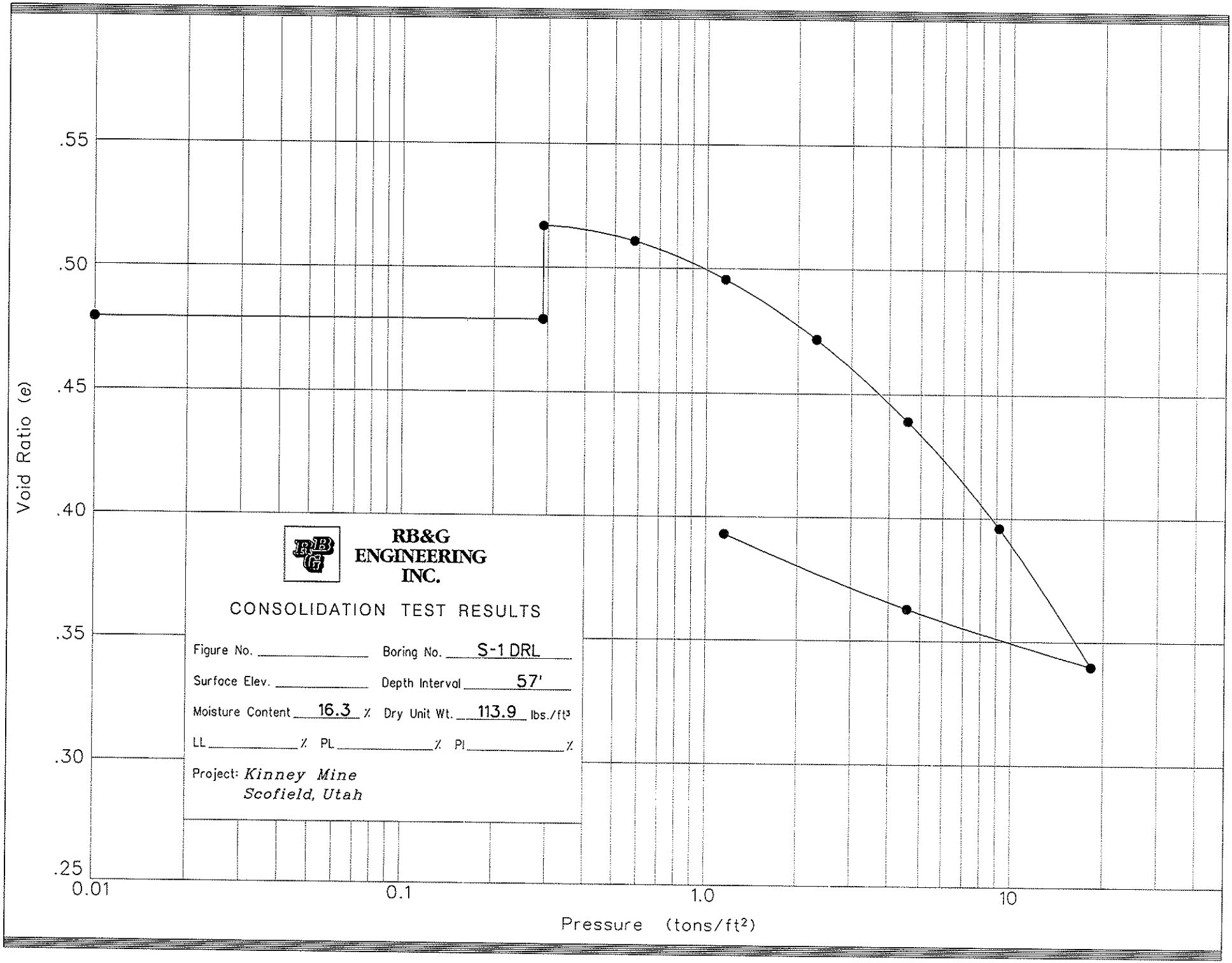
CHEMICAL TESTS					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	pH	RESISTIVITY (ohm-cm)	SULFATE (%)	USCS (MODIFIED) / AASHTO CLASSIFICATION
3-NS-1	6-7.5	8.0	6761	0.0031	CL-1
11-MDF-2	3	8.2	7202	0.0064	SC-SM
9-WSF-1	6	7.3	3322	0.0195	CL-ML
13-WSF-2	3	7.8	6502	0.0315	SM

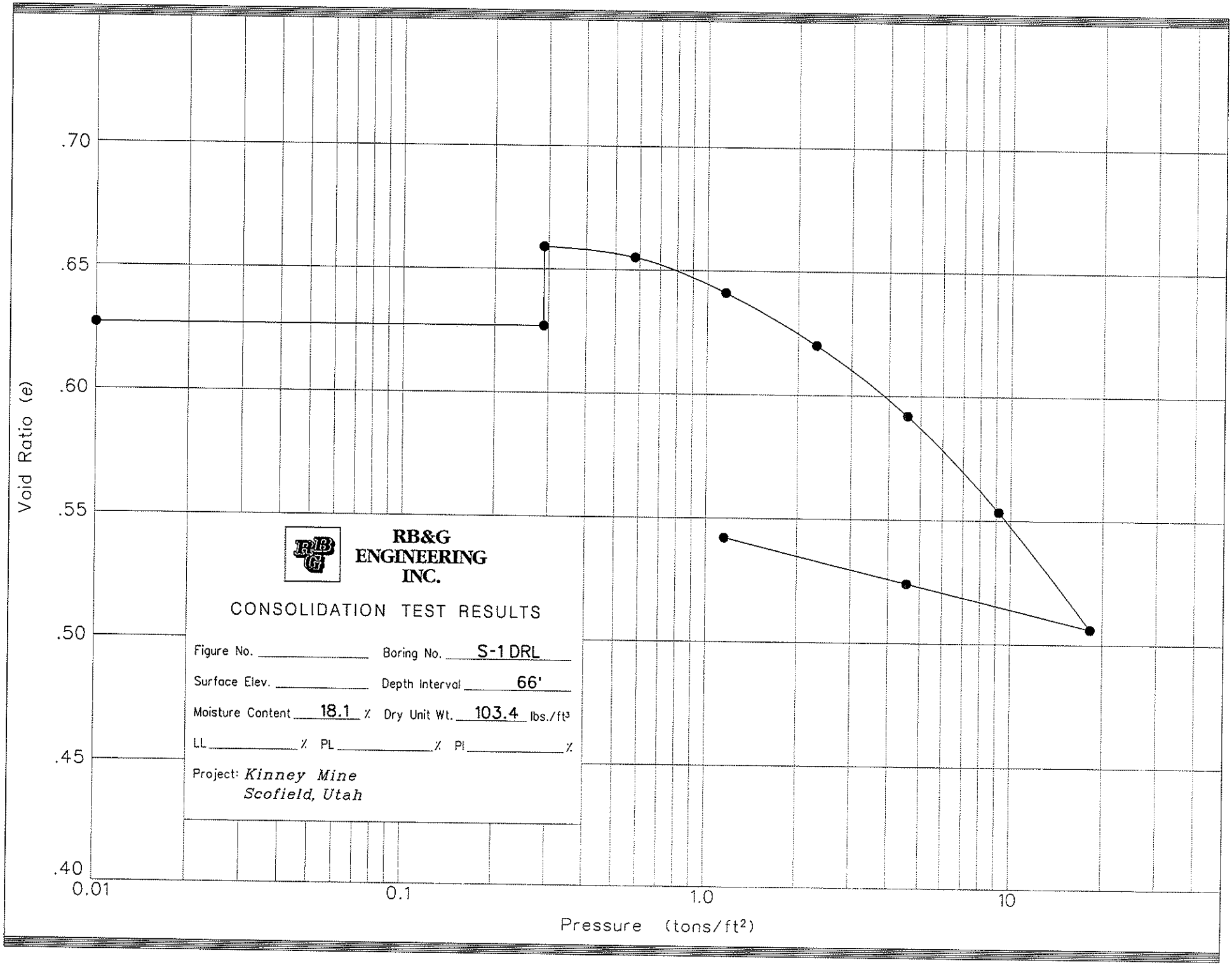
DIRECT SHEAR TESTS CONSOLIDATED DRAINED					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	DRY DENSITY (pcf)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	USCS (MODIFIED) / AASHTO CLASSIFICATION
07-CV-5-1 TH	12	95.8	20	15	CL-1

TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS						
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	TOTAL STRESS		EFFECTIVE STRESS		USCS (MODIFIED) / AASHTO CLASSIFICATION
		FRICTION ANGLE $\Phi_{(cu)}$ (degrees)	COHESION $c_{(cu)}$ (psi)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	
CV-4-1 DRL	20-21.5	29.6	2	36.0	2	CL
SC-2 DRL	23-24	32.5	2	36.7	2	CL-1

* Visual Classification
**Bulk Sample


.55
.50
.45
.40
.35
.30
.25
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. NS-1 DRL
Surface Elev. _____ Depth Interval 31.5'-31.9'
Moisture Content 18.8 % Dry Unit Wt. 109.6 lbs./ft³
LL _____ % PL _____ % PI _____ %
Project: Kinney Mine
Scofield, Utah


.55
.50
.45
.40
.35
.30
.25
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. S-1 DRL
Surface Elev. _____ Depth Interval 57'
Moisture Content 16.3 % Dry Unit Wt. 113.9 lbs./ft³
LL _____ % PL _____ % PI _____ %
Project: Kinney Mine
Scofield, Utah


.70
.65
.60
.55
.50
.45
.40
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. S-1 DRL
Surface Elev. _____ Depth Interval 66'
Moisture Content 18.1 % Dry Unit Wt. 103.4 lbs./ft³
LL _____ % PL _____ % PI _____ %
Project: Kinney Mine
Scofield, Utah

CONVEYOR SECTION-4

BORINGS CV-4-1 & SC-2

DRILL HOLE LOG

BORING NO. CV-4-1 DRL

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:75,077 E:38,786
DRILLING METHOD: LONGYEAR 44 / H.Q. CORE W/SPLIT SPOON
DRILLER: S. KISSNER
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/13/07
DATE COMPLETED: 9/14/07
GROUND ELEVATION: 7776.3'
LOGGED BY: M. HANSEN

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
7775				11	Core 18,0	CL	brown, dry, very stiff								
	5			18	9,9,12	CL-1	brown, slightly moist, very stiff		10	25	7				
7770				35	Core 83,0	CL	very dk. brown to black, slightly moist, very stiff								
	10			6	55/6"	CL	dk. gray, slightly moist, hard								
7765				42	Core 0.99+ 78,44	CL-1	brown & yellow-brown, slightly moist, very stiff		9.2	20	7	24	24	52	
	15			18	18,25,30	CL-1	brown, slightly moist, hard		10.2	21	10				
7760				42	Core 100,57	CL	brown, slightly moist, hard								
	20			18	17,27,41 0.90+	CL	brown, slightly moist, hard, weathered coal in sample								TS
7755							SANDY LEAN CLAY W/GRAVEL sandstone cobbles & boulders								
				38	Core 91,69	CL-1	brown & dk. gray, moist, hard		11.9	22	10				
	25			14	7,11,11 0.56	CL-2	brown, moist, stiff to very stiff		13.8	26	16				
7750				38	Core 0.79 91,0	CL	brown, moist, stiff to very stiff								
	30			18	5,5,8 0.55 0.58	CL	brown, moist, stiff								
7745				22	Core 0.69 51,0	CL-1	brown, moist, stiff		10.5	21	11				
	35			18	3,4,5 0.80	CL-1	brown, moist, stiff		17.1	21	10				
7740				19	Core 0.42 0.77 46,0	CL	brown & yellow-brown, moist, stiff								
	40			10	9,12,15	CL	brown, moist, stiff								
7735				42	Core 0.90+ 100,0	CL-2	green-gray, yellow-brown & gray to black, moist, very stiff		17.1	29	16				
	45			13	20,18,56 0.83	CL-2	lt. gray to brown, moist, stiff to very stiff		14.6	30	16				
7730							GRAVELLY LEAN CLAY W/SAND sandstone cobbles & boulders								
				42	Core 0.90+ 100,29	CL	dk. gray & brown, moist, very stiff								

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 10/30/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)
CORE — CORE 95,60 ← Rock Quality Designation (% RQD); Percent Sample Recovery
UNDISTURBED SAMPLE — PUSHED 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

DRILL HOLE LOG

BORING NO. CV-4-1 DRL

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:75,077 E:38,786
DRILLING METHOD: LONGYEAR 44 / H.Q. CORE W/SPLIT SPOON
DRILLER: S. KISSNER
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/13/07
DATE COMPLETED: 9/14/07
GROUND ELEVATION: 7776.3'
LOGGED BY: M. HANSEN

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
7776				4	50/4"	CL	brown, very moist, hard								
7725			Core	37	0.99+ 67,18	CL	brown & yellow-brown, moist to very moist, very stiff								
	55			0	30/0"	-	GRAVELLY LEAN CLAY W/SAND sandstone cobbles & boulders								
7720			Core	60	0.99+ 100,0	CL-1	brown & yellow-brown, very moist, hard		12.6	21	7				
	60			18	8,20,41 0.90+	CL	brown, moist, very stiff								
7715			Core	42	100,0	CL	brown to dk. gray-brown, moist, very stiff								
	65			9	13,40,54 0.90+	CL	brown to rusty-brown, moist, hard								
7710			Core	42	0.99+ 100,0	CL-2	GRAVELLY LEAN CLAY W/SAND TO SANDY LEAN CLAY W/GRAVEL sandstone cobbles & boulders brown, moist, hard		12.6	29	18				
	70			16	12,33,52 0.90+	CL	brown, moist, hard								
7705															
	75														
7700															
	80														
7695															
	85														
7690															
	90														
7685															
	95														
7680															

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 10/30/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE
2,3,2 ← Blow Count per 6"
0.45 ← Torvane (tsf)

CORE
CORE 95,60 ← Rock Quality Designation (% RQD)
Percent Sample Recovery

UNDISTURBED SAMPLE
PUSHED 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

DRILL HOLE LOG

BORING NO. SC-2 DRL

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: SCREENING & CRUSHING / N:75,227 E:38,820
DRILLING METHOD: LONGYEAR 44 & CME-2800 / C.F. AUGER & H.Q. CORE
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/14/07
DATE COMPLETED: 9/14/07
GROUND ELEVATION: 7741.2'
LOGGED BY: M.N.H., G.L.H.

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
7740	0						NOT SAMPLED								
7735	5														
7730	10														
7725	15														
7720	20			16	11,12,13 0.66	CL	brown, slightly moist, stiff								
				14	Core 34,0	CL-1	brown, slightly moist, stiff SANDY LEAN CLAY W/GRAVEL sandstone cobbles	115.6	15.3	24	12				TS
7715	25			18	5,6,10 0.52	CL	brown, slightly moist, stiff								
				19	Core 46,0	CL-ML	brown, slightly moist, stiff SANDY SILTY CLAY W/GRAVEL sandstone cobbles	123.8	11.3	18	5				CT
7710	30			18	9,9,15 0.25 0.57	CL	brown, slightly moist, firm to stiff SANDY LEAN CLAY W/GRAVEL sandstone cobbles								

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 11/16/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:

DISTURBED SAMPLE: 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)
CORE: CORE 95,60 ← Rock Quality Designation (% RQD); ← Percent Sample Recovery
UNDISTURBED SAMPLE: PUSHED 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

1F
5
5-CV-4
6

2F
3F
5-CV-4
8

3F
4F
8
5-CV-4
9

4F
5F
9
10

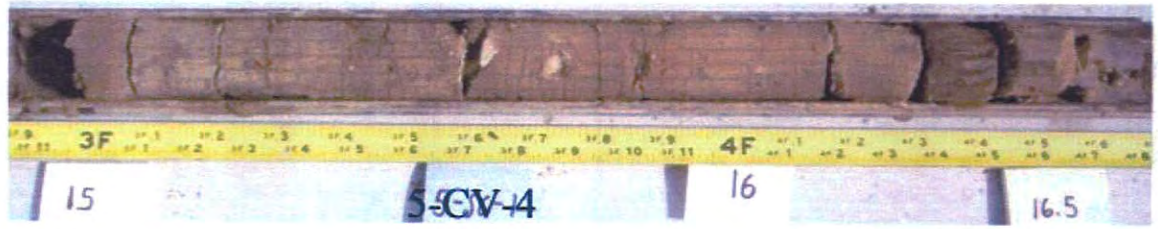
10
5-CV-4
10.5

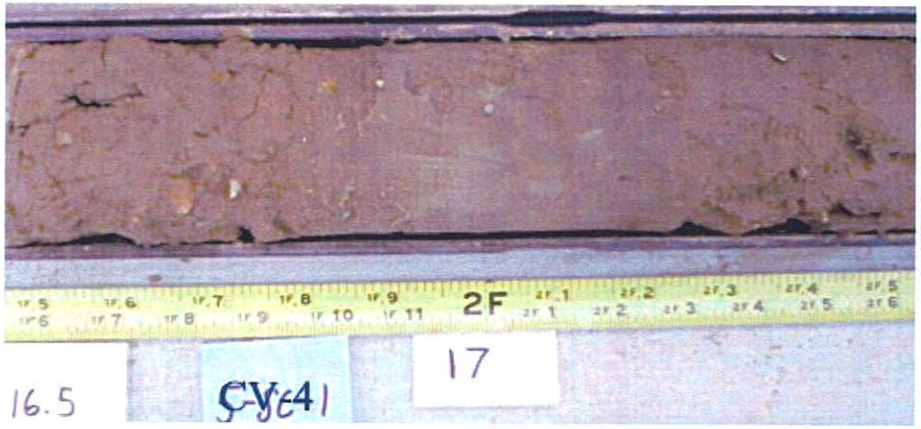
2F
10.5
11
5-CV-4
12

2F
3F
12
13

3F
4F
13
14

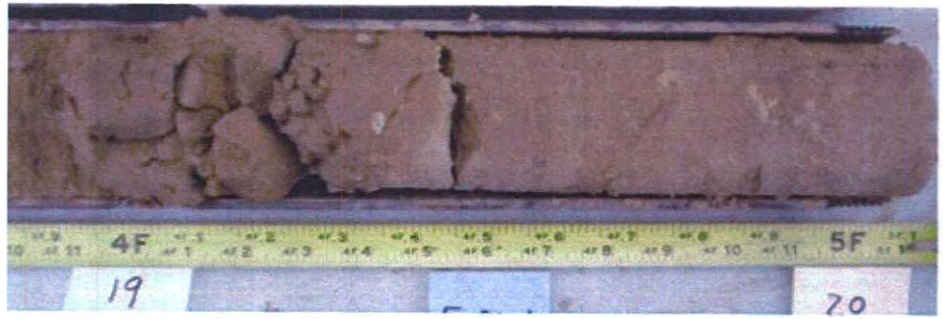
4F
5F
14
15


3F
4F
15
5-CV-4
16
16.5


16.5
CV-4-1
17

17
CV-4-1
18

18
CV-4-1
19


19
20

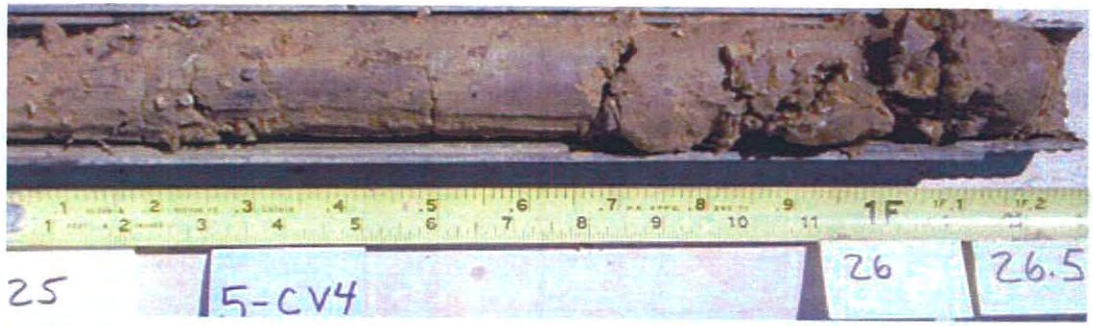
20
CV-4
21
21.5

22

2F
3F
22
23

3F
4F
23
24

4F
5F
24
25


1F
25
5-CV4
26
26.5

2F
5-CV4
27

2F
3F
27
5-CV4
28

3F
4F
28
29

4F
5F
29
5-CV4
30

30'
1F
31.5'

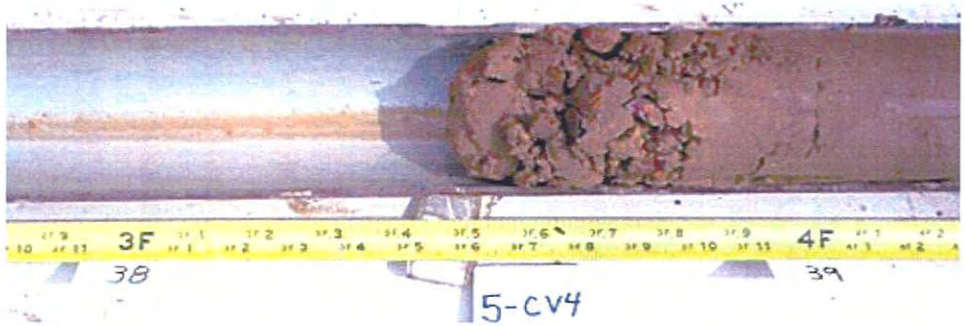
31.5'
2F
32
5-CV4
3F
33

4F
34
5-CV4

4F
5F
34
35'

1F
5-CV4
36.5

2F
3F
36.5'
37
5-CV4


3F
4F
38
5-CV4
39

4F
5F
39
5-CV4
40

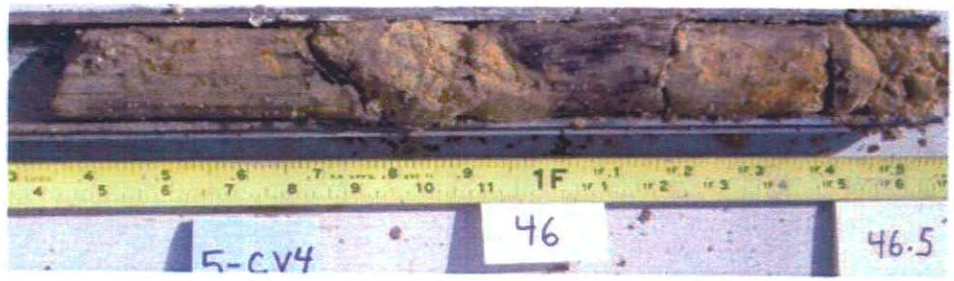
1F
5-CV4
41.5

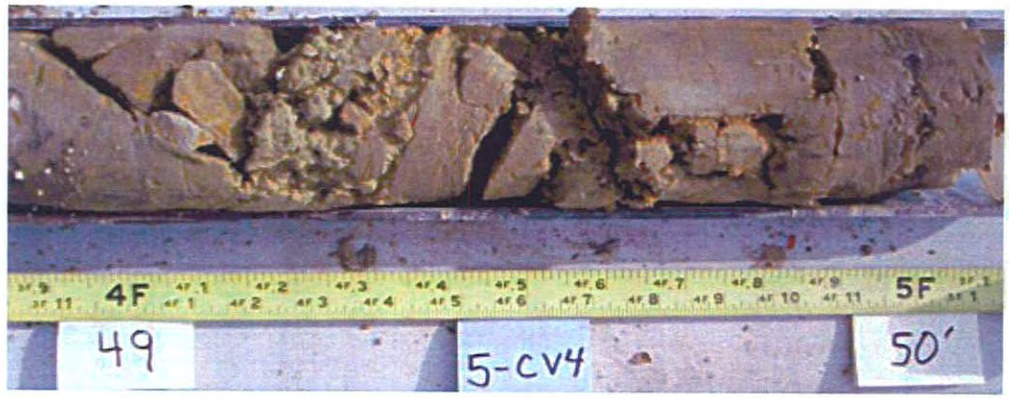
2F
41.5
5-CV4
42

2F
3F
42
5-CV4
43

3F
4F
43
5-CV4
44

4F
5F
44
5-CV4
45'


1F
5-CV4
46
46.5



TD

SCF-1

Table 1

SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

HOLE NO.	DEPTH BELOW GROUND SURFACE (ft)	STANDARD PENETRATION BLOWS PER FOOT	IN-PLACE		UNCONFINED COMPRESSIVE STRENGTH (psf)	ATTERBERG LIMITS			MECHANICAL ANALYSIS			UNIFIED SOIL CLASSIFICATION SYSTEM (modified)
			DRY UNIT WEIGHT (pcf)	MOISTURE (%)		LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	PERCENT GRAVEL	PERCENT SAND	PERCENT SILT & CLAY	
Portal 1-DRL	10-11.5	17		5.0				NP	55	23	22	GM
	19-20.5	16		72.0		78	74	4	0	41	59	OH
CV-2-2 DRL	3-4.5	52		3.6				NP	15	59	26	SM
	9-10.5	11		4.9				NP	17	61	22	SM
	15-16.5	19		4.4				NP	42	49	9	SP-SM
	25-26.5	19		10.7		31	15	16				CL-2
NS-1 DRL	6-7.5	28		5.3		22	13	9				CL-1
	9-10.5	52		6.1		26	13	13				CL-1
	15-16.5	46		5.3				NP	6	25	69	ML
	22.5-24	23		11.8		26	13	13				CL-1
	31.5-31.9		109.6	18.8								CL
S-1 DRL	10-11.5	23		7.8		28	14	14				CL-1
	20-21.5	19		12.9		24	14	10				CL-1
	30-31.5	27		12.8		26	14	12				CL-1
	40-41.5	25		17.5	6280*	28	15	13				CL-1
	50-51.5	29		16.2	5840*	34	15	19				CL-2
	57		113.9	16.3								
	66		103.4	18.1								CL
	70-71.5	35		17.2	8280*	35	14	21				CL-2
CV-4-1 DRL	5-6.5	21		10.0		25	18	7				CL-1
	10.5-15	Core		9.2		20	13	7	24	24	52	CL-1
	15-16.5	55		10.2		21	11	10				CL-1
	21.5-25	Core		11.9	3600*	22	12	10				CL-1
	25-26.5	22		13.8	2240*	26	10	16				CL-2
	31.5-35	Core		10.5	2220*	21	10	11				CL-1
	35-36.5	9		17.1	3200*	21	11	10				CL-1
	41.5-45	Core		17.1		29	13	16				CL-2
	45-46.5	74		14.6	3320*	30	14	16				CL-2
	55-60	Core		12.6	4000*	21	14	7				CL-1
	66.5-70	Core		12.6	4000*	29	11	18	15	19	66	CL-2
SC-2 DRL	23-24					24	12	12				CL-1

NP=Nonplastic
*Torvane value used to estimate unconfined compressive strength.

OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

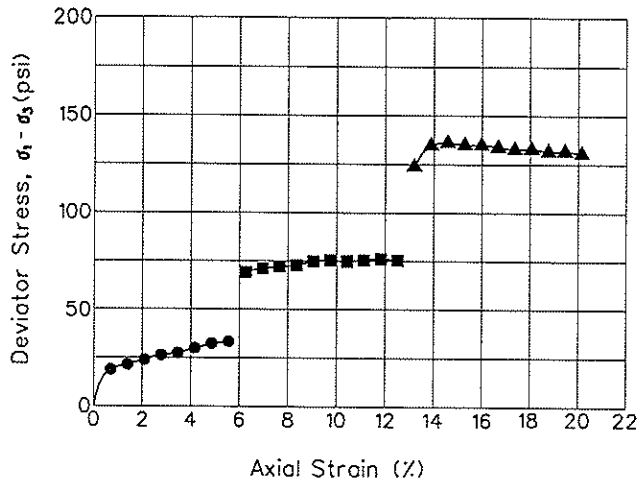
PROJECT NO. 200701-045
FEATURE

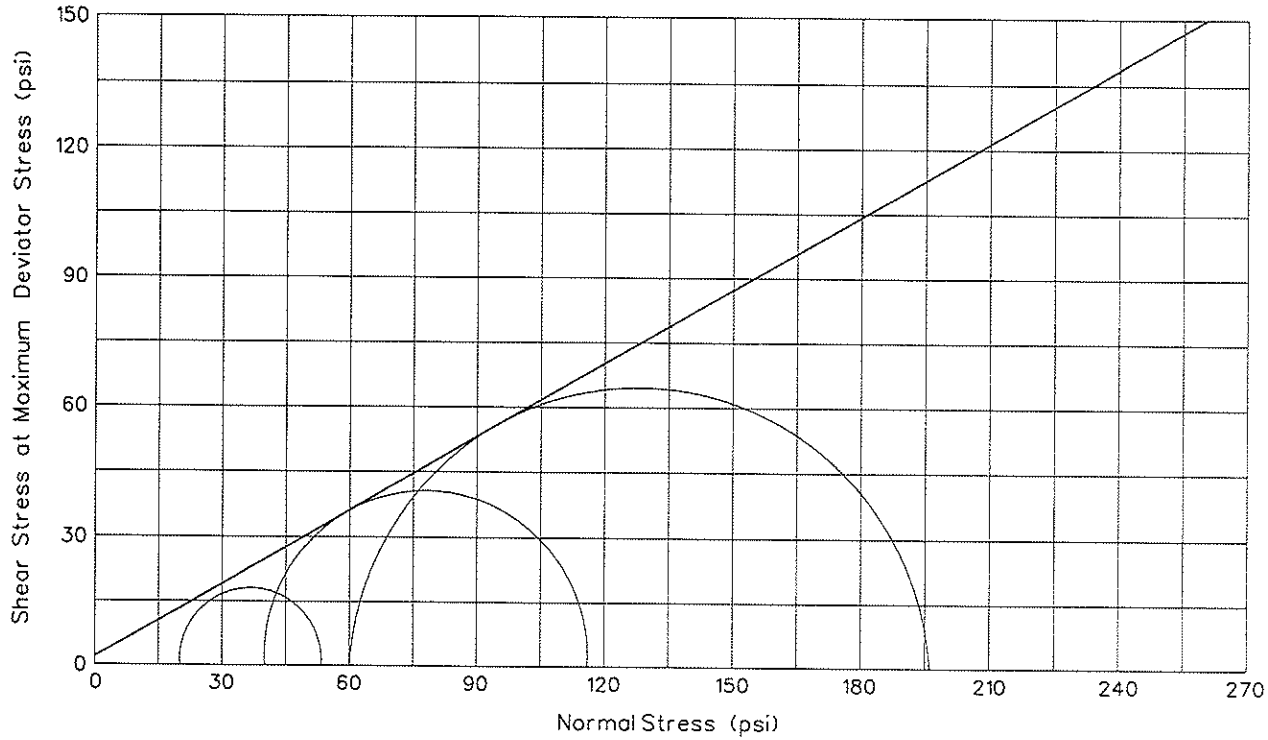
CHEMICAL TESTS					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	pH	RESISTIVITY (ohm-cm)	SULFATE (%)	USCS (MODIFIED) / AASHTO CLASSIFICATION
3-NS-1	6-7.5	8.0	6761	0.0031	CL-1
11-MDF-2	3	8.2	7202	0.0064	SC-SM
9-WSF-1	6	7.3	3322	0.0195	CL-ML
13-WSF-2	3	7.8	6502	0.0315	SM

DIRECT SHEAR TESTS CONSOLIDATED DRAINED					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	DRY DENSITY (pcf)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	USCS (MODIFIED) / AASHTO CLASSIFICATION
07-CV-5-1 TH	12	95.8	20	15	CL-1

TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS						
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	TOTAL STRESS		EFFECTIVE STRESS		USCS (MODIFIED) / AASHTO CLASSIFICATION
		FRICTION ANGLE $\Phi_{(cu)}$ (degrees)	COHESION $c_{(cu)}$ (psi)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	
CV-4-1 DRL	20-21.5	29.6	2	36.0	2	CL
SC-2 DRL	23-24	32.5	2	36.7	2	CL-1

* Visual Classification
**Bulk Sample





MULTI-STAGE CONSOLIDATED UNDRAINED W/PORE PRESSURE MEASUREMENTS:
TOTAL STRESS FAILURE ENVELOPE

Test No. or Symbol	Sample Data		Degree of Saturation (%)	Confining Pressure (psi)	Maximum Deviator Stress (psi)	Strength Values at Failure		Sample Size, L/D (inches)	Strain Rate (inches/minute)
	Dry Density (pcf)	Moisture Content (%)				Friction Angle ϕ (degrees)	Cohesion (c/psi)		
●	115.0	7.8	~100	20	53.4	29.6	2	2.88/1.38	0.001
■	115.0	7.8	~100	40	116.1				
▲	115.0	7.8	~100	60	196.1				

MATERIAL: SANDY LEAN CLAY (CL)

RB&G ENGINEERING INC.
Provo, Utah

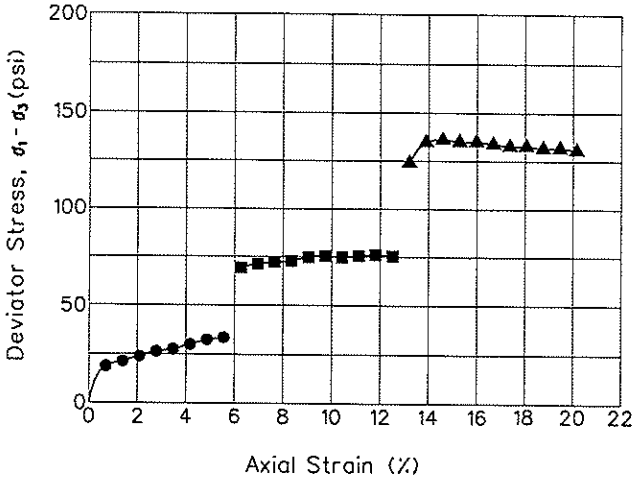
TRIAXIAL SHEAR TEST

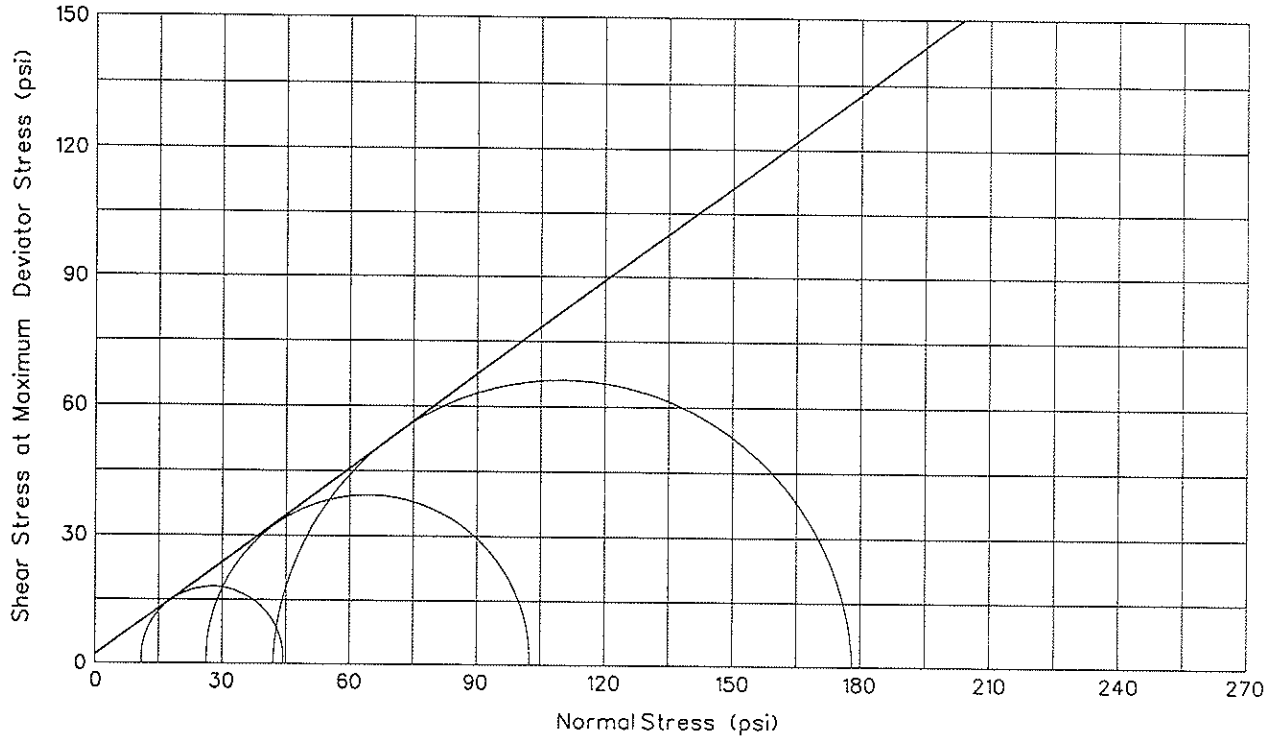
Project: *Kinney Mine*
Scofield, Utah

HOLE NO.: CV-4-1 DRL

DEPTH: 20'-21.5'

Figure





MULTI-STAGE CONSOLIDATED UNDRAINED W/PORE PRESSURE MEASUREMENTS:
EFFECTIVE STRESS FAILURE ENVELOPE

Test No. or Symbol	Sample Data		Degree of Saturation (%)	Confining Pressure (psi)	Maximum Deviator Stress (psi)	Strength Values at Failure		Sample Size, L/D (inches)	Strain Rate (inches/minute)
	Dry Density (pcf)	Moisture Content (%)				Friction Angle ϕ (degrees)	Cohesion (c/psi)		
●	115.0	7.8	~100	11.0	44.4	36.0	2	2.88/1.38	0.001
■	115.0	7.8	~100	26.3	102.4				
▲	115.0	7.8	~100	42.0	178.1				

MATERIAL: SANDY LEAN CLAY (CL)

RB&G ENGINEERING INC.
Provo, Utah

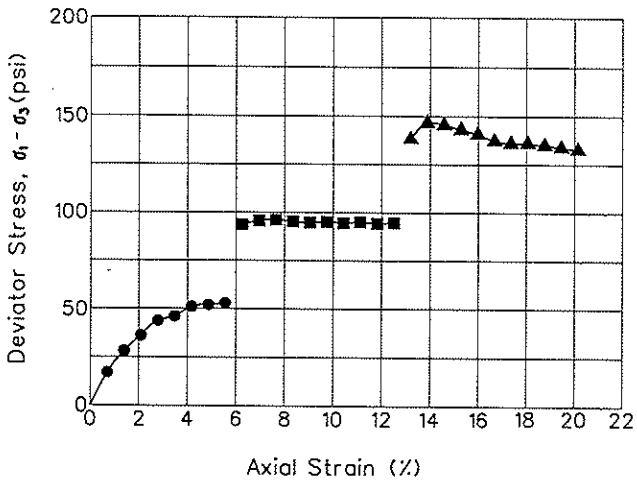
TRIAXIAL SHEAR TEST

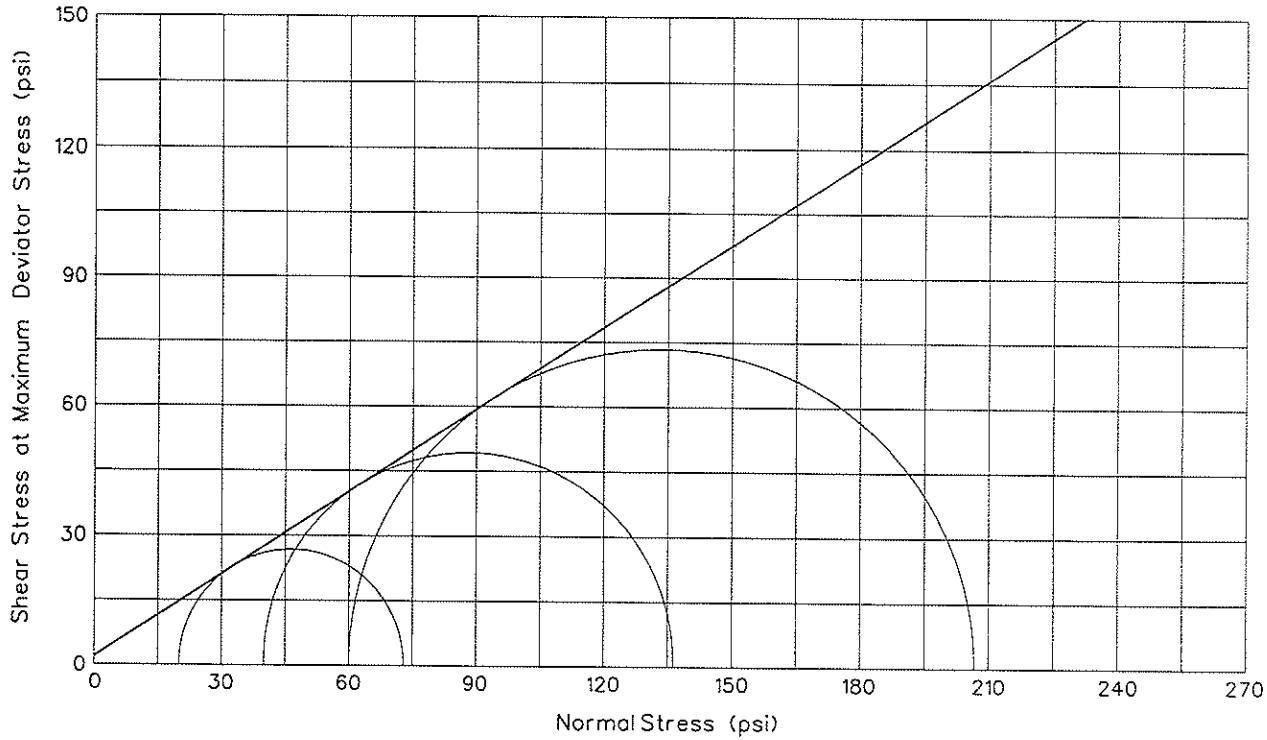
Project: *Kinney Mine*
Scofield, Utah

HOLE NO.: CV-4-1 DRL

DEPTH: 20'-21.5'

Figure





MULTI-STAGE CONSOLIDATED UNDRAINED W/PORE PRESSURE MEASUREMENTS:
TOTAL STRESS FAILURE ENVELOPE

Test No. or Symbol	Sample Data		Degree of Saturation (%)	Confining Pressure (psi)	Maximum Deviator Stress (psi)	Strength Values at Failure		Sample Size, L/D (inches)	Strain Rate (inches/minute)
	Dry Density (pcf)	Moisture Content (%)				Friction Angle ϕ (degrees)	Cohesion (c/psi)		
●	115.6	15.3	~100	20	72.9	32.5	2	2.88/1.38	0.001
■	115.6	15.3	~100	40	136.3				
▲	115.6	15.3	~100	60	206.7				

MATERIAL: SANDY LEAN CLAY (CL)

RB&G ENGINEERING INC.
Provo, Utah

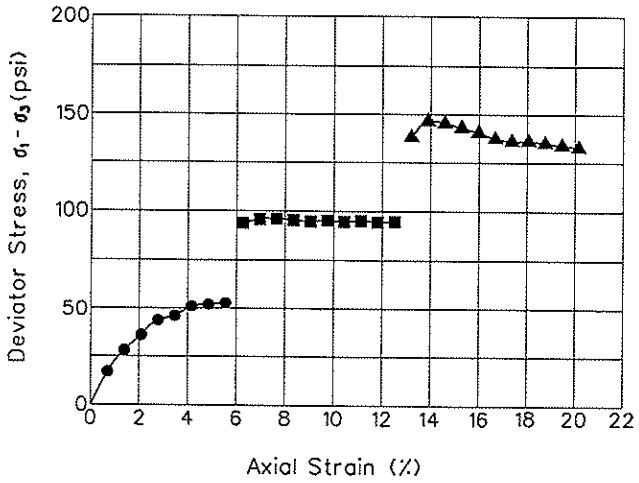
TRIAXIAL SHEAR TEST

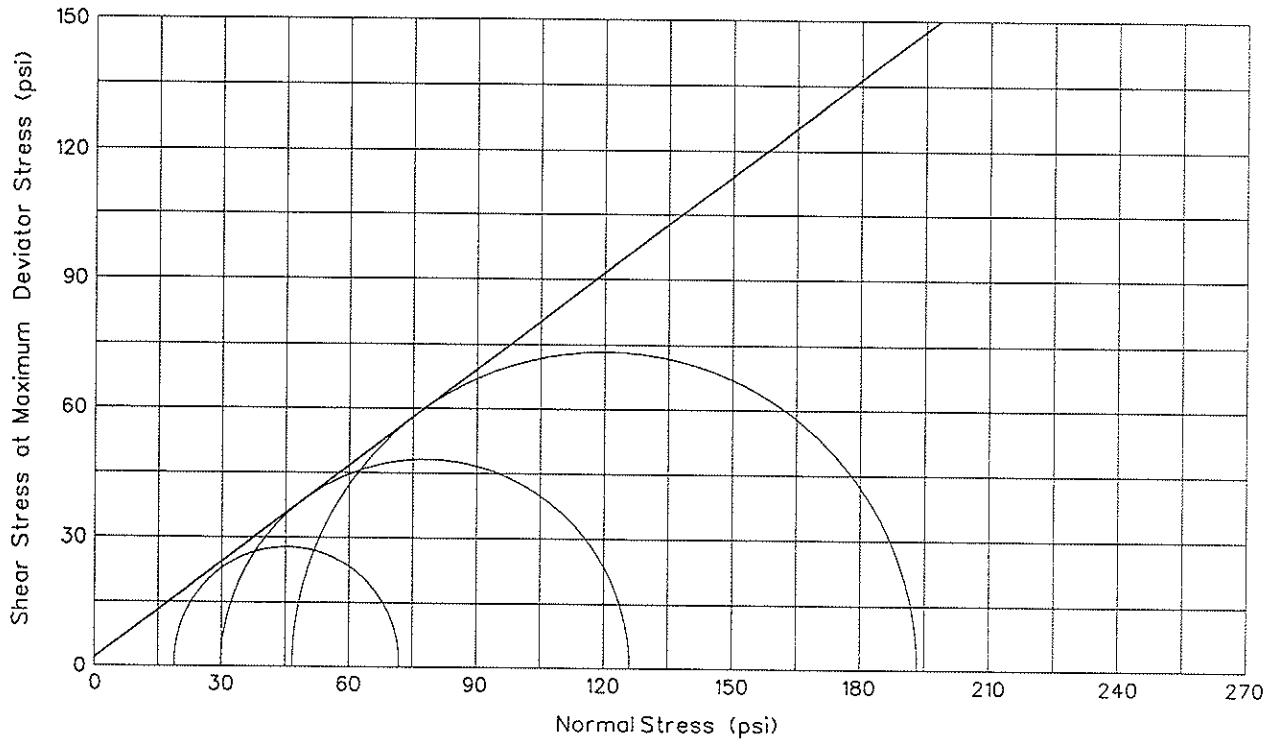
Project: *Kinney Mine*
Scofield, Utah

HOLE NO.: SC-2 DRL

DEPTH: 23'-24'

Figure





MULTI-STAGE CONSOLIDATED UNDRAINED W/PORE PRESSURE MEASUREMENTS:
EFFECTIVE STRESS FAILURE ENVELOPE

Test No. or Symbol	Sample Data		Degree of Saturation (%)	Confining Pressure (psi)	Maximum Deviator Stress (psi)	Strength Values at Failure		Sample Size, L/D (inches)	Strain Rate (inches/minute)
	Dry Density (pcf)	Moisture Content (%)				Friction Angle ϕ (degrees)	Cohesion (c/psi)		
●	115.6	15.3	~100	18.9	71.8	36.7	2	2.88/1.38	0.001
■	115.6	15.3	~100	29.8	126.1				
▲	115.6	15.3	~100	46.6	193.3				

MATERIAL: SANDY LEAN CLAY (CL)

RB&G ENGINEERING INC.
Provo, Utah

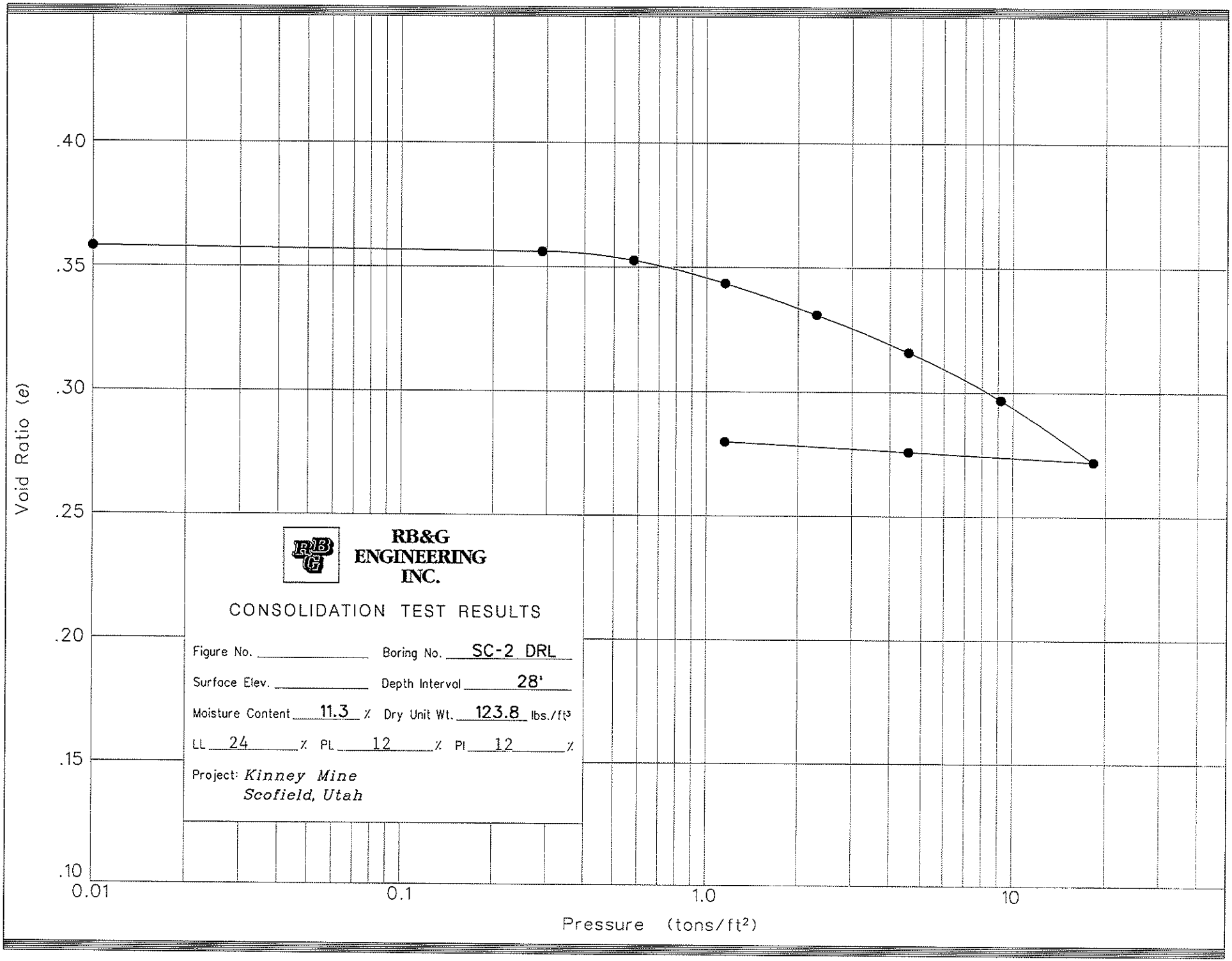
TRIAXIAL SHEAR TEST

Project: *Kinney Mine*
Scofield, Utah

HOLE NO.: SC-2 DRL

DEPTH: 23'-24'

Figure



RB&G ENGINEERING INC.

CONSOLIDATION TEST RESULTS

Figure No. _____ Boring No. SC-2 DRL

Surface Elev. _____ Depth Interval 28'

Moisture Content 11.3 % Dry Unit Wt. 123.8 lbs./ft³

LL 24 % PL 12 % PI 12 %

Project: *Kinney Mine*
Scofield, Utah

CONVEYOR SECTION-5

TEST PITS CV-5-1 & CV-5-2

TEST PIT LOG

TEST PIT NO. CV-5-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:75,340 E:38,792
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7737.7'
LOGGED BY: J. BOONE

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
7735	0					CL-1	SANDY LEAN CLAY sandy silt layers & pockets (fill) brown, dry, stiff	89.8	5.8	22	7				
	5				+1.00	CL-ML	lt. brown, dry, very stiff	95.6	4.9						
7730							SANDY SILTY CLAY pinhole structure, occasional cobble and/or boulder								
	10				+1.00	CL-ML	lt. brown, dry to slightly moist, very stiff	90.7	7.1	21	4				CT
7725					+1.00	CL-1	lt. brown, dry, very stiff		9.7	22	10				DS
	15				+1.00	CL	lt. brown, slightly moist, hard								
							SANDY LEAN CLAY pinhole structure, occasional cobble and/or boulder								
7720					+1.00	CL-1	lt. brown, slightly moist, hard		9.6	23	10				

TP_LOGV1 KINNEYMINE TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

TEST PIT LOG

TEST PIT NO. CV-5-2 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:75,688 E:38,928
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7749.8'
LOGGED BY: J. BOONE

Elev. (ft)	Depth (ft)	Lithology	Sample Type	Sample Rec. (in)	Sample See Legend	USCS	Material Description	Dry Density (pcf)	Moisture Content (%)	Atter. Liquid Limit	Atter. Plast. Index	Gradation Gravel (%)	Gradation Sand (%)	Gradation Silt/Clay (%)	Other Tests
						COAL, CL,GM	brown, slightly moist, very stiff	101.8	7.9						
7745	5						INTERBEDDED LAYERS OF COAL, SANDY LEAN CLAY & SILTY GRAVEL W/SAND (fill)								
						COAL, CL,GM	brown, dry, very stiff	107.3	4.2						
						COAL, CL,GM	brown, dry, very stiff	100.4	6.9						
7740	10														
					+1.00	CL-2	brown, slightly moist, very stiff	112.7	13.8	42	26				CT
7735	15				+1.00	CL-2	brown, slightly moist, hard	SANDY LEAN CLAY slight pinhole structure		14.1	33	18				
					+1.00	CL	brown, slightly moist, hard									
7730															

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

LEGEND:
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

Table 1

SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

HOLE NO.	DEPTH BELOW GROUND SURFACE (ft)	STANDARD PENETRATION BLOWS PER FOOT	IN-PLACE		UNCONFINED COMPRESSIVE STRENGTH (psf)	ATTERBERG LIMITS			MECHANICAL ANALYSIS			UNIFIED SOIL CLASSIFICATION SYSTEM (modified)
			DRY UNIT WEIGHT (pcf)	MOISTURE (%)		LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	PERCENT GRAVEL	PERCENT SAND	PERCENT SILT & CLAY	
CV-2-1 TH	3	Grab	95.0	9.0		32	15	17				CL-2
	6	Grab		3.1				NP	64	23	13	GM
CV-2-3 TH	3	Grab	106.1	7.6	4000+*	25	13	12				CL-1
	6	Grab	88.6	6.5	4000+*	23	17	6				CL-ML
	9	Grab	97.1	4.8	4000+*	19	15	4				CL-ML / SC-SM
CV-5-1 TH	3	Grab	89.8	5.8	4000+*	22	15	7				CL-1
	9	Grab	90.7	7.1	4000+*	21	17	4				CL-ML
	12	Grab	95.8	9.7	4000+*	22	12	10				CL-1
	19	Grab		9.6	4000+*	23	13	10				CL-1
CL-5-2 TH	12	Grab	112.7	13.8	4000+*	42	16	26				CL-2
	15	Grab		14.1	4000+*	33	15	18				CL-2
WSF-1 TH	6	Grab	97.9	4.5	2827	21	16	5				CL-ML
WSF-2 TH	3	Grab	91.0	4.6				NP	29	45	26	SM
	9	Grab		4.7		19	15	4				CL-ML / SC-SM
WSF-3 TH	6	Grab	89.6	4.6				NP	34	38	28	SM
	9	Grab	96.3	10.1	3000*	22	14	8				CL-1
	12	Grab		6.1	3320*			NP	34	38	28	SM
MDF-1 TH	3	Grab	102.7	4.9		20	16	4				CL-ML / SC-SM
	9	Grab	86.6	8.4	3240*	25	14	11				CL-1
	18.5	Grab	108.7	10.8	2760*	23	13	10				CL-1
MDF-2 TH	3	Grab	108.6	4.6		20	15	5	34	38	28	SC-SM
	6	Grab	118.5	3.8				NP	38	47	15	SM
	15	Grab	94.8	9.3	3520*	23	14	9				CL-1
MDF-3 TH	6	Grab	102.9	5.8				NP	34	39	27	SM
	15	Grab		7.5	4000+*	22	12	10				CL-1
	18	Grab		5.3	4000+*	21	13	8				CL-1
CS-1 TH	6	Grab										Coal
	9	Grab		8.8	2080*	23	14	9				CL-1
	12	Grab		15.5	2240*	24	16	8				CL-1
F-1 TH	6	Grab	91.3	5.6		22	18	4	18	42	40	SC-SM
	9	Grab		6.1		21	16	5				CL-ML / SC-SM

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

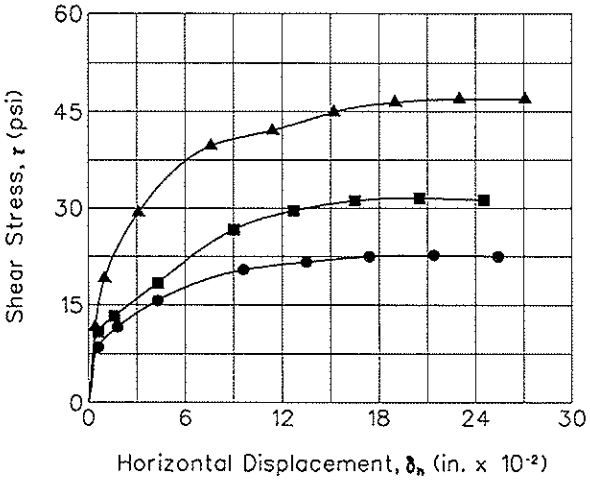
PROJECT NO. 200701-045
FEATURE

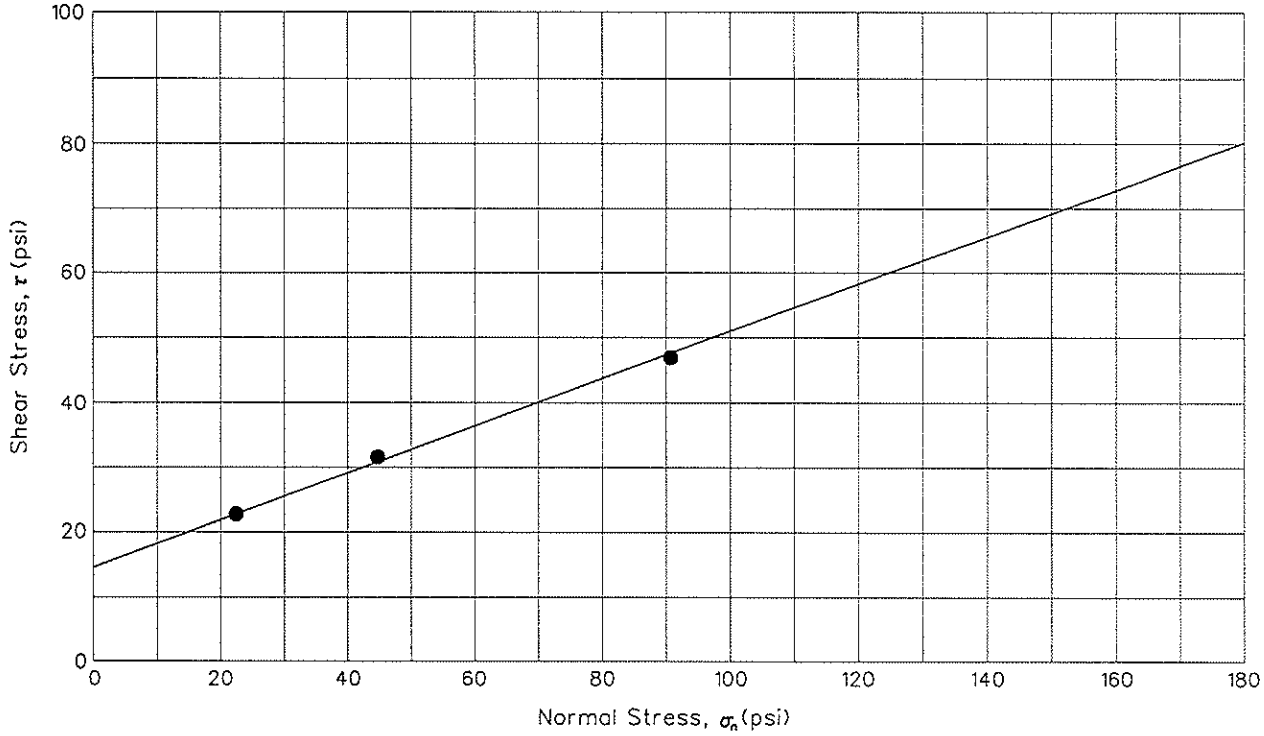
CHEMICAL TESTS					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	pH	RESISTIVITY (ohm-cm)	SULFATE (%)	USCS (MODIFIED) / AASHTO CLASSIFICATION
3-NS-1	6-7.5	8.0	6761	0.0031	CL-1
11-MDF-2	3	8.2	7202	0.0064	SC-SM
9-WSF-1	6	7.3	3322	0.0195	CL-ML
13-WSF-2	3	7.8	6502	0.0315	SM

DIRECT SHEAR TESTS CONSOLIDATED DRAINED					
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	DRY DENSITY (pcf)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	USCS (MODIFIED) / AASHTO CLASSIFICATION
07-CV-5-1 TH	12	95.8	20	15	CL-1

TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS						
SAMPLE LOCATION	DEPTH BELOW GROUND SURFACE (ft)	TOTAL STRESS		EFFECTIVE STRESS		USCS (MODIFIED) / AASHTO CLASSIFICATION
		FRICTION ANGLE $\Phi_{(cu)}$ (degrees)	COHESION $c_{(cu)}$ (psi)	FRICTION ANGLE Φ (degrees)	COHESION c (psi)	
CV-4-1 DRL	20-21.5	29.6	2	36.0	2	CL
SC-2 DRL	23-24	32.5	2	36.7	2	CL-1

* Visual Classification
**Bulk Sample





Test No. or Symbol	Sample Size (inches)	Sample Data		Degree of Saturation (%)	Normal Stress σn (psi)	Maximum Shear Stress τ (psi)	Strain Rate (inches/minute)	Shear Strength Parameters	
		Dry Density (pcf)	Moisture Content (%)					Friction Angle φ (degrees)	Cohesion (c/psi)
●	2.375	95.7	9.8	~100	22.4	22.7	0.0005	20.0	15
■	2.375	95.9	9.7	~100	44.7	31.6	0.0005		
▲	2.375	95.8	9.8	~100	90.7	46.9	0.0005		

MATERIAL: SANDY LEAN CLAY (CL-1)

RB&G ENGINEERING INC.
Provo, Utah

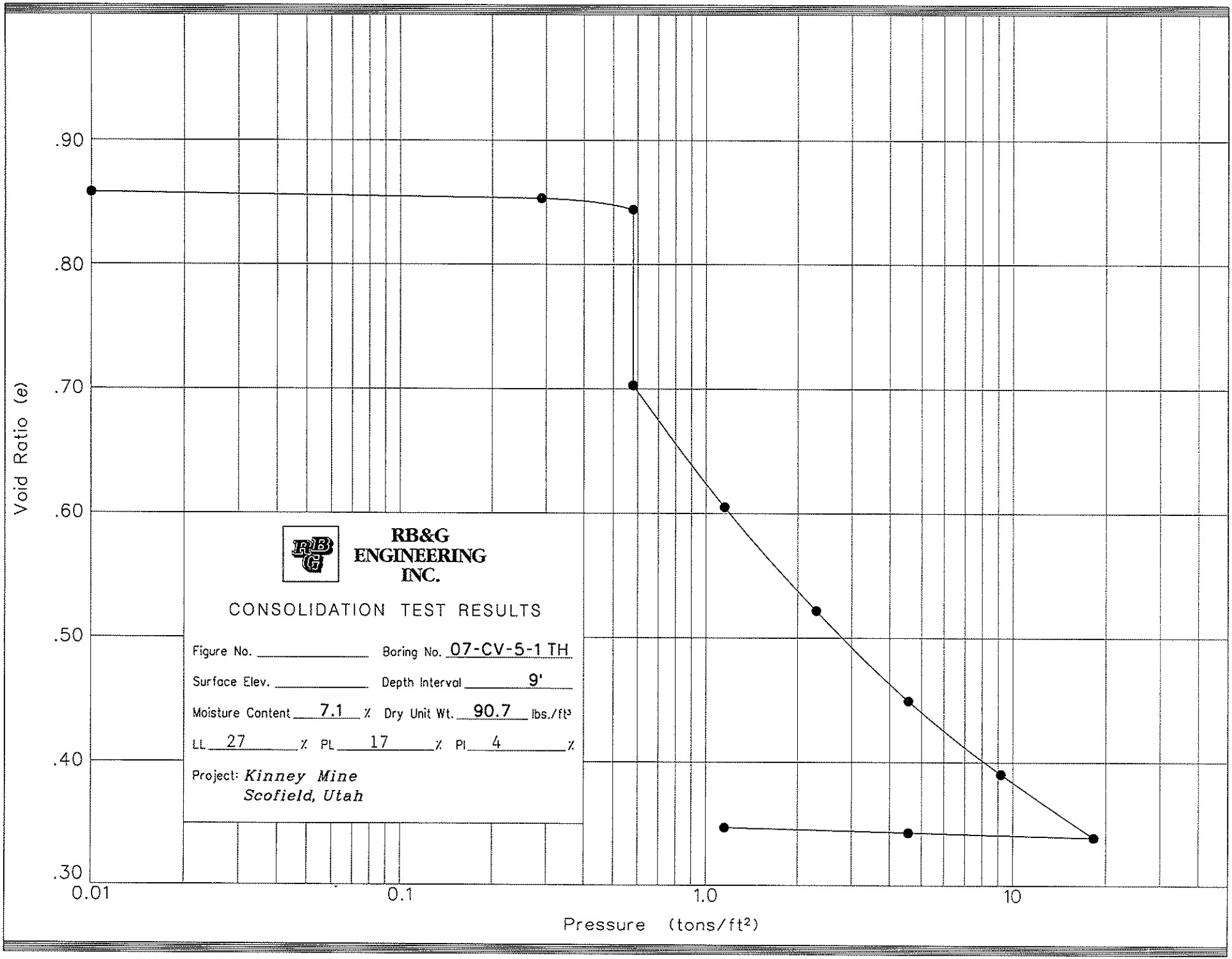
DIRECT SHEAR TEST

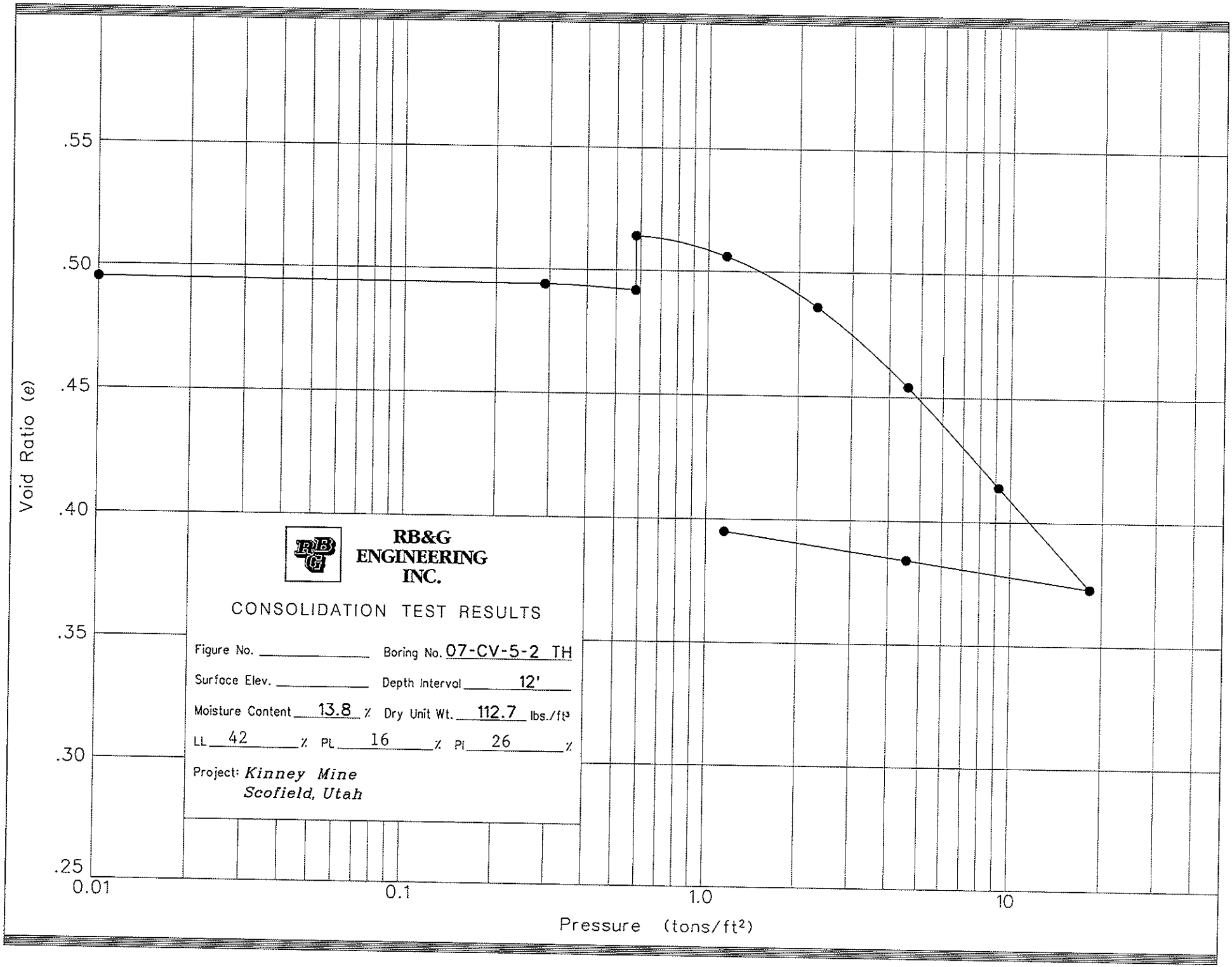
Project: *Kinney Mine*
Scofield, Utah

HOLE NO.: 07-CV-5-1 TH

DEPTH: 12'

Figure


.90
.80
.70
.60
.50
.40
.30
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-CV-5-1 TH
Surface Elev. _____ Depth Interval 9'
Moisture Content 7.1 % Dry Unit Wt. 90.7 lbs./ft³
LL 27 % PL 17 % PI 4 %
Project: Kinney Mine
Scofield, Utah

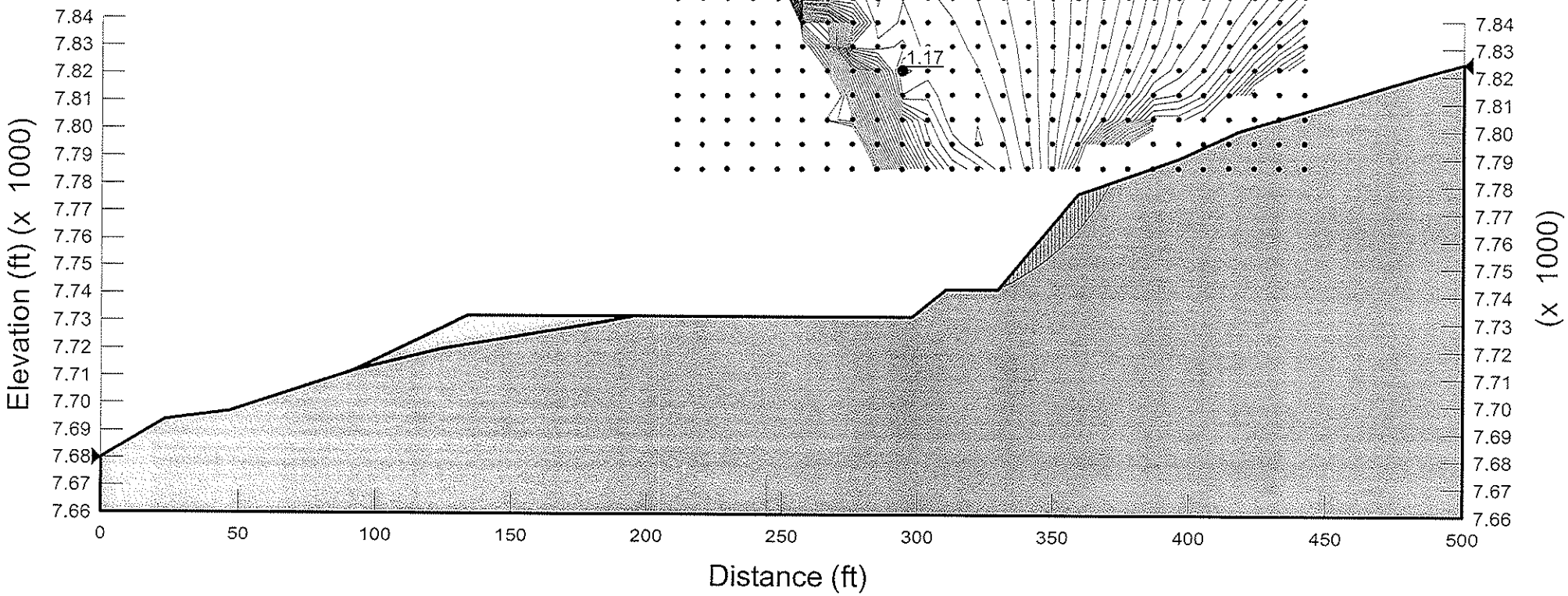

.55
.50
.45
.40
.35
.30
.25
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-CV-5-2 TH
Surface Elev. _____ Depth Interval 12'
Moisture Content 13.8 % Dry Unit Wt. 112.7 lbs./ft³
LL 42 % PL 16 % PI 26 %
Project: Kinney Mine
Scofield, Utah

SLOPE STABILITY ANALYSES

Kinney Mine
Section A-A
0.8:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

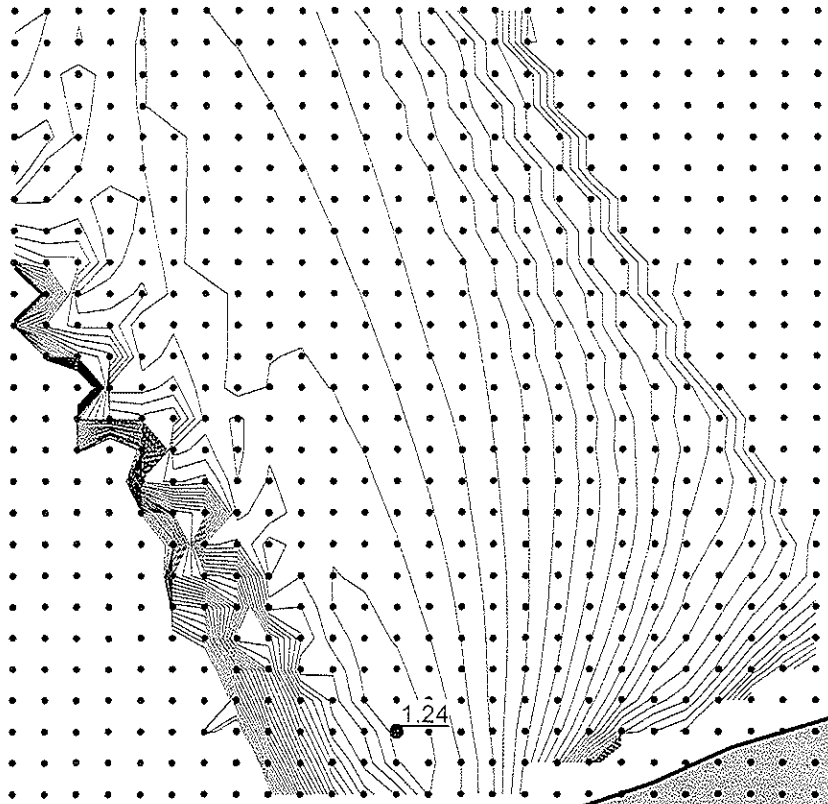
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30

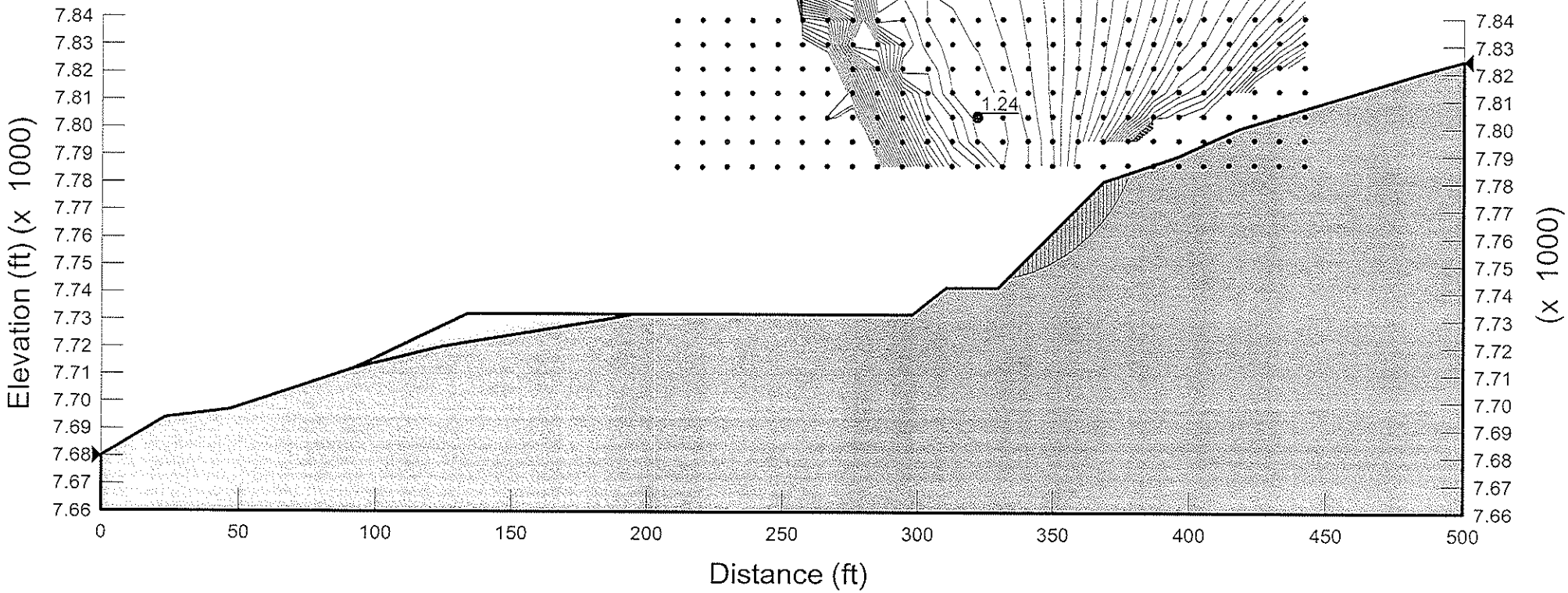


Kinney Mine
Section A-A
1:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30

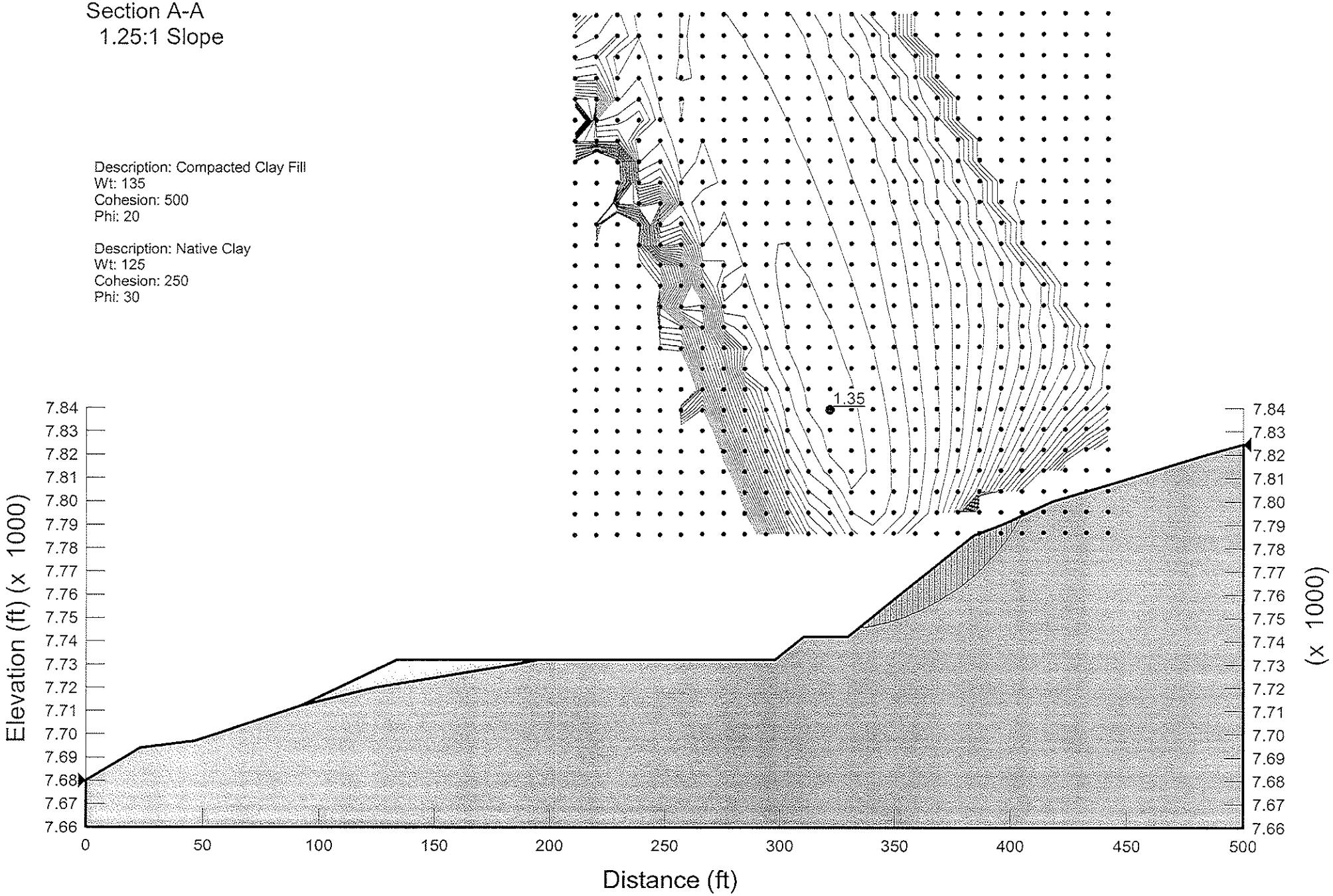




Kinney Mine
Section A-A
1.25:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

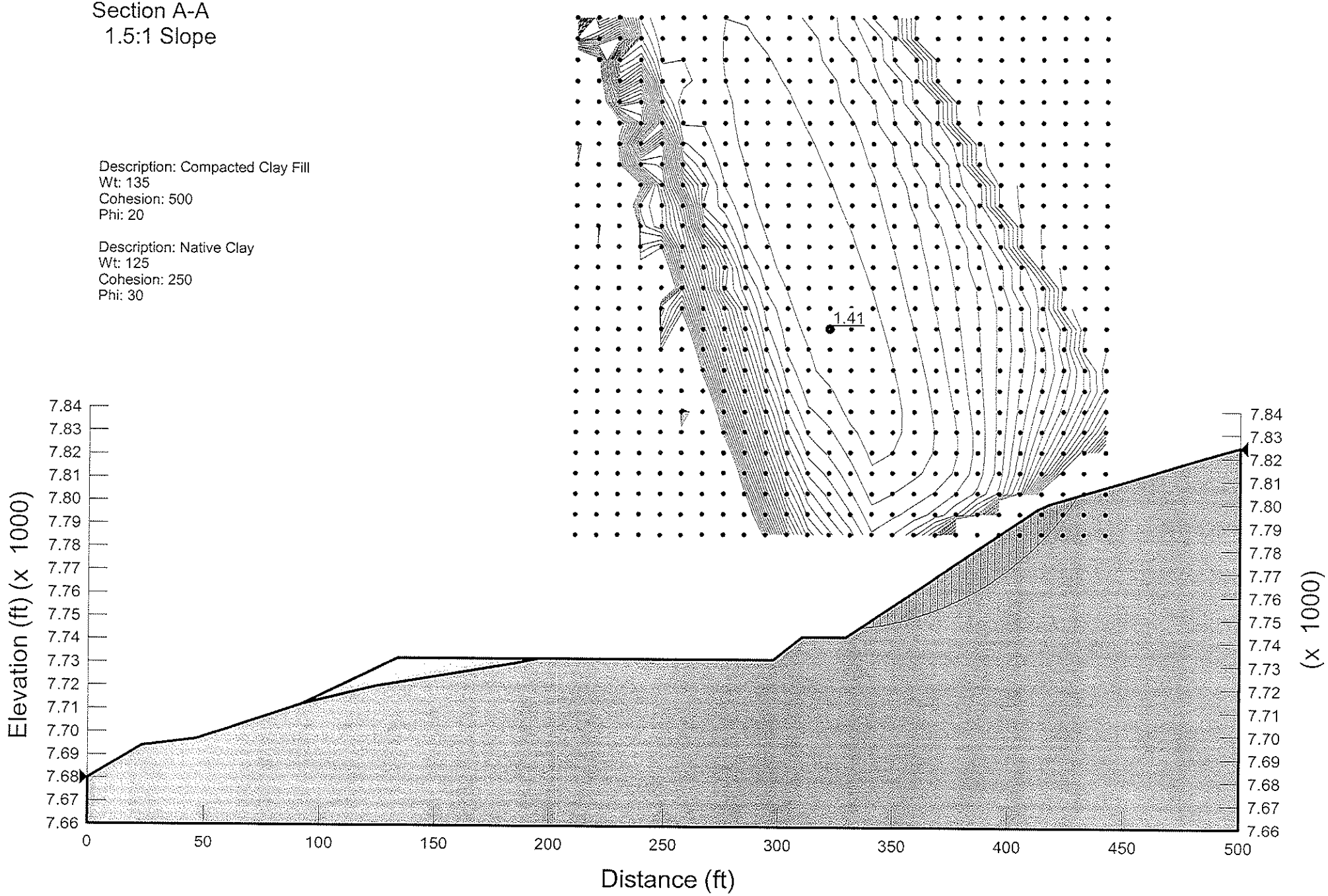
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30



Kinney Mine
Section A-A
1.5:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

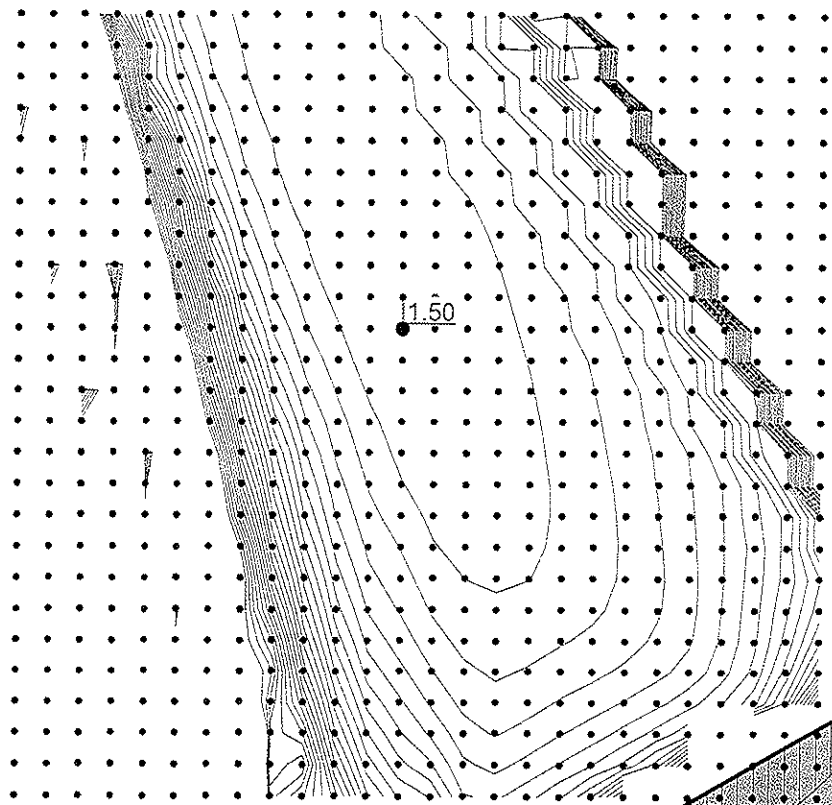
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30

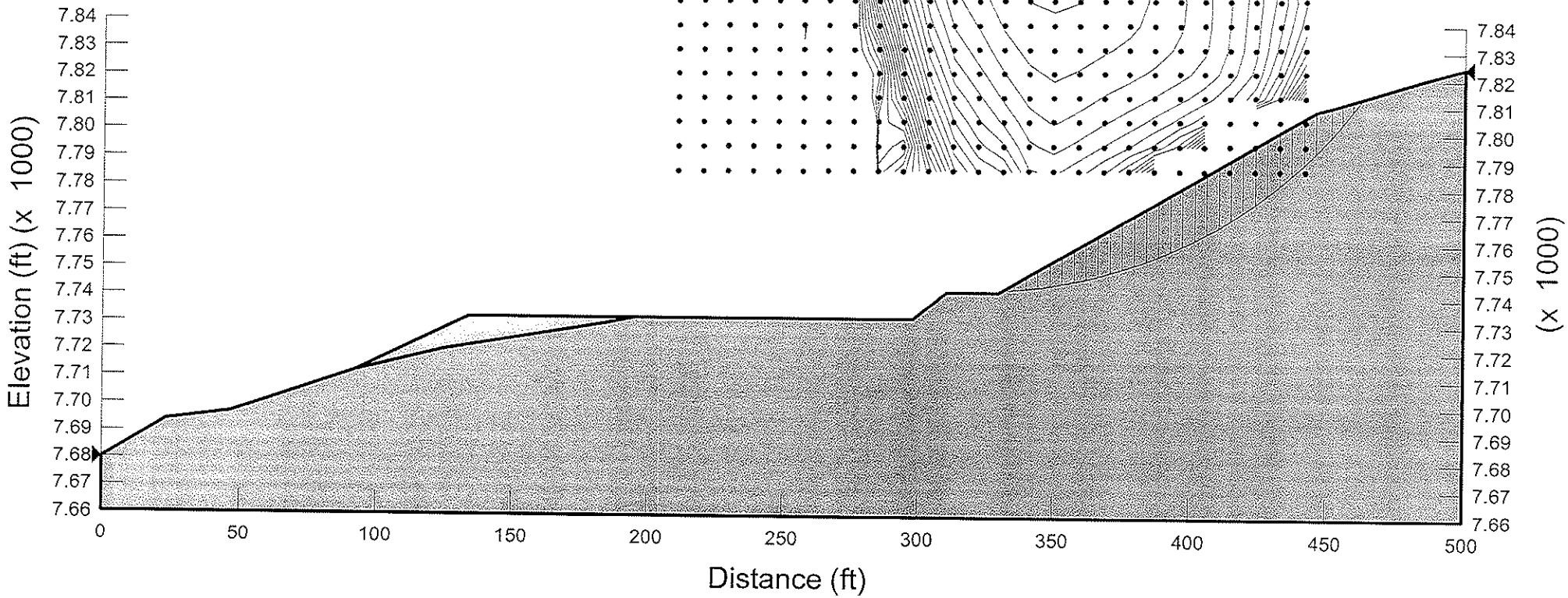


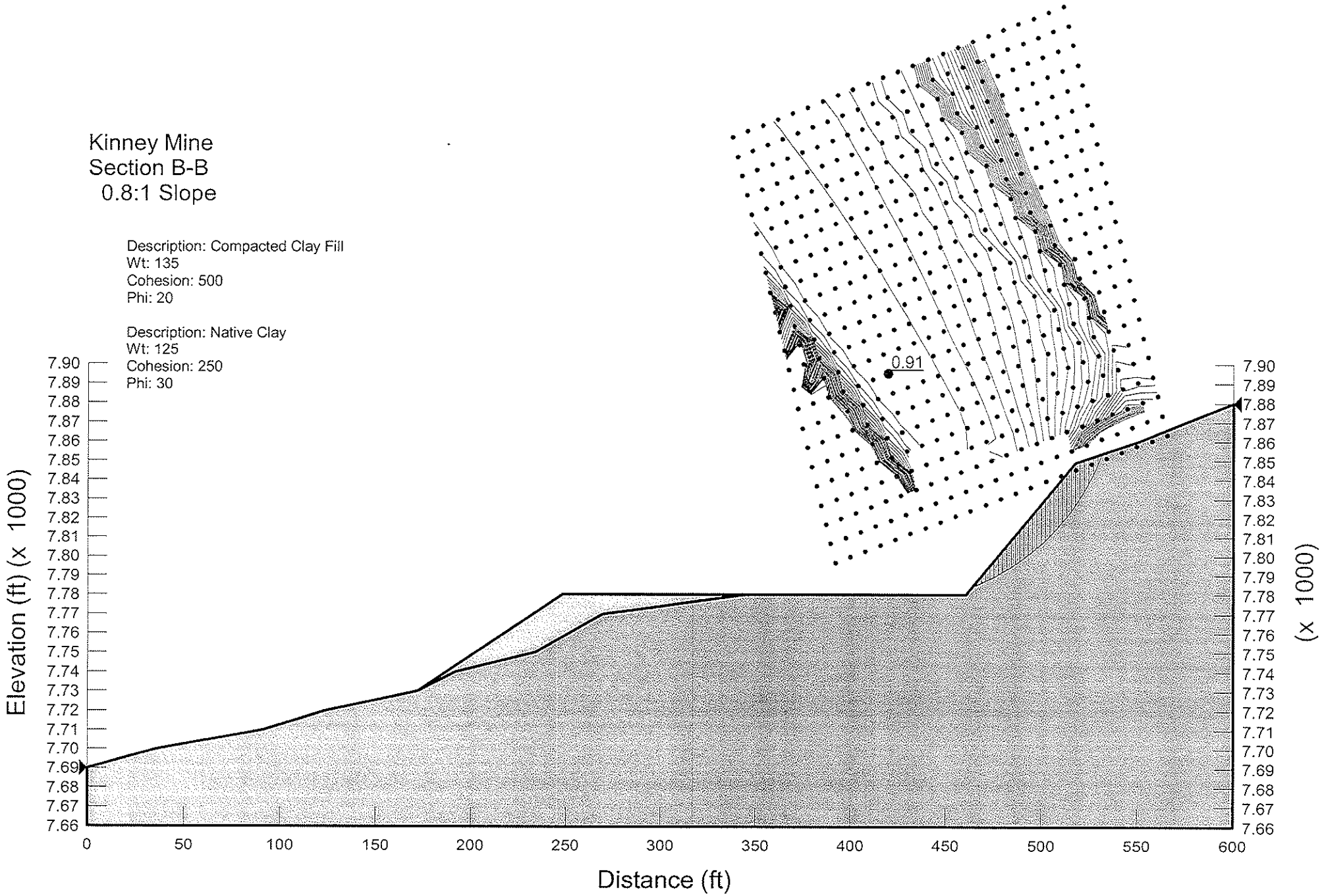
Kinney Mine
Section A-A
1.75:1 Slope

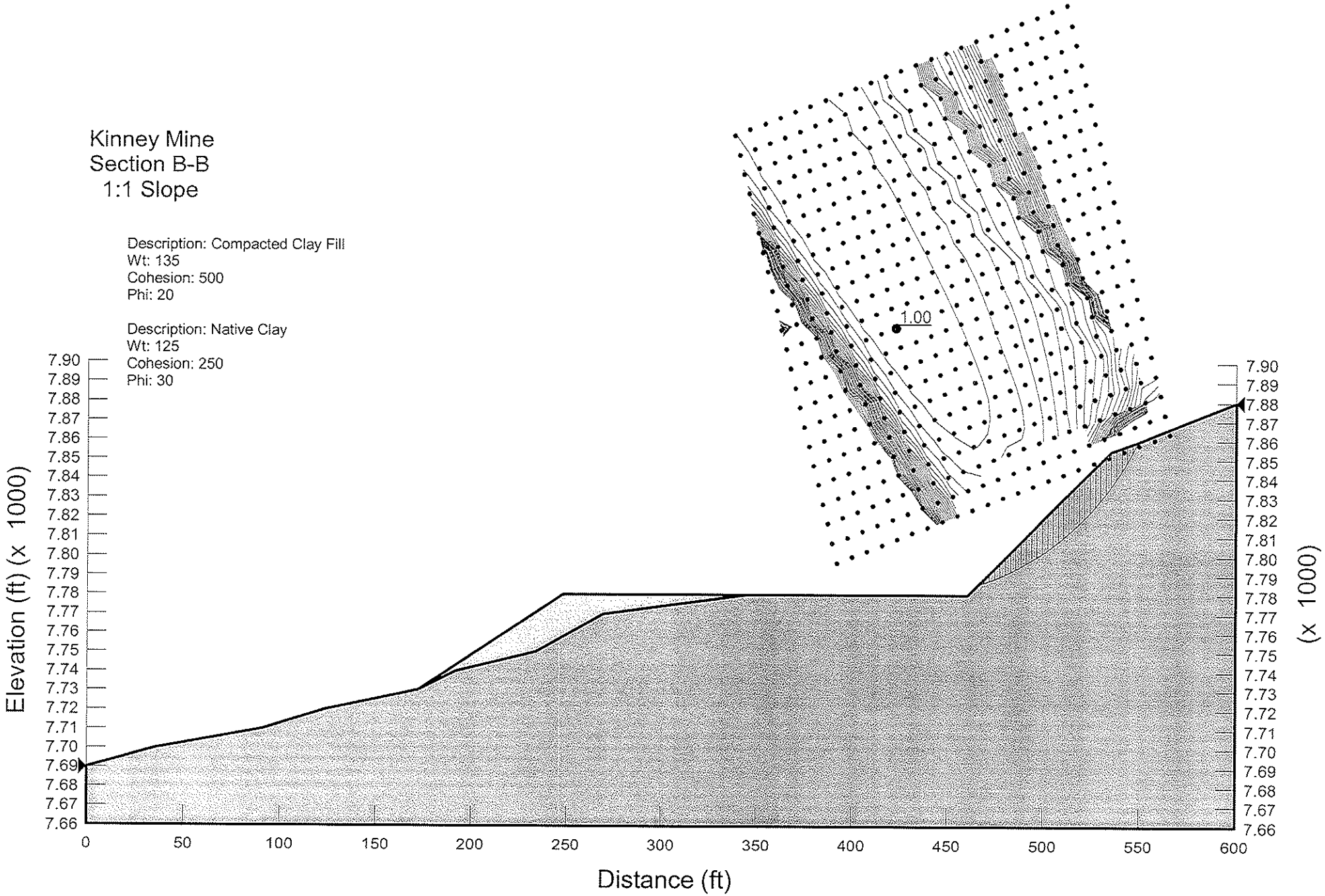
Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

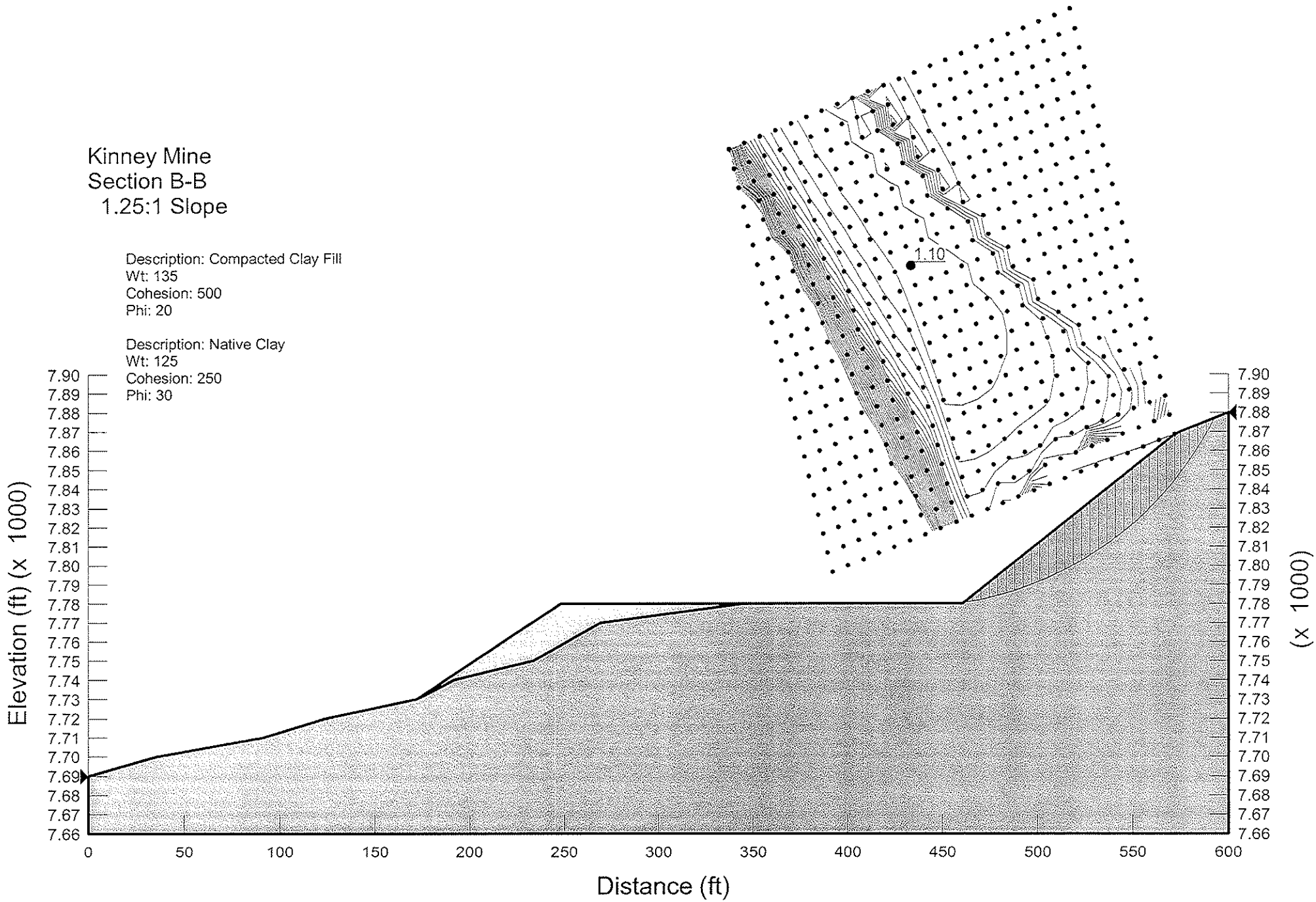
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30






Kinney Mine
Section B-B
0.8:1 Slope
Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30
0.91
Elevation (ft) (x 1000)
7.90
7.89
7.88
7.87
7.86
7.85
7.84
7.83
7.82
7.81
7.80
7.79
7.78
7.77
7.76
7.75
7.74
7.73
7.72
7.71
7.70
7.69
7.68
7.67
7.66
0
50
100
150
200
250
300
350
400
450
500
550
600
Distance (ft)
(x 1000)

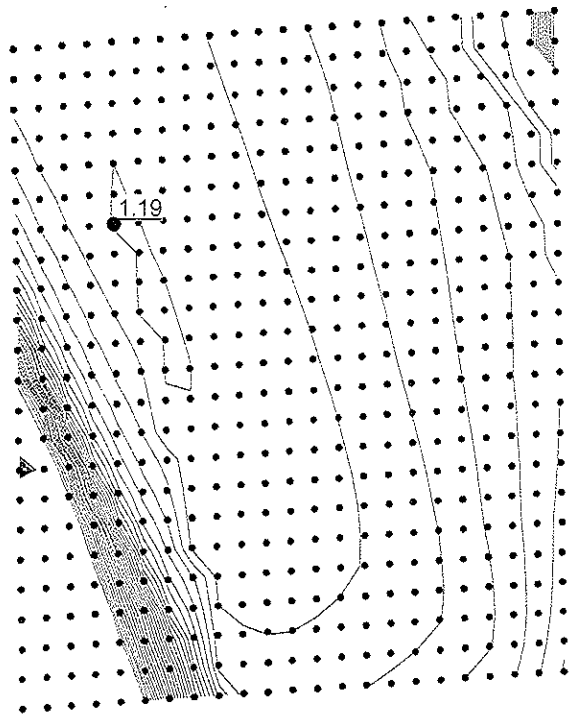

Kinney Mine
Section B-B
1:1 Slope
Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30
1.00
Elevation (ft) (x 1000)
7.90
7.89
7.88
7.87
7.86
7.85
7.84
7.83
7.82
7.81
7.80
7.79
7.78
7.77
7.76
7.75
7.74
7.73
7.72
7.71
7.70
7.69
7.68
7.67
7.66
0
50
100
150
200
250
300
350
400
450
500
550
600
Distance (ft)
(x 1000)

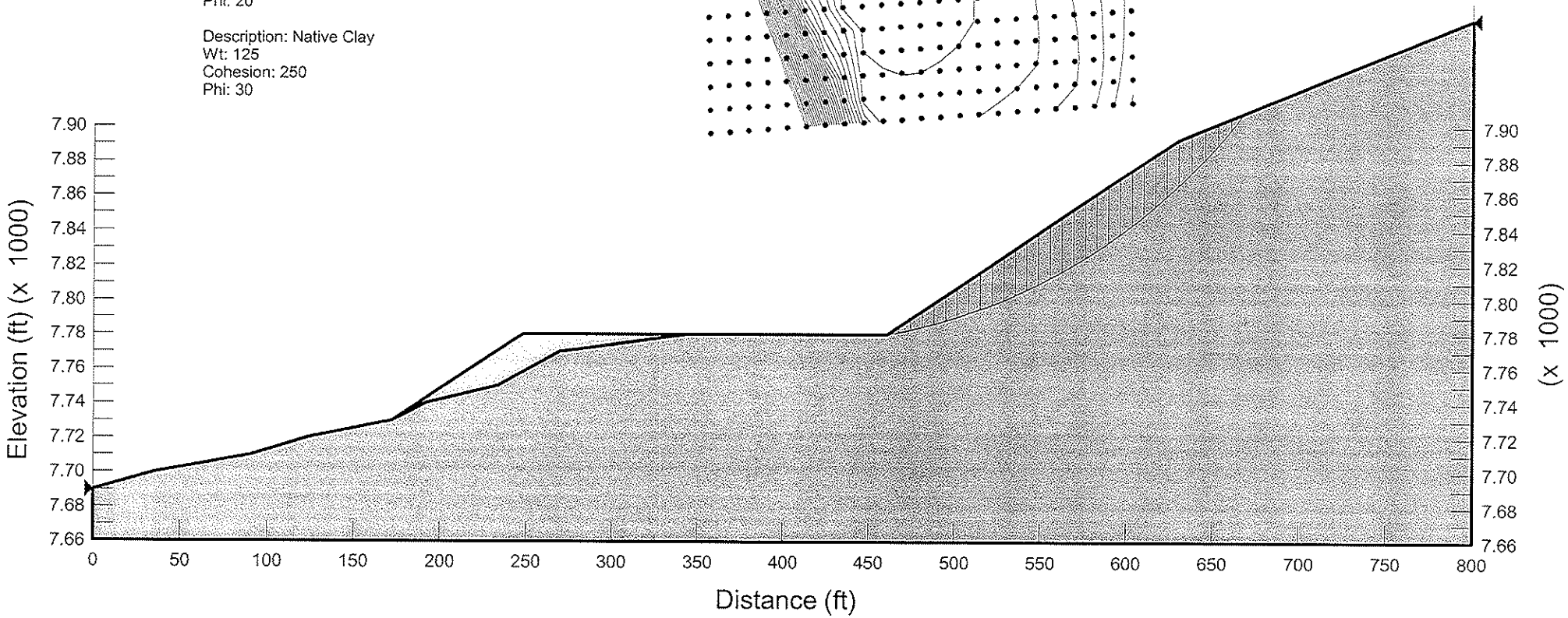

Kinney Mine
Section B-B
1.25:1 Slope
Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30
1.10
Elevation (ft) (x 1000)
7.90
7.89
7.88
7.87
7.86
7.85
7.84
7.83
7.82
7.81
7.80
7.79
7.78
7.77
7.76
7.75
7.74
7.73
7.72
7.71
7.70
7.69
7.68
7.67
7.66
0
50
100
150
200
250
300
350
400
450
500
550
600
Distance (ft)
(x 1000)

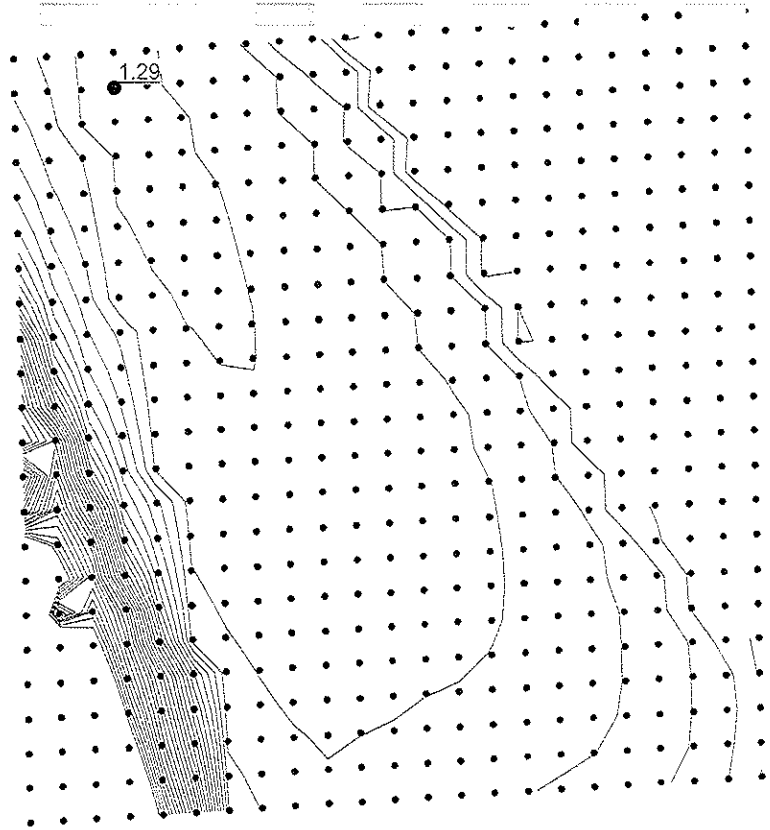
Kinney Mine
Section B-B
1.5:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30



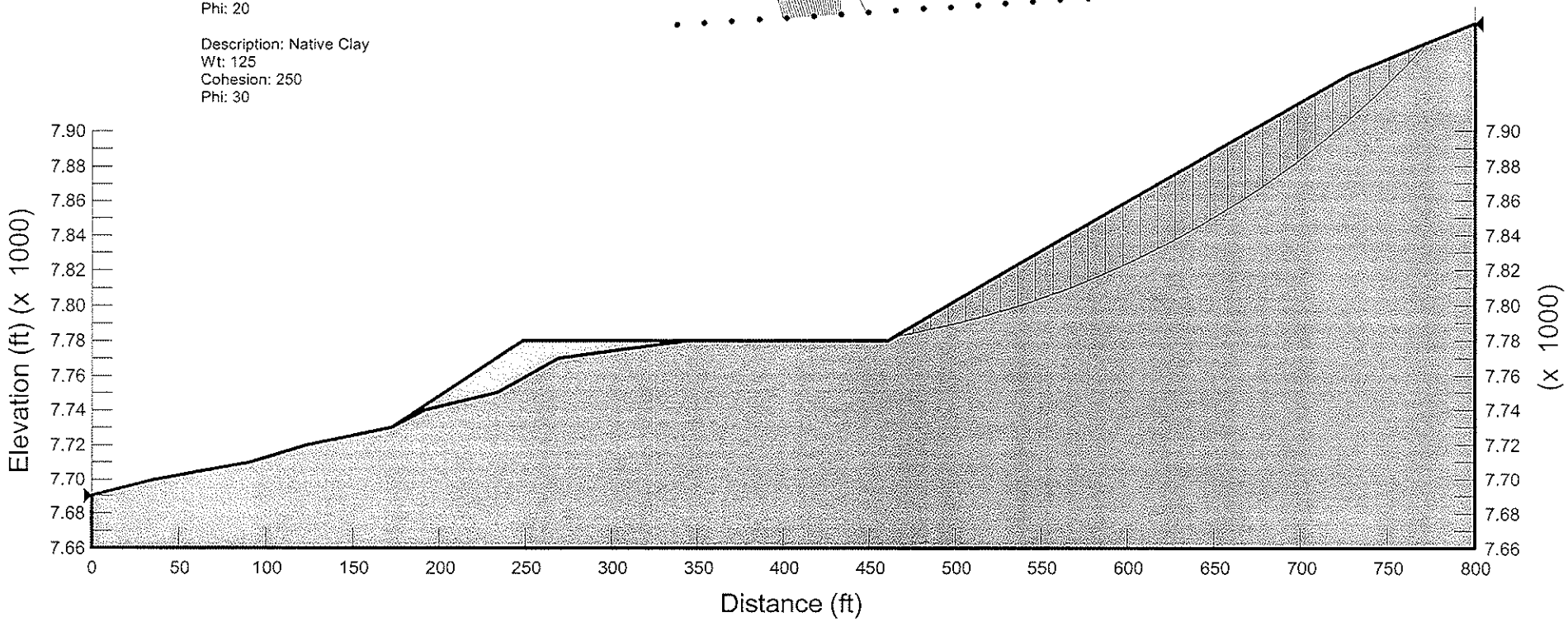




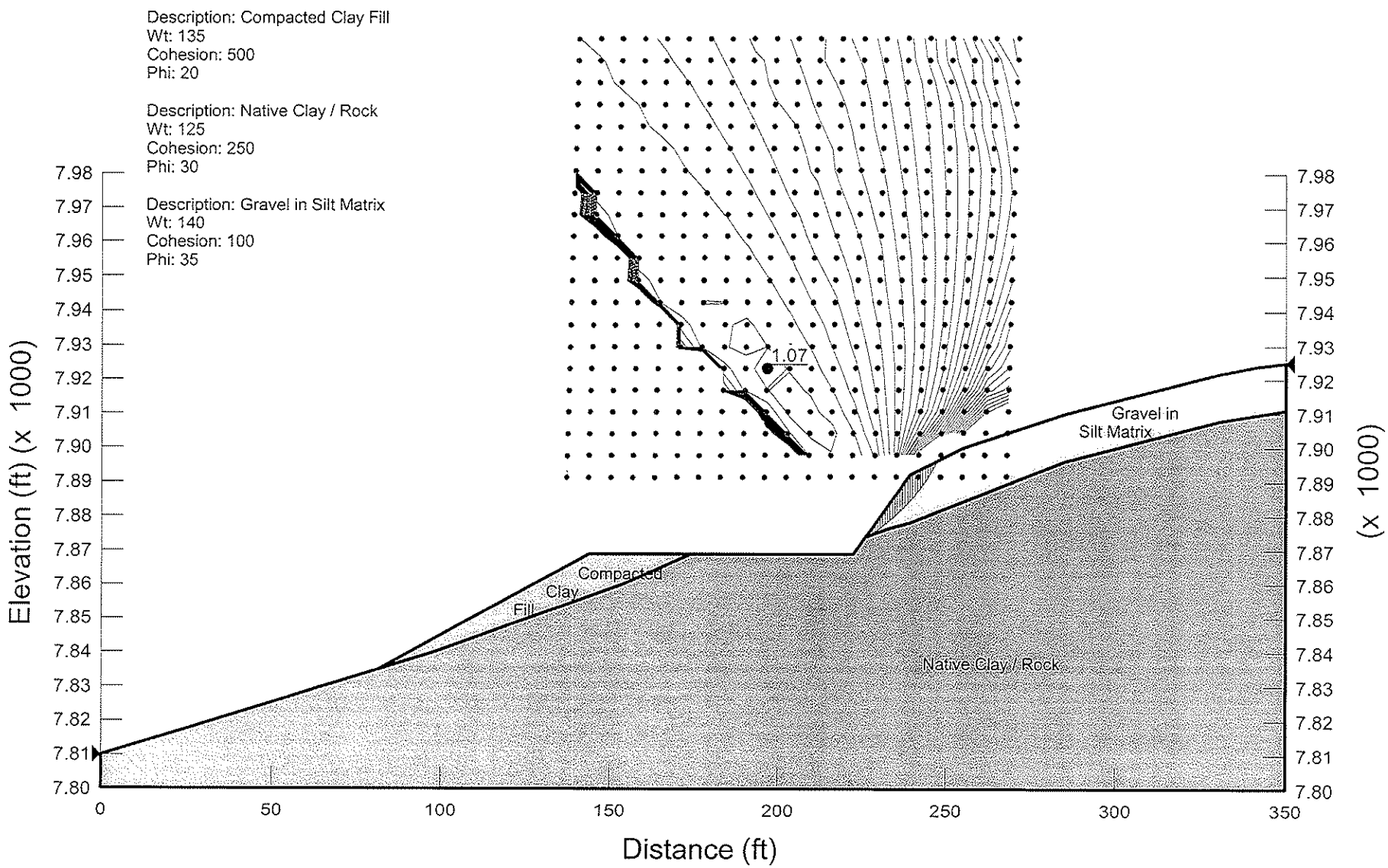
Kinney Mine
Section B-B
1.75:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

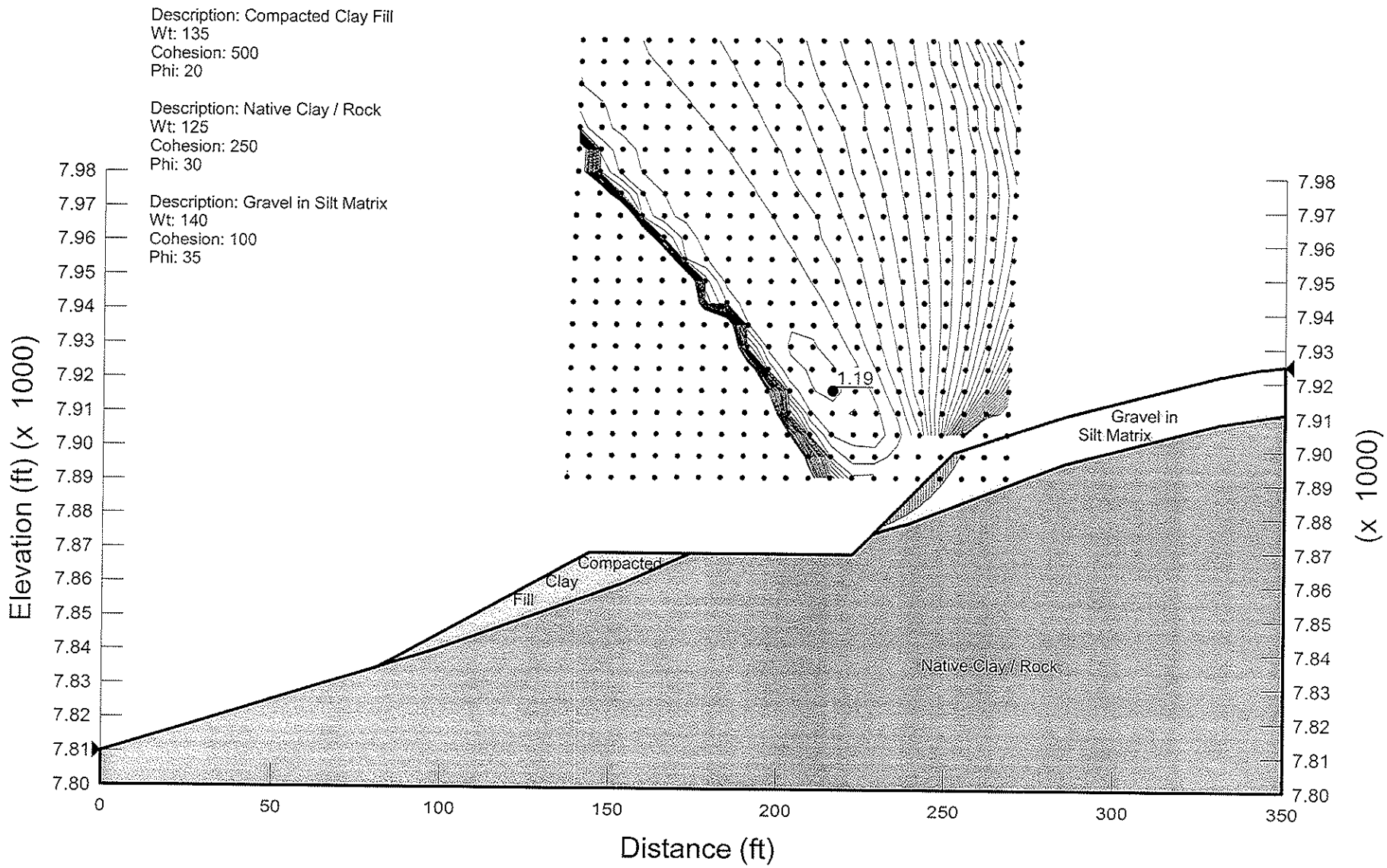
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30



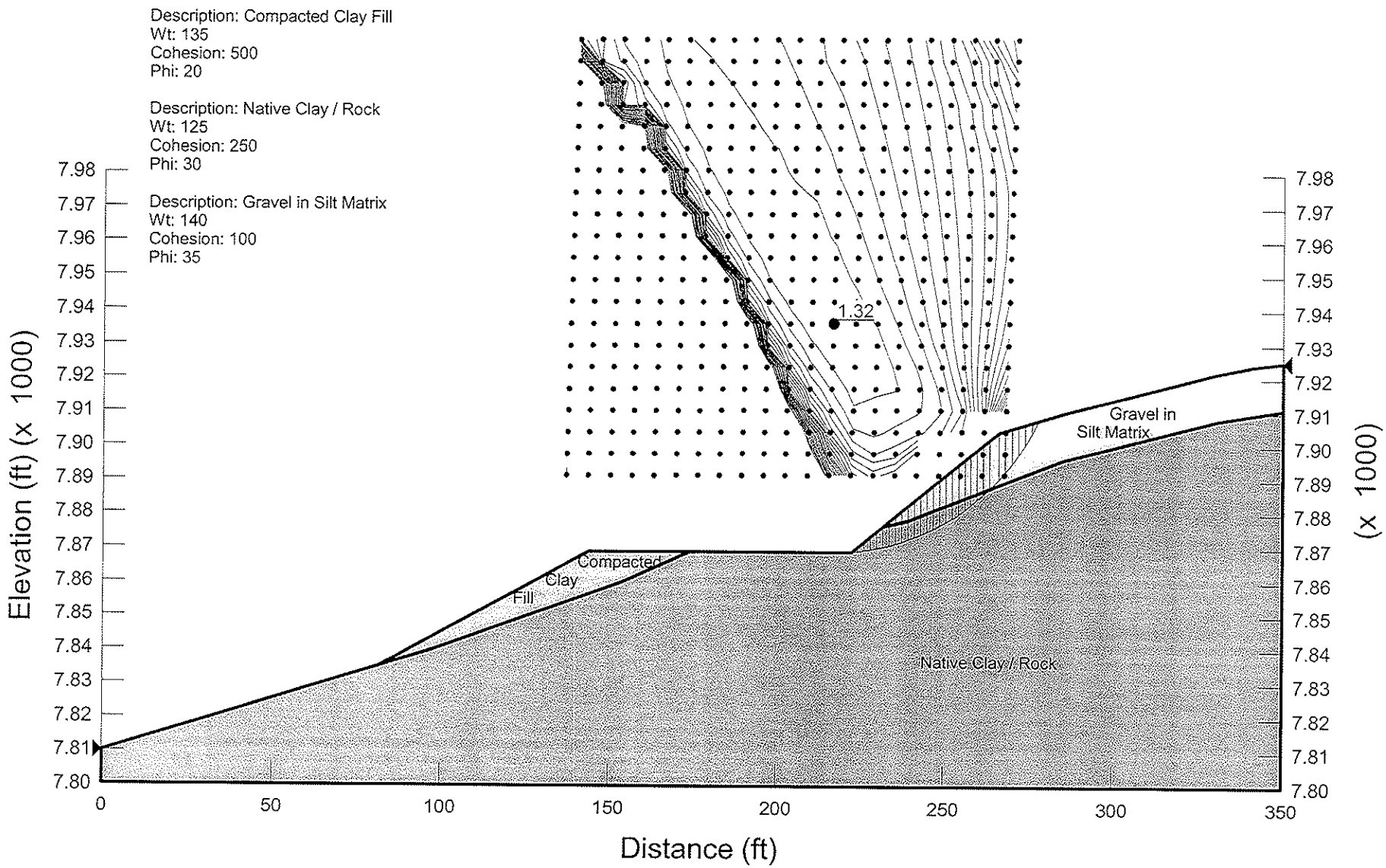
Kinney Mine
Section F-F
0.8:1 Slope



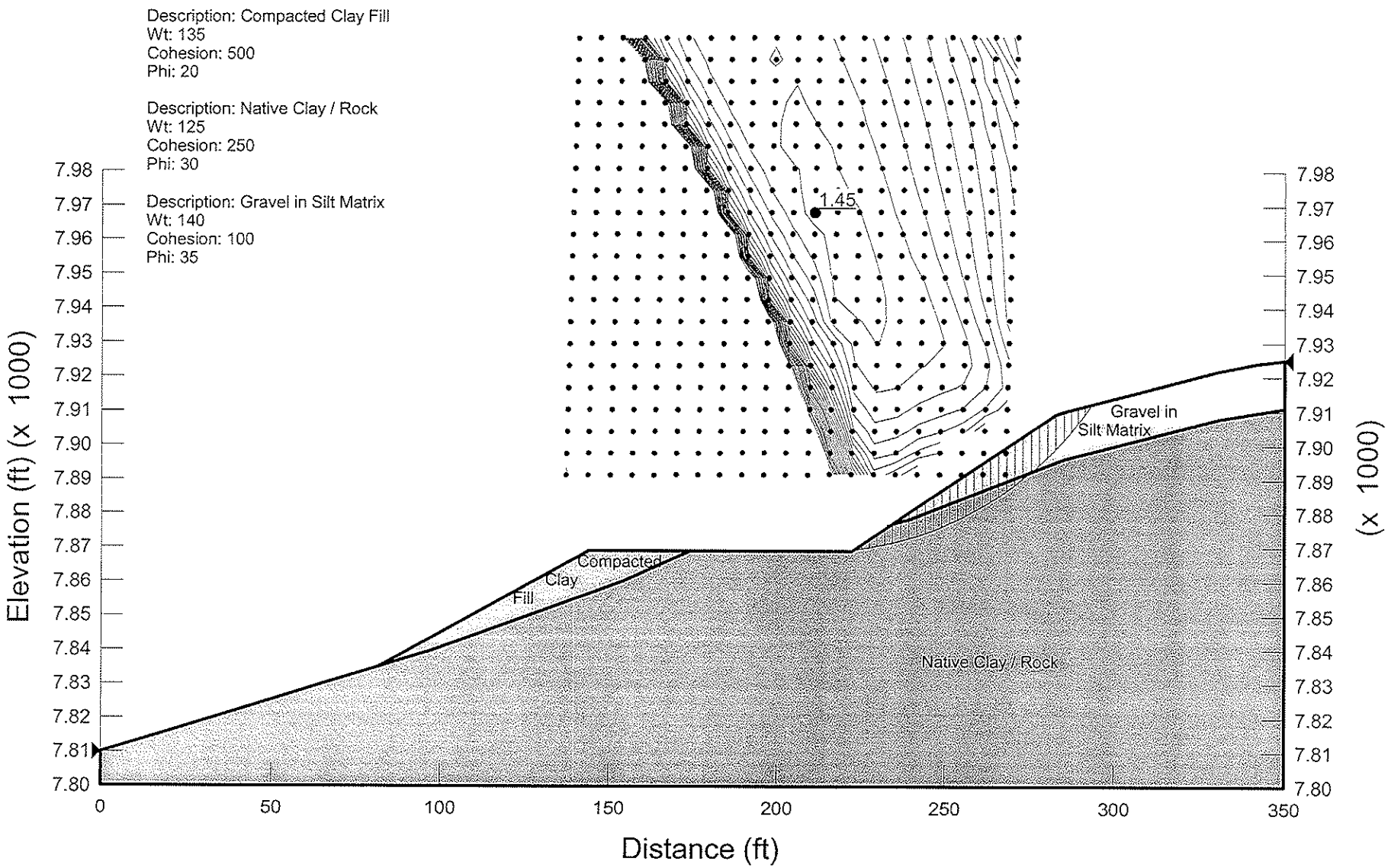
Kinney Mine
Section F-F
1:1 Slope



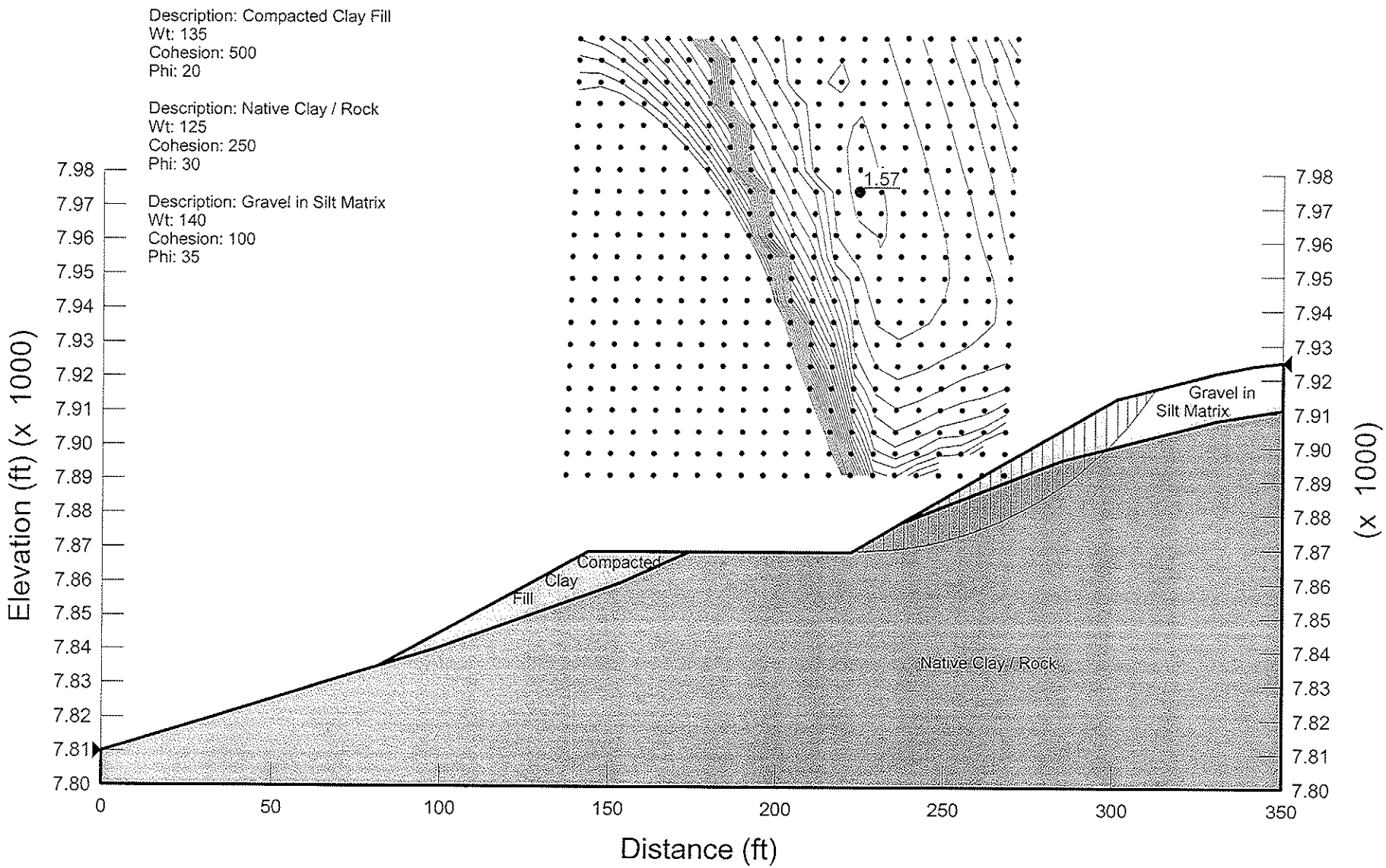
Kinney Mine
Section F-F
1.25:1 Slope



Kinney Mine
Section F-F
1.5:1 Slope



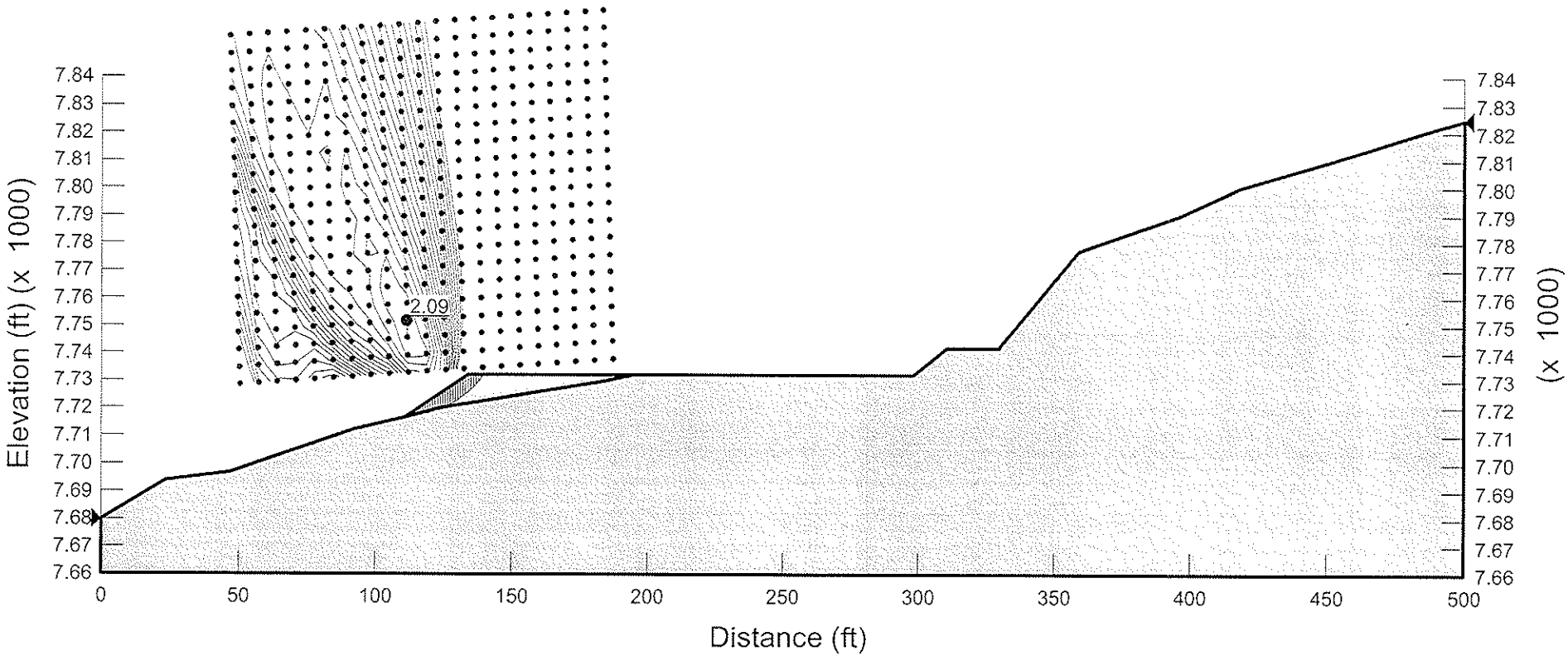
Kinney Mine
Section F-F
1.75:1 Slope

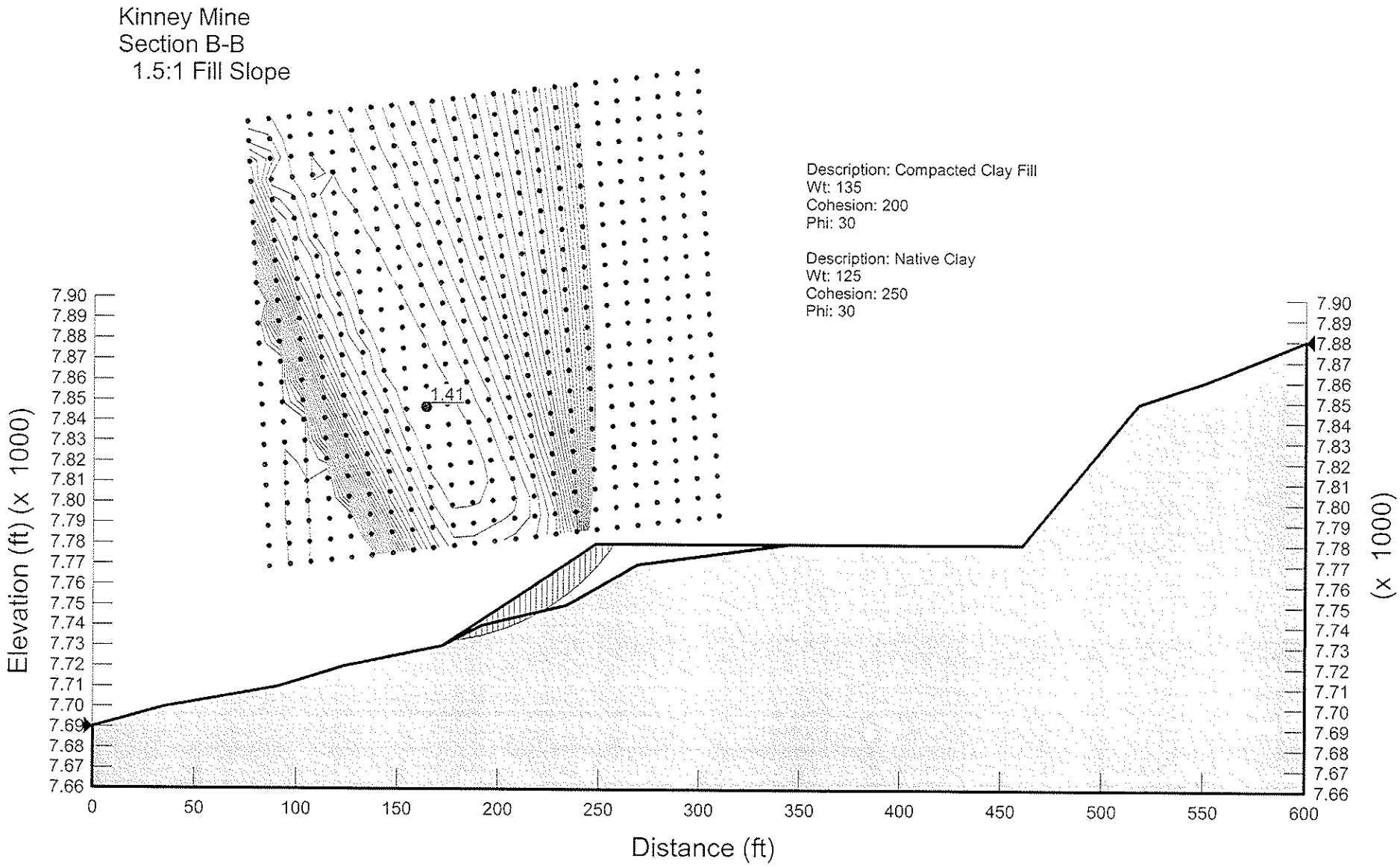


Kinney Mine
Section A-A
1.5:1 Fill Slope

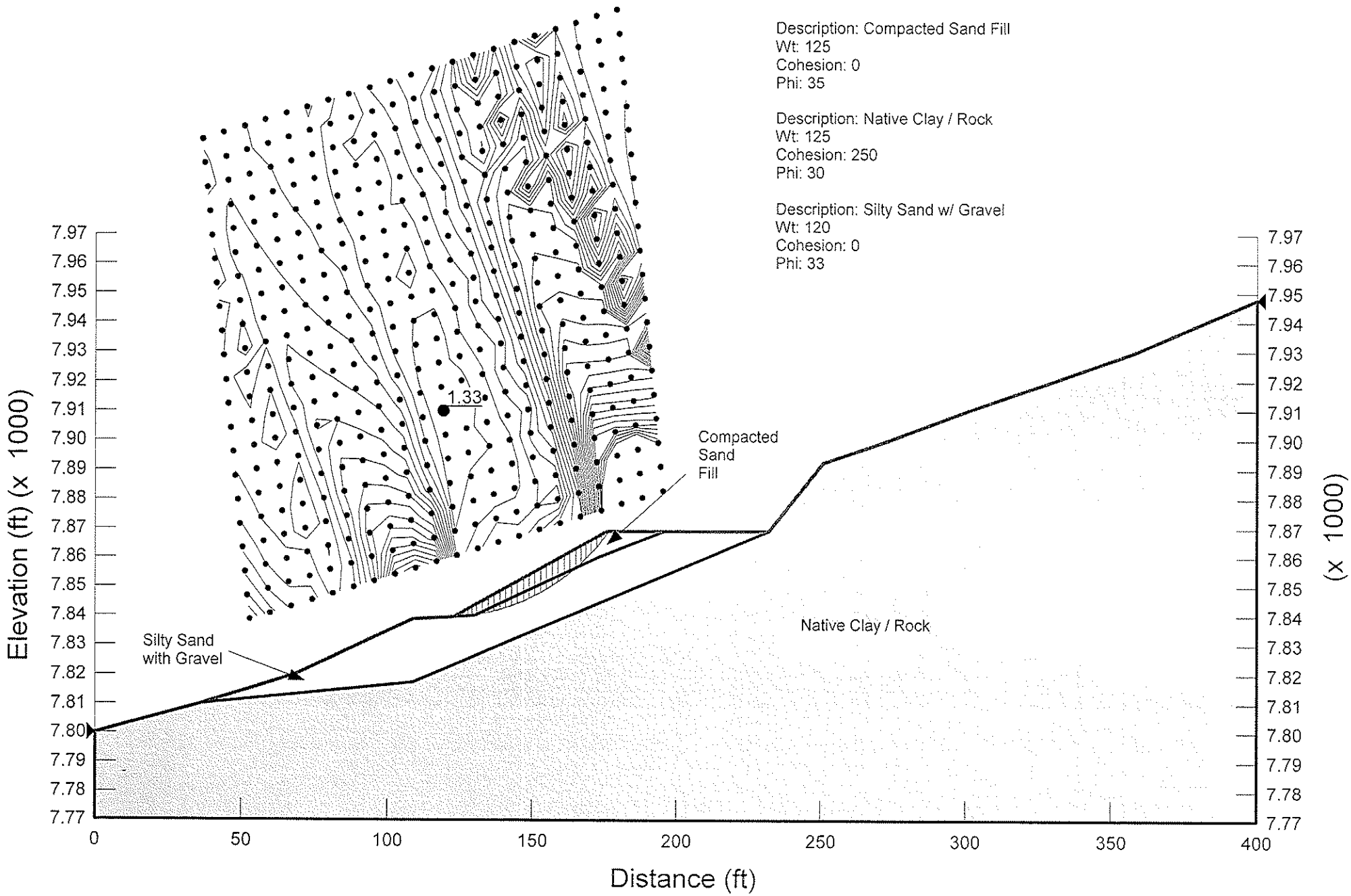
Description: Compacted Clay Fill
Wt: 135
Cohesion: 200
Phi: 30

Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30




Kinney Mine
Section B-B
1.5:1 Fill Slope
Description: Compacted Clay Fill
Wt: 135
Cohesion: 200
Phi: 30
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30
1.41
Elevation (ft) (x 1000)
7.90
7.89
7.88
7.87
7.86
7.85
7.84
7.83
7.82
7.81
7.80
7.79
7.78
7.77
7.76
7.75
7.74
7.73
7.72
7.71
7.70
7.69
7.68
7.67
7.66
0
50
100
150
200
250
300
350
400
450
500
550
600
Distance (ft)
(x 1000)

Kinney Mine
Section C-C
1.8:1 Fill Slope



Kinney Mine
Section F-F
1.8:1 Fill Slope

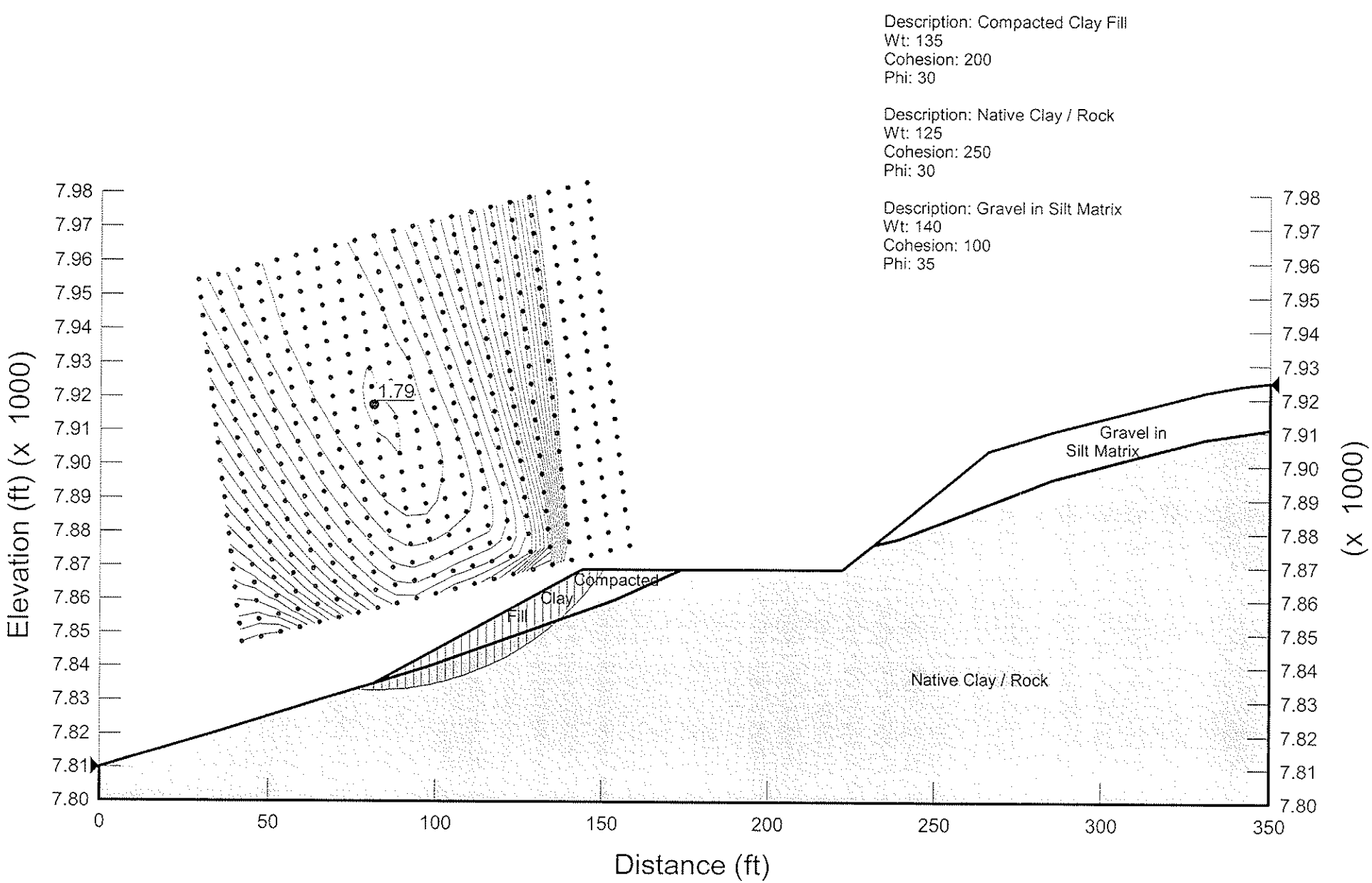


Exhibit 15

Kinney No. 2 Mine Blasting Plan

EXHIBIT 15
KINNEY NO. 2 MINE BLASTING PLAN

This blasting plan conforms to the Utah Coal Mining Rules R645-301-524 et. seq. The plan generally follows the format of the regulations, each regulation will be addressed as follows:

524.100 & 524.110

All surface blasting will be conducted under the direction of a certified blaster. Blasters will be qualified through the Division's blaster certification program.

524.120

Certificates of blaster certification will be carried by blasters or will be on file at a location within the permit area during blasting operations.

524.130

A blaster and at least one other person will be present for blasts.

524-140

The certified blaster responsible for blasting operations at the site will be familiar with the blasting plan and site-specific performance standards and give on-the-job training to persons who are not certified and who are assigned to the blasting crew or assist in the use of explosives.

524.210 – 524.240

Blasting may be required at the surface facilities of the Kinney No. 2 Mine located in the east half of the southeast quarter of Section 32, the west half of the west half of Section 33, Township 12 South, Range 7 East, Salt Lake Base & Meridian. Said areas can be seen on the Regional Land Use Map, Map 4. A portion of this area is within 1,000 feet of occupied buildings, and within 500 feet of abandoned coal mines in the area. In addition, portions of the area are adjacent to Highway 96.

Blast Design

The blast design, as illustrated by Table 15-1, is intended to show the general layout and present general blasting information. Any significant deviation from this plan will be presented to the Division prior to the blast.

Structures To Be Protected

Structures to be protected will include all structures within 1,000 feet of the area described above, including the convenience store on the corner of Highway 96 south of the permit area, and all dwellings and public building located within 1,000 feet of the blasting area described above. The locations of buildings and structures within a 1,000 foot zone of the potential blasting area can be seen on Map 11, Regional Surface Ownership Map.

Blaster Signature

This plan has been signed by a certified blaster on the last page of the plan. In the event the blaster that signed the plan no longer works for Carbon Resources (CR), or is no longer certified, a new certified blaster will be secured to execute the plan, his signature will be placed in the space below the original blaster, and a copy of the signed plan will be filed in the blasting records file.

524.300

A preblasting survey will be performed when 5 or more pounds of explosive are used as follows:

524.310 – At least 30 days before initiation of blasting, CR or its agent will notify, in writing, all residents or owners of dwellings, utilities or other structures located within on-half mile of the permit area, how to request a preblasting survey. Attachment A to this plan is a copy of a notification to be sent to the residents or owners of dwellings, utilities or other structures located within on-half mile of the permit area regarding their rights under the R645 rules to request a preblasting survey per R645-301-524.320.

524.320 – A resident or owner of a dwelling, structure, or utility within one-half mile of any part of the permit area may request a preblasting survey. The request will be made in writing directly to CR or UDOGM, who will promptly notify CR. CR will promptly conduct a preblasting survey of the dwelling, structure or utility and promptly prepare a report of the survey. An updated survey of any additions, modifications, or renovatins ill be performed by CR if requested by a resident or owner.

524.330 – CR will determine the condition of the dwelling, structure, or utility and will document any preblasting damage and other physical factors that could reasonably be affected by the blasting. Structures such as pipelines, cables, powerlines, and water systems will receive special attention, however, the assessment of these structures may be limited to surface conditions and other readily available data.

524.340 – The written report of the survey will be signed by the person that conducted the survey. Copies of the report will be promptly provided to UDOGM and to the person requesting the survey. If the person requesting the survey disagrees with the contents and/or recommendations contained therein, he or she may submit to both CR and UDOGM a detailed description of the specific areas of disagreement.

524.350 – Any surveys requested more than ten days before the planned initiation of blasting will be completed by CR before the initiation of blasting.

524.400

Blasting schedule: Blasting during construction of the Kinney No. 2 Mine surface facilities will begin any time after start of construction, which is scheduled to begin as soon after all appropriate permit approvals as possible. After construction is completed, blasting will be conducted as needed.

Blasting during initial site construction and during full mine operation will be done during daylight hours.

524.410 – Unscheduled blasts may occur for the following reasons:

- Where public safety requires
- Emergency blasting, such as boulders falling onto roadways, and etc.
- Destruction of damaged or deteriorated explosives or detonators in a safe manner
- Disposal of misfires and undetonated explosives
- Firing of charged holes as soon as practical after cessation of static electricity or stray current conditions when electrical detonators are used
- Firing of charged holes when weather conditions indicate the existence of a safety hazard is imminent

Residents of buildings or structures within one-half mile will be notified of unscheduled blasts using audible signals. CR will document the reason for the unscheduled blasts on the blasting records in accordance with R645-301-524.760.

524.430 – Written notice of blasting that is conducted within one-half mile of residents, structures, local governments, or utilities including Scofield Town, PacificCorp Power, and the Utah Department of Transportation will be given. A notice for blasting conducted during construction will be sent to the above entities weekly but in no case less than 24 hours before blasting will occur. The notices will contain the following:

- General location of the blasting
- Genera schedule
- General times of blasts
- Warning signals to be used before and after blasting

Notification to UDOT will be given that Highway 96 may be closed temporarily during blasting if a public safety hazard exists. A general notice of blasting will be placed in the Sun Advocate Newspaper before construction begins. Daily notices will be given each morning to the town of Scofield, and weekly notices will be given to UDOT if blasting during the following week has the potential to interfere with traffic on Highway 96.

524.500 & 524.510 – Blasting signs will be posted at the entrances to the Kinney No. 2 Mine site warning all who enter thereon of blasting. There are three possible entrances to the site, at the main entrance from Highway 96, at the private property road east of the site and the private property road at the north end of the permit area. The signs will be in accordance with R645-301-521.200 as follows:

- Signs will be posted, maintained, and removed by CR or its agent
- Signs will be of uniform design that can be easily seen and read
- Signs will be of durable materials and conform to local laws and regulations
- Signs will be maintained during all activities which they pertain

524.511 - Signs reading "BLASTING AREA" will be placed at conspicuous places along the edge of Highway 96 adjacent to the permit boundary where blasting may occur.

524.512 – Signs reading "WARNING! EXPLOSIVES IN USE" will be placed in conspicuous locations at all entrances to the permit area. The signs will also clearly list and describe the meaning of the audible blast warning and all-clear signals, and explain the marking of blasting areas and charged holes awaiting firing within the permit area.

524.520 – CR or its agent will give warning and all-clear signals of different character that are audible within a range of one-half mile from the point of the blast. A single long tone will be sounded approximately three (3) minutes before all blasts as the warning signal and two (2) short tones from the siren will signal all clear after each blast. Persons within the permit area and persons who reside or work within on-half mile of the permit area will be notified of the meaning of the signals through appropriate written notification as addressed above.

524.530 – Access within the blasting areas will be controlled to prevent the presence of livestock or unauthorized persons during blasting and until CR or its agent has determined that there are no unusual hazards and access to the travel within the blasting area can be safely resumed.

524.621 – Airblast will not exceed the limits below at the location of occupied dwellings or structures outside the permit area:

Lower Frequency Limit of Measuring System, HZ(+3dB)	Maximum Level dB
0.1 Hz or lower – flat response(1)	134 peak
2 Hz or lower – flat response	133 peak
6 Hz of lower – flat response	129 peak
C-weighted – slow response(1)	105 peak bBC
Note: (1) Only when approved by the Division	

524.631 – Periodic monitoring will be conducted to ensure compliance with airblast standards.

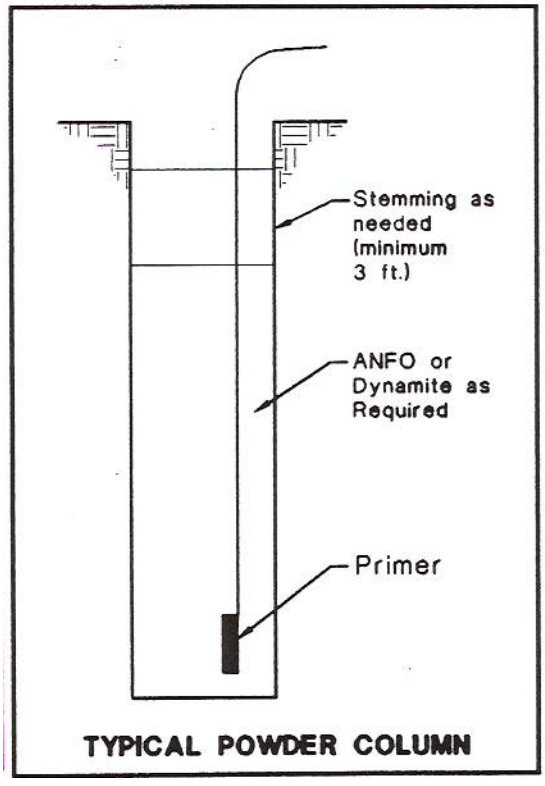
524.632 – The measuring system used will have an upper-end flat frequency response of at least 200 Hz.

524.633 – Flyrock traveling in the air or along the ground will not be cast from the blasting site more than one-half the distance to the nearest dwelling or other structure; beyond the area of control required under R645-301-524.530; or beyond the permit boundary.

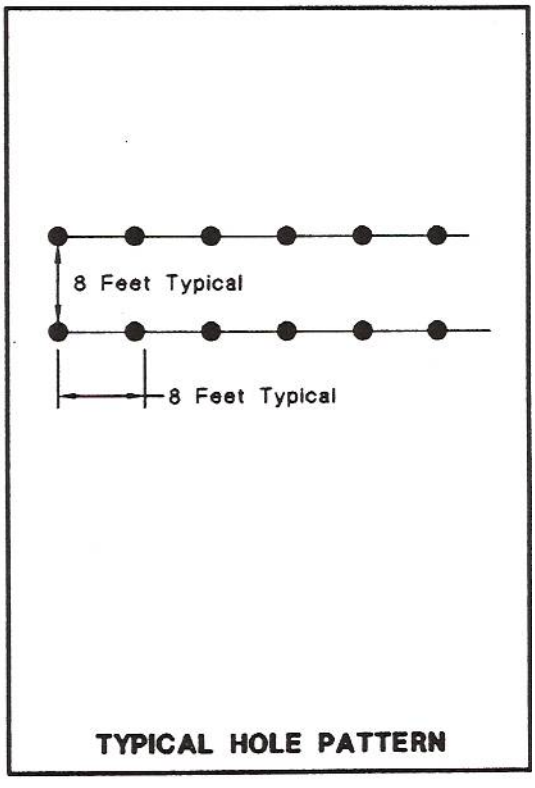
Table 15-1

BLASTING PARAMETERS

Hole Depth	As needed
Hole Diameter	2.5 inches
Hole Stemming	3 ft.
Powder Column	As needed
Pounds of Powder Per Hole (ANFO Density @ 0.85 gm/cc)	1.8 lbs/ft. ANFO, dynamite as needed
Powder Factor	0.61 lb/BCY
Bank Cubic Yards Per Hole	depends on hole depth
Drilling Pattern	8 ft. x 0 ft.
Primer	1.5" x 8" stick dynamite for ANFO or cap for dynamite



TYPICAL POWDER COLUMN



TYPICAL HOLE PATTERN

TABLE 15-2
BLASTING RECORD
(Page 1 of 2)

Kinney No. 2 Mine Carbon Resources Kinney No. 2 Mine Carbon Resources, LLC P.O. Box 11789 Albuquerqui, New Mexico 87192	Blaster in Charge:_____ License No.:_____

Shot Number:		Number in Blasting Crew:
Date:	Time:	Explosives used:
Location:		Weight of explosives used:
		*Max. number of explosives detonated:
Distance to nearest structure:		*Max. number of holes detonated:
Direction to nearest structure:		Method of firing:
Weather conditions: Temp:_____ Wind Direction:_____ Wind speed:_____ Other:_____		Type & length of stemming:
		Protection Used:
Material blasted:		Type of delay detonator used:
Number of holes:		Reason for unscheduled blast:
Diameter of holes:		
Burden distance:		
Spacing distance:		
Depth of holes:		
*Detonator within any 8 millisecond period.		

Signature:_____
Blaster In Charge

TABE 15-2 BLASTING RECORD (Page 2 of 2)
DELAY PATTERN SKETCH

524.640 – CR or its agent will use the explosive equation for blasting set forth in R645301.524.651 to comply with the peak particle velocity limits as set forth in the Explosives Table given in R645-301-524.642. When deviations from the number of holes per delay, as calculated by the referenced equation occurs, a seismograph will be utilized to assure compliance.

524.700 – Records of blasting will be maintained at the mine site for three years and will be available for inspection by the UDOGM or the public at reasonable times. The record of blasting will be on a form as shown as Table 15-2.

524.750 – If required, a record of seismographic and airblast information will be recorded and attached to the blasting record. The contents of this record will be in accordance with R645-301-524.751 through R645-301-524.755.

524.760 – The reason for unscheduled blasts will be recorded on the blasting record for the individual blast.

524.800 – CR will comply with all appropriate Utah and Federal laws and regulations in the use of explosives.

Signature:_____

Certified Blaster No. _____

Date:_____

Signature:_____

Certified Blaster No. _____

Date:_____

ATTACHMENT A

[Owner]
[Address]

Date:

To Whom It May Concern,

Re: Blasting By Kinney No. 2 Mine – Preblasting Survey

As per Utah Coal Mining Rules R645-301-524.310 et. seq., you have the right to request a preblasting survey of your structures that lie within on-half mile of the Kinney No. 2 Mine permit area shown on the attached map. This notice is required to be mailed to you at least 30 days before initiation of blasting when more than 5 pounds of blasting agent are used. Since blasting may be necessary during the construction phase of the project as well as during operation of the mine, this notice is being mailed to you before starting construction. We will notify you weekly of blasting that is planned during that week. You should evaluate your needs for a preblasting survey before the construction starts. You may request a preblasting survey any time during the life of the mine. Blasting will be done in compliance with the Utah Coal Mining Rules at R645-301-524.

According to R645-301-524.320, your request must be made in writing to either:

Carbon Resources
Kinney No. 2 Mine
Carbon Resources, LLC
P.O. Box 11789
Albuquerqui, New Mexico 87192

Or

Utah Coal Regulatory Program
Division of Oil. Gas and Mining
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Carbon Resources will promptly conduct a preblasting survey of the structure and promptly prepare a written report of the survey. An updated survey of any additions, modifications, or renovations will be performed if requested. The report will contain:

1. The condition of the structure and will document any preblasting damage and other physical factors that could reasonably be affected by the blasting. The assessment of the structures may be limited to surface conditions and other readily available data and information.
2. The written report will be signed by the person who conducted the survey. Copies of the report will be provided to The Division of Oil, Gas and Mining and to you.

If you disagree with the contents of and/or the recommendations in the report, you may submit to us or the Division of Oil, Gas and Mining a detailed description of the specific areas of disagreement.

Any surveys requested more than ten days before the planned blasting will be conducted and completed before the initiation of blasting.

Sincerely,

Carbon Resources

Exhibit 16

Runoff Control Design Details

Hydrology and Hydraulics

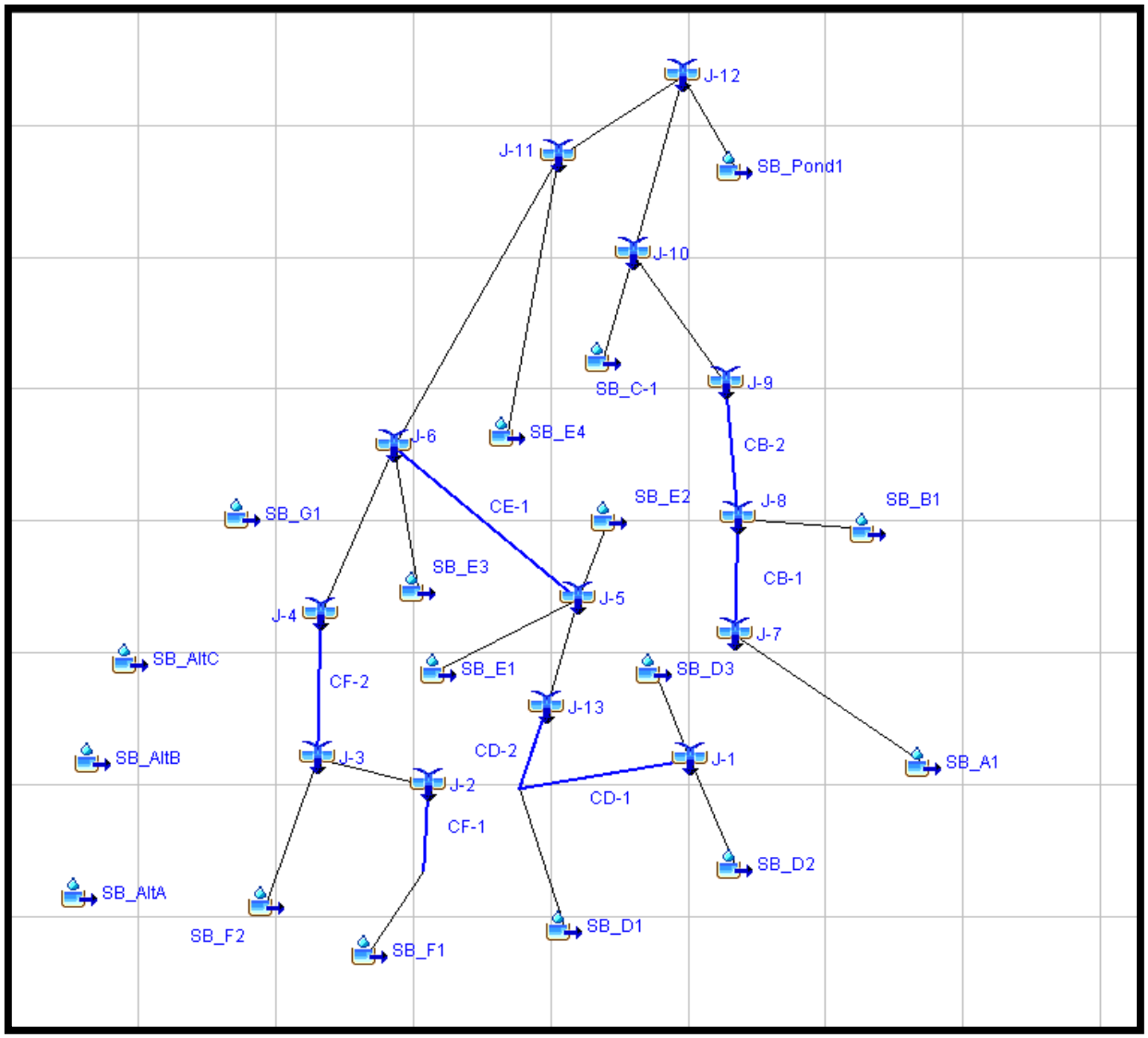
Ditches and Culverts

Sedimentation Pond 1

Energy Dissipation Structures

Hydrology and Hydraulics

KINNEY MINE HYDROLOGY
HEC-HMS MODEL LAYOUT



Hydrologic Element	Drainage Area (mi2)	10yr 6hr Peak Discharge (cfs)	Time of Peak	Volume (in)
CB-1	0.0064	0.9	01Jul2007, 03:32	0.26
CB-2	0.01188	2	01Jul2007, 03:32	0.3
CD-1	0.00517	0.3	01Jul2007, 03:33	0.17
CD-2	0.00952	0.6	01Jul2007, 03:36	0.19
CE-1	0.0190796	2.4	01Jul2007, 03:33	0.28
CF-1	0.00581	1.3	01Jul2007, 03:31	0.39
CF-2	0.00779	1.7	01Jul2007, 03:31	0.37
J-1	0.00517	0.3	01Jul2007, 03:33	0.17
J-10	0.0184117	2.9	01Jul2007, 03:32	0.3
J-11	0.0300896	4.2	01Jul2007, 03:32	0.29
J-12	0.0518713	7.6	01Jul2007, 03:32	0.29
J-13	0.00952	0.6	01Jul2007, 03:36	0.19
J-2	0.00581	1.3	01Jul2007, 03:31	0.39
J-3	0.00779	1.7	01Jul2007, 03:31	0.37
J-4	0.00779	1.7	01Jul2007, 03:31	0.37
J-5	0.0190796	2.4	01Jul2007, 03:33	0.28
J-6	0.0276996	4.1	01Jul2007, 03:32	0.3
J-7	0.0064	0.9	01Jul2007, 03:31	0.26
J-8	0.01188	2	01Jul2007, 03:32	0.3
J-9	0.01188	2	01Jul2007, 03:32	0.3
SB_A1	0.0064	0.9	01Jul2007, 03:31	0.26
SB_AltA	0.00401	0.4	01Jul2007, 03:34	0.23
SB_AltB	0.00092	0.2	01Jul2007, 03:30	0.32
SB_AltC	0.0007	0.1	01Jul2007, 03:30	0.32
SB_B1	0.00548	1.1	01Jul2007, 03:32	0.35
SB_C-1	0.0065317	1	01Jul2007, 03:33	0.29
SB_D1	0.00435	0.3	01Jul2007, 03:37	0.21
SB_D2	0.00308	0.2	01Jul2007, 03:34	0.16
SB_D3	0.00209	0.2	01Jul2007, 03:33	0.18
SB_E1	0.00693	1.6	01Jul2007, 03:32	0.43
SB_E2	0.0026296	0.2	01Jul2007, 03:36	0.23
SB_E3	0.00083	0.1	01Jul2007, 03:31	0.23
SB_E4	0.00239	0.1	01Jul2007, 03:35	0.13
SB_F1	0.00581	1.3	01Jul2007, 03:31	0.39
SB_F2	0.00198	0.4	01Jul2007, 03:31	0.32
SB_G1	0.00712	0.3	01Jul2007, 03:35	0.14
SB_Pond1	0.00337	0.6	01Jul2007, 03:30	0.29
UDC-1	0.15526	2.7	01Jul2007, 05:45	0.09
UDD-1	0.101508	1.8	01Jul2007, 05:45	0.09

Hydrologic Element	Drainage Area (mi2)	100yr 6hr Peak Discharge (cfs)	Time of Peak	Volume (in)
CB-1	0.0064	2.9	01Jul2007, 03:31	0.75
CB-2	0.01188	5.8	01Jul2007, 03:31	0.82
CD-1	0.00517	1.6	01Jul2007, 03:32	0.59
CD-2	0.00952	2.9	01Jul2007, 03:34	0.62
CE-1	0.0190796	7.8	01Jul2007, 03:32	0.78
CF-1	0.00581	3.3	01Jul2007, 03:31	0.97
CF-2	0.00779	4.4	01Jul2007, 03:31	0.94
J-1	0.00517	1.6	01Jul2007, 03:32	0.59
J-10	0.0184117	8.7	01Jul2007, 03:31	0.81
J-11	0.0300896	12.9	01Jul2007, 03:31	0.79
J-12	0.0518713	23.2	01Jul2007, 03:31	0.8
J-13	0.00952	2.9	01Jul2007, 03:34	0.62
J-2	0.00581	3.3	01Jul2007, 03:31	0.97
J-3	0.00779	4.4	01Jul2007, 03:30	0.94
J-4	0.00779	4.4	01Jul2007, 03:31	0.94
J-5	0.0190796	7.8	01Jul2007, 03:32	0.78
J-6	0.0276996	12.4	01Jul2007, 03:31	0.82
J-7	0.0064	2.9	01Jul2007, 03:30	0.75
J-8	0.01188	5.8	01Jul2007, 03:31	0.82
J-9	0.01188	5.8	01Jul2007, 03:31	0.82
SB_A1	0.0064	2.9	01Jul2007, 03:30	0.75
SB_AltA	0.00401	1.5	01Jul2007, 03:33	0.7
SB_AltB	0.00092	0.5	01Jul2007, 03:30	0.85
SB_AltC	0.0007	0.4	01Jul2007, 03:30	0.85
SB_B1	0.00548	2.9	01Jul2007, 03:31	0.91
SB_C-1	0.0065317	2.9	01Jul2007, 03:32	0.8
SB_D1	0.00435	1.4	01Jul2007, 03:35	0.65
SB_D2	0.00308	0.9	01Jul2007, 03:33	0.57
SB_D3	0.00209	0.7	01Jul2007, 03:32	0.61
SB_E1	0.00693	4.1	01Jul2007, 03:31	1.03
SB_E2	0.0026296	0.9	01Jul2007, 03:35	0.7
SB_E3	0.00083	0.3	01Jul2007, 03:31	0.7
SB_E4	0.00239	0.6	01Jul2007, 03:33	0.49
SB_F1	0.00581	3.3	01Jul2007, 03:31	0.97
SB_F2	0.00198	1	01Jul2007, 03:30	0.85
SB_G1	0.00712	1.9	01Jul2007, 03:33	0.53
SB_Pond1	0.00337	1.6	01Jul2007, 03:30	0.8
UDC-1	0.15526	14.3	01Jul2007, 04:16	0.42
UDD-1	0.101508	9.4	01Jul2007, 04:14	0.42

Hydrologic Element	Drainage Area (mi2)	100yr 6hr Peak Discharge (cfs)	Time of Peak	Volume (in)
Reclaimed Watershed	0.112	11.5	01Jul2007, 04:14	0.45

Hydrologic Element	Drainage Area (mi2)	100yr 24hr Peak Discharge (cfs)	Time of Peak	Volume (in)
UDC-1	0.15526	38.5	01Jul2007, 13:34	0.79
UDD-1	0.101508	25.7	01Jul2007, 13:33	0.79

Hydrologic Element	Drainage Area (mi2)	100yr 6hr Peak Discharge (cfs)	Time of Peak	Volume (in)
Combined	0.05887	18.7	01Jul2007, 03:43	0.8

Kinney Mine Hydrology
Time of Concentration/Lag Time Esitimates

Method: SCS TR 55

Tc = Sheet flow time + shallow concentrated flow time + channel flow time

Tt = 0.007*(n*L) ^ 0.8/((P2) ^ .5*S ^ .4)
P2 = 2-yr 24-hr precip = 1.39 inches
S = Slope (ft/ft)

SUBBASIN	SHEET FLOW TIME				SHALLOW CONCENTRATED TIME				Channel Time				TOTAL Tc	LAG TIME	LAG TIME
	L (ft)	S	n	Tt (hrs)	L	S	v (fps)	T (hrs)	L	S	v (fps)	T (hrs)	(hrs)	(hrs)	(mins)
SB_A1	24	0.583	0.13	0.02	0	0.000	0	0.00	1515	0.064	6.5	0.07	0.08	0.05	3.0
SB_B1	157	0.682	0.13	0.08	0	0.000	0	0.00	644	0.010	2.6	0.07	0.15	0.09	5.3
SB_C1	224	0.393	0.13	0.13	0	0.000	0	0.00	599	0.023	3.9	0.04	0.17	0.10	6.1
SB_D1	300	0.313	0.13	0.18	1303	0.058	3.8	0.10	240	0.021	3.7	0.02	0.29	0.17	10.5
SB_D2	300	0.333	0.13	0.17	176	0.244	8	0.01	350	0.082	7.3	0.01	0.19	0.12	6.9
SB_D3	47	0.021	0.13	0.12	0	0.000	0	0.00	467	0.029	4.4	0.03	0.15	0.09	5.3
SB_E1	300	0.008	0.011	0.10	51	0.011	1.6	0.01	490	0.010	2.6	0.05	0.17	0.10	6.0
SB_E2	413	0.240	0.13	0.25	0	0.000	0	0.00	424	0.021	3.7	0.03	0.29	0.17	10.3
SB_E3	63	0.333	0.13	0.05	0	0.000	0	0.00	525	0.010	2.6	0.06	0.11	0.06	3.8
SB_E4	73	0.260	0.13	0.06	0	0.000	0	0.00	1238	0.010	2.6	0.13	0.20	0.12	7.1
SB_F1	240	0.013	0.011	0.07	154	0.013	1.8	0.02	244	0.033	4.6	0.01	0.11	0.07	4.0
SB_F2	56	0.125	0.13	0.07	0	0.000	0	0.00	503	0.090	7.7	0.02	0.08	0.05	3.1
SB_G1	30	0.020	0.013	0.01	0	0.000	0	0.00	1809	0.010	2.6	0.20	0.21	0.13	7.6
SB_Pond1	64	0.313	0.13	0.05	0	0.000	0	0.00	544	0.065	6.5	0.02	0.07	0.04	2.7
SB_AltA	300	0.200	0.13	0.21	0	0.000	0	0.00	133	0.010	2.6	0.01	0.23	0.14	8.1
SB_AltB	63	0.270	0.13	0.05	0	0.000	0	0.00	145	0.083	7.4	0.01	0.06	0.04	2.1
SB_AltC	29	0.720	0.13	0.02	0	0.000	0	0.00	227	0.044	5.4	0.01	0.03	0.02	1.1
Combined	190	0.005	0.03	0.20	500	0.005	1.2	0.12	2080	0.01	2.6	0.23	0.54	0.32	19.5

Chapter 3 Time of Concentration and Travel Time

Travel time (T_t) is the time it takes water to travel from one location to another in a watershed. T_t is a component of time of concentration (T_c), which is the time for runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. T_c is computed by summing all the travel times for consecutive components of the drainage conveyance system.

T_c influences the shape and peak of the runoff hydrograph. Urbanization usually decreases T_c, thereby increasing the peak discharge. But T_c can be increased as a result of (a) ponding behind small or inadequate drainage systems, including storm drain inlets and road culverts, or (b) reduction of land slope through grading.

Factors affecting time of concentration and travel time

Surface roughness

One of the most significant effects of urban development on flow velocity is less retardance to flow. That is, undeveloped areas with very slow and shallow overland flow through vegetation become modified by urban development: the flow is then delivered to streets, gutters, and storm sewers that transport runoff downstream more rapidly. Travel time through the watershed is generally decreased.

Channel shape and flow patterns

In small non-urban watersheds, much of the travel time results from overland flow in upstream areas. Typically, urbanization reduces overland flow lengths by conveying storm runoff into a channel as soon as possible. Since channel designs have efficient hydraulic characteristics, runoff flow velocity increases and travel time decreases.

Slope

Slopes may be increased or decreased by urbanization, depending on the extent of site grading or the extent to which storm sewers and street ditches are used in the design of the water management system. Slope will tend to increase when channels are straightened and decrease when overland flow is directed through storm sewers, street gutters, and diversions.

Computation of travel time and time of concentration

Water moves through a watershed as sheet flow, shallow concentrated flow, open channel flow, or some combination of these. The type that occurs is a function of the conveyance system and is best determined by field inspection.

Travel time (T_t) is the ratio of flow length to flow velocity:

$$T_t = \frac{L}{3600V} \qquad \text{[eq. 3-1]}$$

where:

T_t = travel time (hr)
L = flow length (ft)
V = average velocity (ft/s)
3600 = conversion factor from seconds to hours.

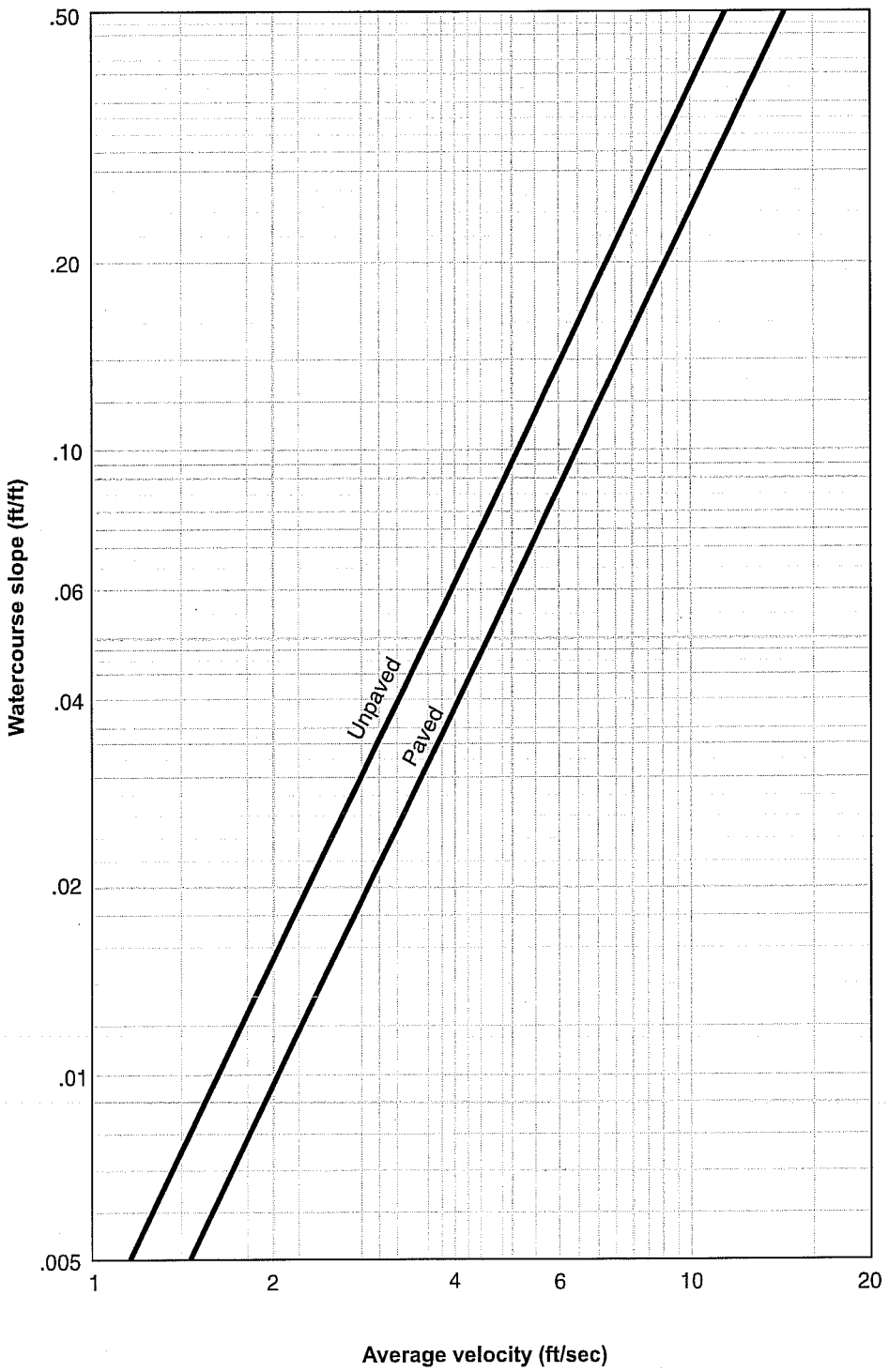
Time of concentration (T_c) is the sum of T_t values for the various consecutive flow segments:

$$T_c = T_{t_1} + T_{t_2} + \ldots T_{t_m} \qquad \text{[eq. 3-2]}$$

where:

T_c = time of concentration (hr)
m = number of flow segments

Figure 3-1 Average velocities for estimating travel time for shallow concentrated flow



Sheet flow

Sheet flow is flow over plane surfaces. It usually occurs in the headwater of streams. With sheet flow, the friction value (Manning's n) is an effective roughness coefficient that includes the effect of raindrop impact; drag over the plane surface; obstacles such as litter, crop ridges, and rocks; and erosion and transportation of sediment. These n values are for very shallow flow depths of about 0.1 foot or so. Table 3-1 gives Manning's n values for sheet flow for various surface conditions.

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n [1]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses [2]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods:[3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information compiled by Engman (1986).

[2] Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.

[3] When selecting n , consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

For sheet flow of less than 300 feet, use Manning's kinematic solution (Overtop and Meadows 1976) to compute T_t:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}} \qquad \text{[eq. 3-3]}$$

where:

T_t = travel time (hr),
n = Manning's roughness coefficient (table 3-1)
L = flow length (ft)
P_2 = 2-year, 24-hour rainfall (in)
s = slope of hydraulic grade line (land slope, ft/ft)

This simplified form of the Manning's kinematic solution is based on the following: (1) shallow steady uniform flow, (2) constant intensity of rainfall excess (that part of a rain available for runoff), (3) rainfall duration of 24 hours, and (4) minor effect of infiltration on travel time. Rainfall depth can be obtained from appendix B.

Shallow concentrated flow

After a maximum of 300 feet, sheet flow usually becomes shallow concentrated flow. The average velocity for this flow can be determined from figure 3-1, in which average velocity is a function of watercourse slope and type of channel. For slopes less than 0.005 ft/ft, use equations given in appendix F for figure 3-1. Tillage can affect the direction of shallow concentrated flow. Flow may not always be directly down the watershed slope if tillage runs across the slope.

After determining average velocity in figure 3-1, use equation 3-1 to estimate travel time for the shallow concentrated flow segment.

Open channels

Open channels are assumed to begin where surveyed cross section information has been obtained, where channels are visible on aerial photographs, or where blue lines (indicating streams) appear on United States Geological Survey (USGS) quadrangle sheets. Manning's equation or water surface profile information can be used to estimate average flow velocity. Average flow velocity is usually determined for bankfull elevation.

Manning's equation is:

$$V = \frac{1.49 r^{\frac{2}{3}} s^{\frac{1}{2}}}{n} \qquad \text{[eq. 3-4]}$$

where:

V = average velocity (ft/s)
r = hydraulic radius (ft) and is equal to a/p_w
a = cross sectional flow area (ft^2)
p_w = wetted perimeter (ft)
s = slope of the hydraulic grade line (channel slope, ft/ft)
n = Manning's roughness coefficient for open channel flow.

Manning's n values for open channel flow can be obtained from standard textbooks such as Chow (1959) or Linsley et al. (1982). After average velocity is computed using equation 3-4, T_t for the channel segment can be estimated using equation 3-1.

Reservoirs or lakes

Sometimes it is necessary to estimate the velocity of flow through a reservoir or lake at the outlet of a watershed. This travel time is normally very small and can be assumed as zero.

Limitations

- Manning's kinematic solution should not be used for sheet flow longer than 300 feet. Equation 3-3 was developed for use with the four standard rainfall intensity-duration relationships.

- In watersheds with storm sewers, carefully identify the appropriate hydraulic flow path to estimate T_c. Storm sewers generally handle only a small portion of a large event. The rest of the peak flow travels by streets, lawns, and so on, to the outlet. Consult a standard hydraulics textbook to determine average velocity in pipes for either pressure or nonpressure flow.

- The minimum T_c used in TR-55 is 0.1 hour.

- A culvert or bridge can act as a reservoir outlet if there is significant storage behind it. The procedures in TR-55 can be used to determine the peak flow upstream of the culvert. Detailed storage routing procedures should be used to determine the outflow through the culvert.

Example 3-1

The sketch below shows a watershed in Dyer County, northwestern Tennessee. The problem is to compute T_c at the outlet of the watershed (point D). The 2-year 24-hour rainfall depth is 3.6 inches. All three types of flow occur from the hydraulically most distant point (A) to the point of interest (D). To compute T_c, first determine T_t for each segment from the following information:

Segment AB: Sheet flow; dense grass; slope (s) = 0.01 ft/ft; and length (L) = 100 ft. Segment BC: Shallow concentrated flow; unpaved; s = 0.01 ft/ft; and L = 1,400 ft. Segment CD: Channel flow; Manning's n = .05; flow area (a) = 27 ft^2; wetted perimeter (p_w) = 28.2 ft; s = 0.005 ft/ft; and L = 7,300 ft.

See figure 3-2 for the computations made on worksheet 3.

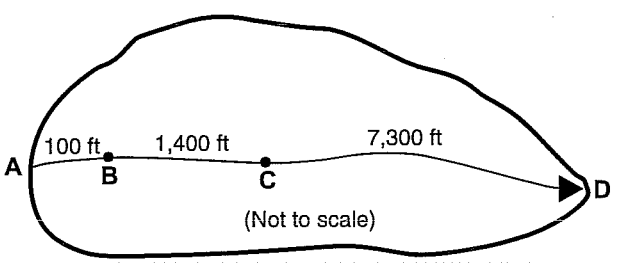


Figure 3-2 Worksheet 3 for example 3-1

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project	Heavenly Acres	By	DW	Date	10/6/85
Location	Dyer County, Tennessee	Checked	NM	Date	10/8/85

Check one: ☐ Present ☒ Developed

Check one: ☒ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)

	Segment ID	AB	
1.	Surface description (table 3-1)	Dense Grass	
2.	Manning's roughness coefficient, n (table 3-1)	0.24	
3.	Flow length, L (total L ≤ 300 ft) ft	100	
4.	Two-year 24-hour rainfall, P_2 in	3.6	
5.	Land slope, s ft/ft	0.01	
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t hr	0.30 +	= 0.30

Shallow concentrated flow

	Segment ID	BC	
7.	Surface description (paved or unpaved)	Unpaved	
8.	Flow length, L ft	1400	
9.	Watercourse slope, s ft/ft	0.01	
10.	Average velocity, V (figure 3-1) ft/s	1.6	
11.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr	0.24 +	= 0.24

Channel flow

	Segement ID	CD	
12.	Cross sectional flow area, a ft^2	27	
13.	Wetted perimeter, p_w ft	28.2	
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft	0.957	
15	Channel slope, s ft/ft	0.005	
16.	Manning's roughness coefficient, n	0.05	
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ft/s	2.05	
18.	Flow length, L ft	7300	
19.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr	0.99 +	= 0.99
20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) Hr		1.53

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ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Mountain Watershed Lag Time
PROJECT NO 308.01.400

SHEET ____ OF ____
COMPUTED TDS
CHECKED ____
DATE 6-4-07

Lag Time for Mountain Watersheds

Watershed Calcs

$$t_{lag} = 0.0051 \times width^{0.594} \times slope^{-0.150} \times S_{nat}^{0.313}$$

$$width = \frac{\text{watershed area}}{\text{watershed length}}$$

$$slope = \frac{\text{max elevation difference}}{\text{longest flow path}}$$

$$S_{nat} = \frac{1000}{CN} - 10$$

① UDC-1

$$width = \frac{3,936,738\ ft^2}{3,030\ ft} = 1299\ ft$$

$$slope = \frac{8810 - 7850}{3,080\ ft} = 0.314$$

$$S_{nat} = \frac{1000}{CN} - 10 = \frac{1000}{75} - 10 = 3.33$$

$$t_{lag} = 0.0051 \times (1299)^{0.594} \times (0.314)^{-0.15} \times (3.33)^{0.313}$$

$$= 0.63\ hrs = \underline{\underline{37.8\ min}} \leftarrow$$

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PROJECT Kinney Mine Hydrology
FEATURE Mountain Watershed Lag Time
PROJECT NO 308.01.400

SHEET ____ OF ____
COMPUTED TDS
CHECKED ____
DATE 8-3-07

(2) UDD-1

$$\text{width} = \frac{2,829,870\ ft^2}{2,320\ ft} = 1,220\ ft$$

$$\text{slope} = \frac{8,610\ ft - 7,840\ ft}{2,670\ ft} = 0.288$$

$$S_{nat} = \frac{1000}{CN} - 10 = \frac{1000}{75} - 10 = 3.33$$

$$t_{lag} = 0.0051 \times (1,220\ ft)^{0.594} \times (0.288)^{-0.15} \times (3.33)^{0.313}$$

$$= 0.61\ hrs = \underline{36.6\ min} \leftarrow$$

Lag time characteristics for small watersheds in the U.S.

M.J. Simas[1], R.H. Hawkins[2]

Abstract

Lag time, defined as the time from the centroid of rainfall excess to the centroid of direct runoff, was evaluated for over 50,000 rainfall-runoff events in 168 small watersheds in the United States ranging from 0.243 to 3490 acres. In most watersheds a stable value of lag time was observed for the larger storms, with peak flow the variable that best showed this tendency. The watersheds were divided into groups to explain the variation of lag time between watersheds. The groups that had a significant effect in the regression equation were geographical regions, watershed management practices, and the stability of the lag time value for the bigger storms. Separation of watersheds by land use and hydrologic behavior did not significantly improve the regression analyses. When only watersheds with stable behavior were used (N=78), no group significantly improved the regression equation, $t_{lag} = 0.0051 \times width^{0.594} \times slope^{-0.150} \times S_{nat}^{0.313}$, which exhibited R^2=58%.

Introduction

Public investment in surface drainage improvements in developing urban areas involves an annual capital investment on the order of a few billion of dollars (Pilgrim and Cordery, 1993). The average annual expenditure for works in small rural drainage basins amounts to 46 percent of the total expenditure on structures and works, making

[1] Universidade Independente - Av. Marechal Gomes da Costa - 1800 Lisbon - Portugal
[2] School of Renewable Natural Resources, University of Arizona - Tucson, AZ 85721

flood estimation for these small drainage basins of great importance in terms of national expenditure.

In design flood estimation, characteristic response times are required for the determination of hydrograph parameters and critical duration of flood producing rainfall (Ward et al., 1980). A given volume of water may or may not represent a flood hazard, as the hazard will depend on the time distribution of the flood runoff. Almost all hydrologic analysis of rainfall and runoff usually require the value of at least one time parameter as input (McCuen, 1989).

Most hydrologic models require a watershed characteristic that reflects the timing of runoff. One of the most widely used methods for estimating floods on small drainage basins is the U.S. Soil Conservation Service (SCS) method. The SCS method uses lag time, defined as the time difference between the centroid of the effective rainfall and the peak of direct runoff.

There is some inconsistency in the definition of lag time, and this leads to difficulty in analyzing the results from the different models that use it. Singh (1988) gathered nine different definitions for lag time. Still another constraint in the applicability of the time parameters is the lack of diversity of data (McCuen et al., 1984), since most empirical equations were developed for urbanized areas, rather than for rural areas (Miller et al., 1995).

The accuracy of the design flood estimate is directly related to the accuracy with which an estimate of the watershed response time is made (Singh, 1988). Errors on the order of 75% in the estimation of the peak discharge can be attributed to errors in the estimated value of the time parameter (McCuen, 1989; Singh, 1988). Little is known about the accuracy of estimates of response times on ungaged watersheds. For a specified recurrence interval, a first approximation of the design flood estimate is inversely proportional to the response time (Singh, 1988). In performing hydrologic computations of runoff, a particular synthetic unit hydrograph is often selected, and as such, a particular time parameter consistent with the unit hydrograph theory adopted. However, if a unit hydrograph method is chosen and the selected time parameter is inconsistent with it, unknowingly significant errors may be introduced in runoff computations (Miller et al., 1995).

Lag time is affected by watershed and rainstorm parameters. The physiographic parameters that affect lag time are areal extent, form, slope, surface topographic characteristics, vegetation, and land use. The rainfall characteristics are intensity in time and space, rainfall duration, and direction of runoff. There are still other factors that affect lag time, like the antecedent moisture conditions, infiltration characteristics, wind velocity, and weather condition (Singh, 1988).

Lag time used in this study was defined as the time from the centroid of rainfall excess to the centroid of direct runoff. This definition has been accepted as being the most stable measure of lag time (Schultz and Lopez, 1974).

Methodology

Lag time values were evaluated from rainfall-runoff data in over 50,000 events from 168 small watersheds in the United States. The watersheds ranged from 0.243 to 3490 acres, with periods of rainfall-runoff records from 3 to 58 years.

The data used in this study was obtained entirely from the Water Data Center maintained by the US Department of Agriculture, the Agricultural Research Service (ARS) in Beltsville, Maryland. This national archive of variable time-series readings for precipitation and runoff contains sufficient detail to reconstruct storm hydrographs and hyetographs. Textual files containing watershed descriptive information, land use and soils are published in the Hydrologic Data for Experimental Agricultural Watersheds in the United States book series.

Rainfall and runoff events were separated using GETPQ, a software developed at the University of Arizona which uses breakpoint rainfall-runoff data, and separates hydrographs using a constant baseflow separation slope. It then matches the rainfall to this hydrograph by comparing the times of occurrence of both the hydrograph and the hyetograph.

The lag time definition used in this study is the difference from the centroid of effective rainfall and the centroid of direct runoff.

Effective rainfall was defined and computed by an initial loss followed by a continuing loss rate (phi index). The phi was determined iteratively by adjusting its value until the effective rainfall hyetograph matched observed direct runoff depth. This done, the centroid of effective rainfall is computed.

Direct runoff was defined and computed as the runoff that has occurred once the baseflow has been deducted. The baseflow separation was done by using a constant baseflow separation slope (0.0002 in/hr^2).

The rainfall-runoff events were selected based on some pre-defined criteria. This filtering followed the approaches of Gray (1961) and Eagleson (1962) to select only those hydrographs with a single peak followed by an uninterrupted recession. All rainfall-runoff events were visually inspected. The rainfall-runoff events were discarded if the hydrographs were multi-peaked; if the hydrographs started before the hyetographs, suggesting inconsistency in the timing of rainfall and runoff data; if the hydrographs started after the hyetograph ended, because effective rainfall contributing to that runoff event cannot be computed; or if the events presented a negative lag time (the centroid of effective rainfall occurring after the centroid of runoff) suggesting that there is some inconsistency in the timing of rainfall and runoff data.

A total of 31,030 events were selected (out of 55,645) for further analysis of the 168 watersheds under study. Most of the factors described above that affect lag time were evaluated in this study. The study was separated in two parts. The first one evaluated the rainfall characteristics and how they affect lag time, and the second part evaluated how the watershed characteristics affected it.

Lag time should be a constant for all storms of a given watershed if the excess rainfall-direct runoff process was truly linear. However, some differences were observed when computing lag time from observed data (Barnes, 1959; Minshall, 1960; Gray, 1961; Eagleson, 1962; Diskin, 1964; Rastogi and Jones, 1969; Laureson, 1964; Askew, 1970).

In the present study, four rainfall-runoff characteristics were used to evaluate the variation of lag time within a watershed. These factors were degree of saturation of a watershed (Ramser, 1927) - represented by the previous 48 hour rainfall; effective

rainfall intensity (Ramser, 1927; Ragan and Duru, 1972; Singh and Agiralioglu, 1982) - defined as the average effective rainfall intensity, effective rainfall being defined as the rainfall that occurred after the hydrograph started; mean total discharge (Ramser, 1927; Barnes, 1959; Laureson, 1964; Askew, 1970) - ratio between total runoff depth and its duration; peak flow - introduced in this study as another hydrologic variable to explain the variation of lag time values within a watershed. Peak flow is represented by the maximum flow rate in a hydrograph.

Several watershed parameters were thought to be related to lag time, like for example length and slope of the catchment (Bell and Karr, 1969; Ragan and Duru, 1972). Vegetation cover seemed to be the most influential factor in the computation of lag time (Ragan and Duru; 1972). Imperviousness of a watershed was another factor that seemed to be important on lag time computation (Rao and Delleur, 1974).

The watershed variables observed in this study were watershed area (ac); watershed length (ft) - longest flow-path from the highest elevation to the watershed outlet; watershed slope - ratio between the maximum difference in elevation and the longest flow-path length; S_{nat} - storage coefficient (in) used in the Curve Number (CN) method. Width (ft) is the watershed area divided by the watershed length. CN was computed using the asymptotic determination of runoff Curve Numbers from rainfall and runoff data technique (Hawkins, 1992).

Multiple linear regression analysis was performed on the data. The desired form of the fitted equation was $Lag = a_0 * width^{a_1} * slope^{a_2} * S_{nat}^{a_3}$.

The watersheds were separated into four diverse groups to clarify possible grouping relationships and give more reliable fittings. The groups represented qualitative characteristics of a watershed and were: regions (East, Midwest, Central, Southwest); land use (pasture, mixed, agriculture, forest); management (high, medium and low disturbance); behavior (Complacent, Standard, Violent) (Hawkins, 1992).

Results and Discussion

Variations of lag time within a watershed

Lag time was not a constant for a watershed but varied considerably. Some watersheds showed a tendency towards a constant value of lag time for the bigger storms. Unlike what is described in the literature, the degree of saturation of a watershed, represented by the prior 48-hour rainfall, showed no significant or consistent relationship to lag time. As for the effective rainfall intensity, previous studies had found that time of concentration (directly related to lag time) should decrease for the higher rainfall intensity storms (Ramser, 1927; Ragan and Duru, 1972; Agiraloglu and Singh, 1981; Singh, 1982). Such relationship was not observed in this study. A non-linear relation between lag time and mean total discharge was suggested by Askew (1970). In this study, only 5 of the 168 watersheds had a coefficient of determination (r^2) above 0.50 upon for such relationships.

However, some watersheds showed a tendency to a constant value of lag time at the higher values of previous 48-hour rainfall, suggesting that the scatter observed under 'drier' conditions is perhaps because of partial area contribution to runoff. The same is true for the higher intensity storms, suggesting that the watershed might not be

at equilibrium for the small storms, when the hydrology of the watershed is still not well developed. The same tendency towards a constant value of lag time at the high mean runoff rate values was found, suggesting that the hydrology of the watershed is better defined for bigger storms. Also, for bigger storms the watershed may reach steady-state conditions. The variable introduced in this study was peak flow, and similarly to the previous evaluations, lag time showed a stable value for larger peak flow values. The higher peak flow suggests bigger storms, that might be better distributed both in time and space. This might represent steady-state conditions, and the value of lag time should not be affected by the size of the storm, once these conditions are met. The best estimate of lag time was computed for each watershed.

Variations of lag time between watersheds

All variables (width, slope, S_{nat}) were significant in explaining the variation of lag time in regression analysis. Two sets of watersheds were evaluated, the first being all watersheds, and the second being composed of the watersheds that showed a stable value for the larger storms. For the first set, the groups that had a significant effect were geographical regions, watershed management practices, and the tendency towards a constant value of lag time for the bigger storms. Separation of watersheds by land use and hydrologic behavior did not significantly improve the regression analyses. When the second set of watersheds was used, no group significantly improved the regression equation. The final regression equation (second set) was

$$t_{lag} = 0.0051 \times width^{0.594} \times slope^{-0.150} \times S_{nat}^{0.313} .$$

This equation had R^2= 58, and N= 78. It bears repeating that t_{lag} is in hours, *width* is in feet, *slope* is a decimal fraction, and S_{nat} is in inches.

Conclusions

There was a tendency towards a stable value of lag time for the larger storms. Peak flow was the hydrologic variable that best showed this tendency. Hydrologic relationships previously described in the literature were not verified in this study.

In order to compute lag time rainfall-runoff data should be used, especially for the larger storms. If there is not enough data available, grouping the watersheds into regions and management practices will improve the regression equation. Width, slope and S_{nat} are good variables for prediction of lag time. The model developed in this study had a higher coefficient of determination compared to other models presented in the literature.

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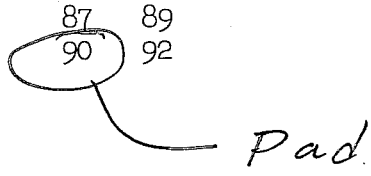
Table 9.1.--Runoff curve numbers for hydrologic soil-cover complexes

(Antecedent moisture condition II, and $I_a = 0.2\ S$)

Land use	Cover: Treatment or practice	Cover: Hydrologic condition	Hydrologic soil group: A	B	C	D
Fallow	Straight row	----	77	86	91	94
Row crops	"	Poor	72	81	88	91
	"	Good	67	78	85	89
	Contoured	Poor	70	79	84	88
	"	Good	65	75	82	86
	"and terraced	Poor	66	74	80	82
	" " "	Good	62	71	78	81
Small grain	Straight row	Poor	65	76	84	88
		Good	63	75	83	87
	Contoured	Poor	63	74	82	85
		Good	61	73	81	84
	"and terraced	Poor	61	72	79	82
		Good	59	70	78	81
Close-seeded legumes 1/ or rotation meadow	Straight row	Poor	66	77	85	89
	" "	Good	58	72	81	85
	Contoured	Poor	64	75	83	85
	"	Good	55	69	78	83
	"and terraced	Poor	63	73	80	83
	"and terraced	Good	51	67	76	80
Pasture or range		Poor	68	79	86	89
		Fair	49	69	79	84
		Good	39	61	74	80
	Contoured	Poor	47	67	81	88
	"	Fair	25	59	75	83
	"	Good	6	35	70	79
Meadow		Good	30	58	71	78
Woods		Poor	45	66	77	83
		Fair	36	60	73	79
		Good	25	55	70	77
Farmsteads		----	59	74	82	86
Roads (dirt) 2/		----	72	82	87	89
(hard surface) 2/		---	74	84	90	92

1/ Close-drilled or broadcast.
2/ Including right-of-way.



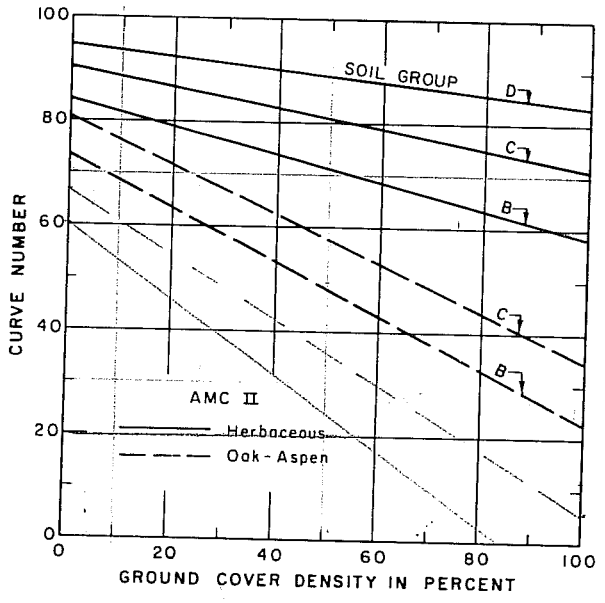


Figure 9.5.--Graph for estimating runoff curve numbers of forest-range complexes in western United States: herbaceous and oak-aspen complexes.

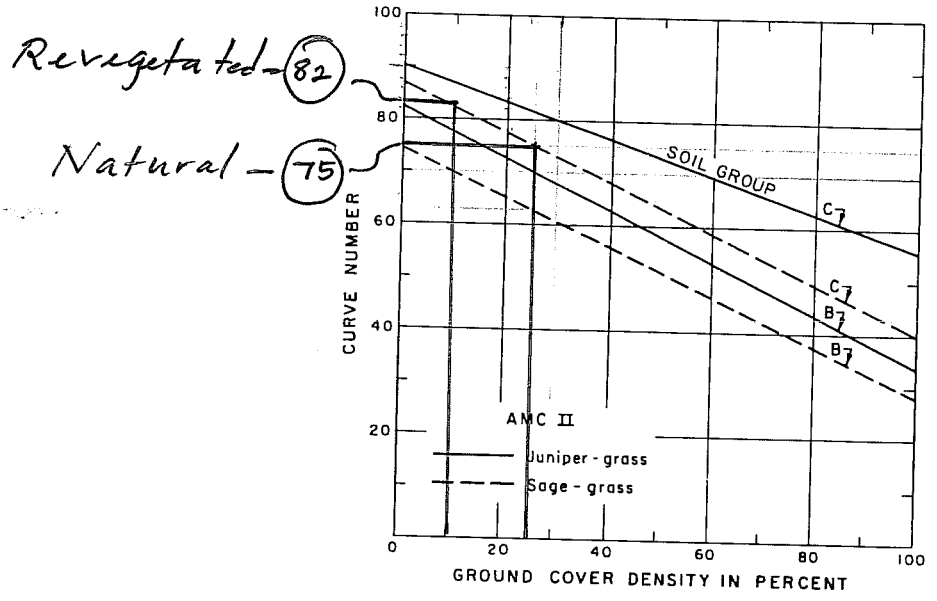


Figure 9.6.--Graph for estimating runoff curve numbers of forest-range complexes in western United States: juniper-grass and sage-grass complexes.

96
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Google
Pointer 39°43'57.18" N 111°09'15.73" W
Streaming 100%
Eye alt 3365 ft

POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

Utah 39.730247 N 111.1550194 W 7998 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 4
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2006

Extracted: Wed May 30 2007

Confidence Limits | Seasonality | Location Maps | Other Info. | GIS data | Maps | Help | Docs | U.S. Map

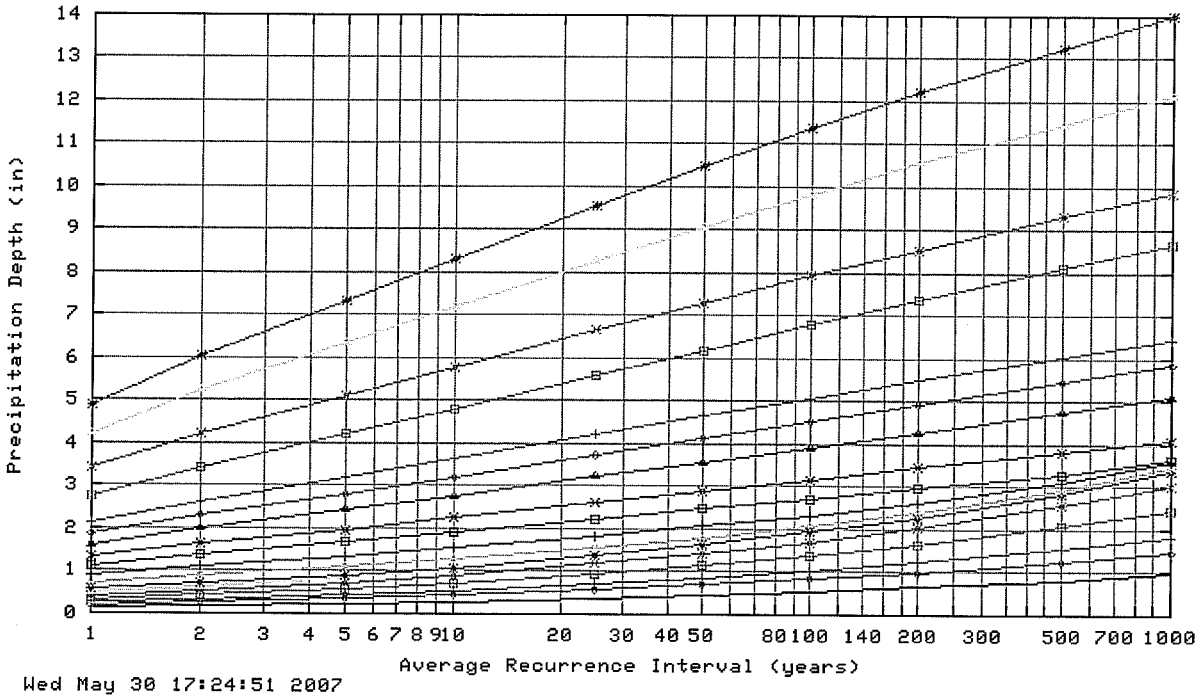
Precipitation Frequency Estimates (inches)

ARI* (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.13	0.20	0.24	0.33	0.41	0.50	0.56	0.71	0.90	1.12	1.31	1.62	1.88	2.13	2.77	3.40	4.22	4.89
2	0.17	0.25	0.32	0.42	0.53	0.63	0.70	0.89	1.11	1.39	1.62	2.00	2.32	2.64	3.44	4.21	5.23	6.06
5	0.23	0.35	0.44	0.59	0.73	0.84	0.90	1.10	1.35	1.69	1.97	2.42	2.82	3.20	4.21	5.10	6.34	7.35
10	0.29	0.44	0.54	0.73	0.90	1.03	1.08	1.28	1.56	1.92	2.25	2.77	3.21	3.64	4.81	5.78	7.18	8.32
25	0.38	0.57	0.71	0.95	1.18	1.33	1.38	1.54	1.84	2.24	2.61	3.22	3.74	4.22	5.60	6.66	8.27	9.57
50	0.45	0.69	0.86	1.15	1.43	1.59	1.63	1.78	2.07	2.48	2.89	3.58	4.14	4.65	6.19	7.30	9.05	10.48
100	0.54	0.83	1.03	1.38	1.71	1.90	1.94	2.08	2.31	2.73	3.17	3.93	4.55	5.08	6.78	7.94	9.82	11.36
200	0.65	0.99	1.22	1.65	2.04	2.26	2.29	2.40	2.61	2.97	3.45	4.28	4.95	5.51	7.36	8.55	10.56	12.20
500	0.81	1.24	1.53	2.07	2.56	2.82	2.85	2.95	3.13	3.29	3.81	4.75	5.47	6.05	8.12	9.32	11.47	13.25
1000	0.96	1.46	1.81	2.44	3.02	3.34	3.37	3.46	3.62	3.65	4.09	5.11	5.87	6.46	8.68	9.88	12.13	13.99

Text version of table

* These precipitation frequency estimates are based on a partial duration series. **ARI** is the Average Recurrence Interval. Please refer to the documentation for more information. NOTE: Formatting forces estimates near zero to appear as zero.

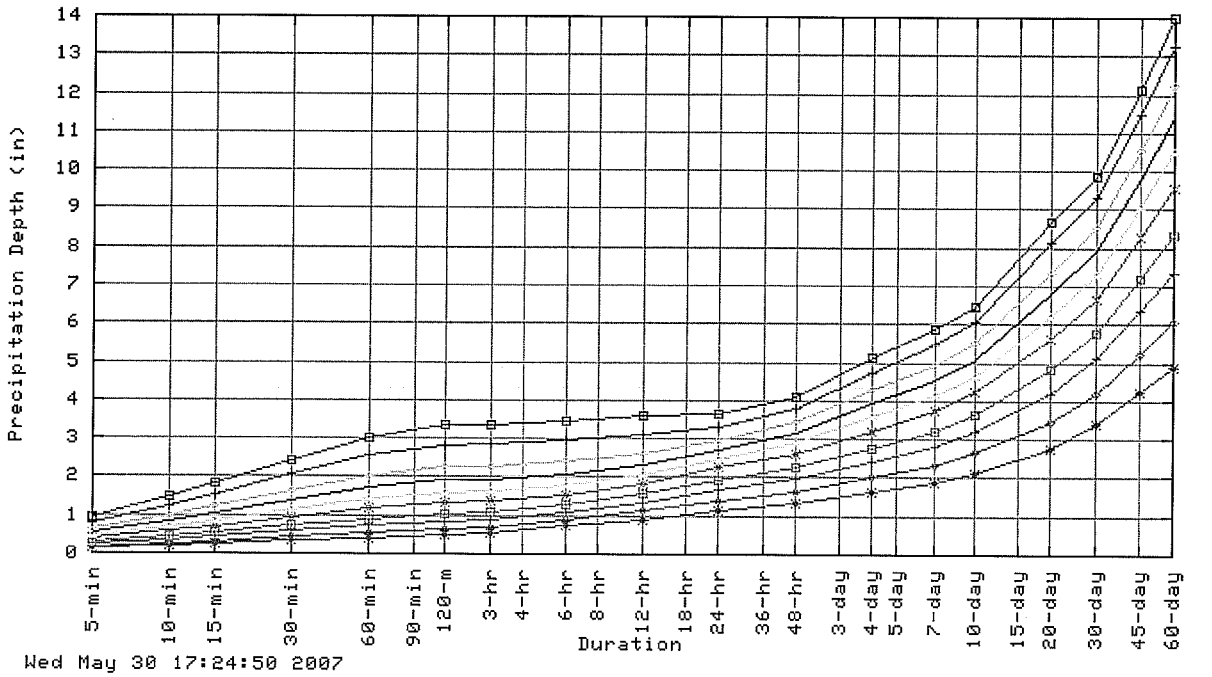
Partial duration based Point Precipitation Frequency Estimates Version: 4
39.730247 N 111.1550194 W 7998 ft



Wed May 30 17:24:51 2007

Duration			
5-min	120-min	48-hr	30-day
10-min	3-hr	4-day	45-day
15-min	6-hr	7-day	60-day
30-min	12-hr	10-day	
60-min	24-hr	20-day	

Partial duration based Point Precipitation Frequency Estimates Version: 4
39.730247 N 111.1550194 W 7998 ft



Wed May 30 17:24:50 2007

Average Recurrence Interval (years)	
1	50
2	100
5	200
10	500
25	1000

Confidence Limits -

* Upper bound of the 90% confidence interval Precipitation Frequency Estimates (inches)																		
ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.16	0.24	0.29	0.40	0.49	0.60	0.66	0.82	1.01	1.27	1.48	1.86	2.18	2.46	3.31	4.02	5.03	5.74
2	0.20	0.31	0.38	0.51	0.63	0.75	0.82	1.01	1.24	1.57	1.83	2.30	2.69	3.05	4.11	4.99	6.25	7.13
5	0.28	0.42	0.52	0.71	0.87	1.00	1.07	1.26	1.51	1.91	2.22	2.79	3.26	3.71	5.05	6.07	7.60	8.65
10	0.35	0.53	0.65	0.88	1.09	1.23	1.28	1.47	1.74	2.18	2.53	3.18	3.72	4.22	5.79	6.88	8.61	9.79
25	0.45	0.69	0.86	1.15	1.43	1.59	1.63	1.78	2.07	2.54	2.95	3.70	4.34	4.90	6.76	7.94	9.92	11.29
50	0.55	0.84	1.04	1.40	1.73	1.92	1.94	2.07	2.34	2.82	3.26	4.12	4.82	5.41	7.50	8.71	10.89	12.41
100	0.66	1.01	1.25	1.68	2.08	2.31	2.32	2.43	2.62	3.10	3.59	4.53	5.30	5.93	8.23	9.48	11.84	13.48
200	0.79	1.21	1.50	2.02	2.50	2.76	2.77	2.83	3.00	3.38	3.92	4.94	5.79	6.45	8.97	10.26	12.78	14.52
500	1.01	1.54	1.91	2.57	3.18	3.50	3.52	3.54	3.65	3.77	4.37	5.52	6.46	7.13	9.97	11.24	13.96	15.87
1000	1.21	1.85	2.29	3.08	3.81	4.22	4.27	4.31	4.35	4.40	4.70	5.97	6.97	7.65	10.72	11.98	14.86	16.86

* The **upper** bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are **greater** than.

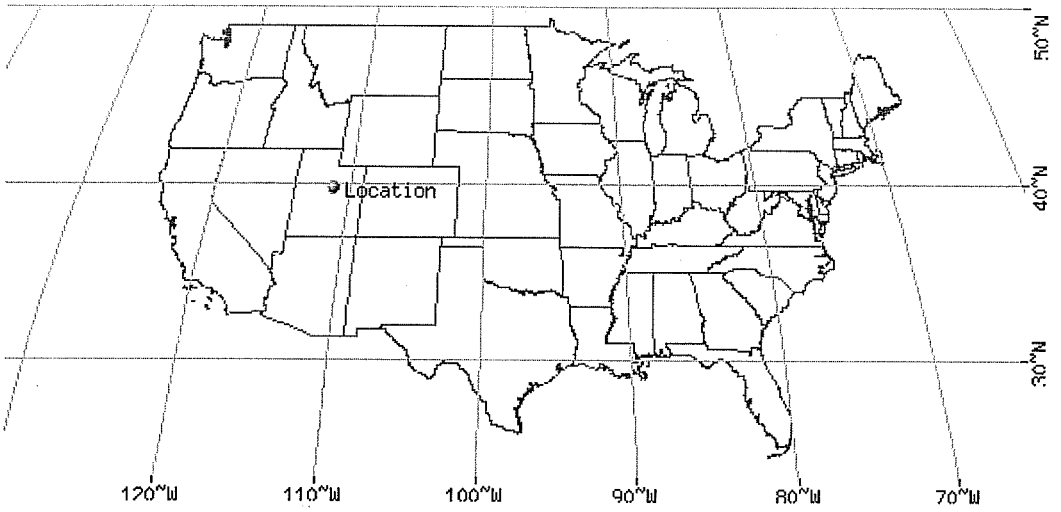
** These precipitation frequency estimates are based on a partial duration series. **ARI** is the Average Recurrence Interval.
Please refer to the documentation for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

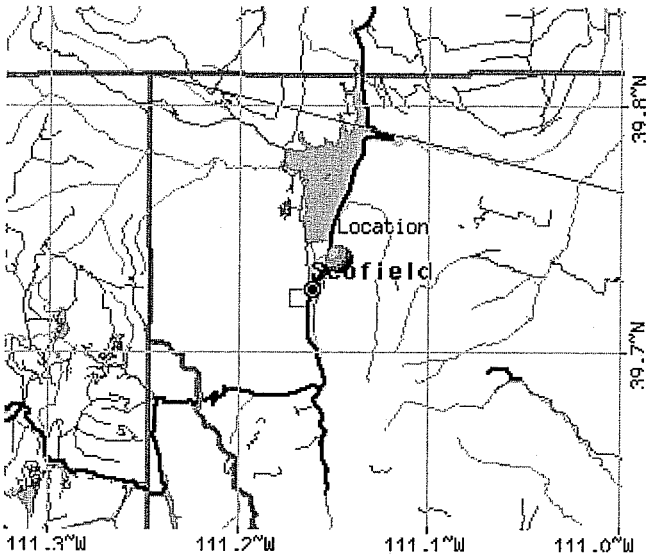
* Lower bound of the 90% confidence interval Precipitation Frequency Estimates (inches)																		
ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.11	0.17	0.21	0.28	0.35	0.43	0.49	0.64	0.81	1.00	1.17	1.42	1.66	1.86	2.39	2.92	3.63	4.22
2	0.14	0.22	0.27	0.36	0.45	0.54	0.61	0.79	1.00	1.24	1.44	1.75	2.04	2.30	2.97	3.62	4.50	5.24
5	0.20	0.30	0.37	0.50	0.61	0.72	0.78	0.97	1.22	1.50	1.74	2.12	2.48	2.78	3.61	4.37	5.42	6.34
10	0.24	0.37	0.45	0.61	0.76	0.87	0.94	1.13	1.39	1.71	1.98	2.41	2.82	3.15	4.11	4.93	6.13	7.17
25	0.31	0.47	0.58	0.78	0.96	1.10	1.17	1.34	1.63	1.98	2.29	2.79	3.26	3.63	4.75	5.64	7.01	8.19
50	0.36	0.55	0.69	0.92	1.14	1.29	1.35	1.53	1.81	2.18	2.52	3.07	3.58	3.98	5.21	6.15	7.64	8.91
100	0.43	0.65	0.80	1.08	1.34	1.50	1.57	1.75	2.00	2.38	2.74	3.35	3.90	4.32	5.67	6.63	8.27	9.60
200	0.49	0.75	0.93	1.25	1.55	1.73	1.82	1.99	2.23	2.57	2.97	3.61	4.22	4.65	6.11	7.09	8.82	10.23
500	0.59	0.90	1.12	1.50	1.86	2.07	2.18	2.38	2.62	2.81	3.25	3.96	4.62	5.05	6.63	7.63	9.49	10.99
1000	0.67	1.02	1.27	1.71	2.12	2.36	2.49	2.72	2.97	2.99	3.45	4.20	4.90	5.34	7.02	8.03	9.97	11.53

* The **lower** bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are **less** than.

** These precipitation frequency estimates are based on a partial duration maxima series. **ARI** is the Average Recurrence Interval.
Please refer to the documentation for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

Maps -





These maps were produced using a direct map request from the U.S. Census Bureau Mapping and Cartographic Resources Tiger Map Server.

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LEGEND

State
County
Indian Resv
Lake/Pond/Ocean
Street
Expressway
Highway
Connector
Stream
Military Area
National Park
Other Park
City
County

Scale 1:228583
0 2 4 6 8 mi
0 2 4 6 8 10 km
*average--true scale depends on monitor resolution

Other Maps/Photographs -

View USGS digital orthophoto quadrangle (DOQ) covering this location from TerraServer; **USGS Aerial Photograph** may also be available
from this site. A DOQ is a computer-generated image of an aerial photograph in which image displacement caused by terrain relief and camera tilts has been removed. It combines the image characteristics of a photograph with the geometric qualities of a map. Visit the USGS for more information.

Watershed/Stream Flow Information -

Find the Watershed for this location using the U.S. Environmental Protection Agency's site.

Climate Data Sources -

Precipitation frequency results are based on data from a variety of sources, but largely NCDC. The following links provide general information
about observing sites in the area, regardless of if their data was used in this study. For detailed information about the stations used in this study,
please refer to our documentation.

Using the **National Climatic Data Center's (NCDC)** station search engine, locate other climate stations within:

+/-30 minutes ...OR... +/-1 degree of this location (39.730247/-111.1550194). Digital ASCII data can be obtained directly from **NCDC**.

Find Natural Resources Conservation Service (NRCS) SNOTEL (SNOwpack TELemetry) stations by visiting the **Western Regional Climate Center's state-specific SNOTEL station maps**.

Hydrometeorological Design Studies Center
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1325 East-West Highway
Silver Spring, MD 20910
(301) 713-1669
Questions?: HDSC.Questions@noaa.gov

Disclaimer

SCS CURVE NUMBER
Kinney Mine Hydrology

SB_F1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	2288.29	0.05	0.00008	1.4	98	0.20	1.1	202.9	1.7	323.2	1.9	353.5
Pad	122526.6	2.81	0.00440	75.7	90	1.11	0.5	5267.5	1.0	10478.0	1.2	11869.8
Natural	21443.42	0.49	0.00077	13.2	75	3.33	0.1	170.3	0.3	612.0	0.4	752.0
Revegetated	15641.47	0.36	0.00056	9.7	82	2.20	0.2	303.6	0.6	777.7	0.7	915.0
TOTALS	161899.8	3.72	0.00581	100	87			5944.3		12190.9		13890.2
										0.28 ac-ft		0.32 ac-ft

SB_D1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	2165.29	0.05	0.00008	2.5	98	0.20	1.1	192.0	1.7	305.9	1.9	334.5
Pad	40914.9	0.94	0.00147	33.7	90	1.11	0.5	1758.9	1.0	3498.9	1.2	3963.6
Natural	67374.28	1.55	0.00242	55.5	75	3.33	0.1	535.2	0.3	1922.9	0.4	2362.7
Revegetated	10895.72	0.25	0.00039	9.0	82	2.20	0.2	211.5	0.6	541.7	0.7	637.4
TOTALS	121350.2	2.79	0.00435	101	81			2697.6		6269.3		7298.2
										0.14 ac-ft		0.17 ac-ft

SB_D2

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	2442.07	0.06	0.00009	2.8	98	0.20	1.1	216.5	1.7	345.0	1.9	377.2
Pad	12679.13	0.29	0.00045	14.8	90	1.11	0.5	545.1	1.0	1084.3	1.2	1228.3
Natural	59411.24	1.36	0.00213	69.1	75	3.33	0.1	471.9	0.3	1695.6	0.4	2083.5
Revegetated	11426.79	0.26	0.00041	13.3	82	2.20	0.2	221.8	0.6	568.1	0.7	668.4
TOTALS	85959.23	1.97	0.00308	100	79			1455.3		3693.0		4357.4
										0.08 ac-ft		0.10 ac-ft

SB_F2

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	10732.04	0.25	0.00038	19.4	98	0.20	1.1	951.5	1.7	1516.0	1.9	1657.8
Natural	0	0.00	0.00000	0.0	75	3.33	0.1	0.0	0.3	0.0	0.4	0.0
Revegetated	44561.29	1.02	0.00160	80.6	82	2.20	0.2	865.0	0.6	2215.6	0.7	2606.7
TOTALS	55293.33	1.27	0.00198	100	85			1816.6		3731.6		4264.5
										0.09 ac-ft		0.10 ac-ft

SB_E1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Pad	143106.9	3.29	0.00513	74.1	90	1.11	0.5	6152.2	1.0	12237.9	1.2	13863.5
Natural	9446.91	0.22	0.00034	4.9	75	3.33	0.1	75.0	0.3	269.6	0.4	331.3
Revegetated	40693.85	0.93	0.00146	21.1	82	2.20	0.2	789.9	0.6	2023.3	0.7	2380.5
TOTALS	193247.7	4.44	0.00693	100	88			7017.2		14530.8		16575.3
										0.33 ac-ft		0.38 ac-ft

SB_D3

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	11513.94	0.26	0.00041	19.7	98	0.20	1.1	1020.9	1.7	1626.4	1.9	1778.6
Natural	39630.22	0.91	0.00142	20.5	75	3.33	0.1	314.8	0.3	1131.0	0.4	1389.8
Revegetated	7211.62	0.17	0.00026	12.4	82	2.20	0.2	140.0	0.6	358.6	0.7	421.9
TOTALS	58355.78	1.34	0.00209	53	80			1475.6		3116.0		3590.2
										0.07 ac-ft		0.08 ac-ft

SB_A1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	19147.5	0.44	0.00069	32.8	98	0.20	1.1	1697.7	1.7	2704.7	1.9	2957.8
Natural	63174.77	1.45	0.00227	32.7	75	3.33	0.1	501.8	0.3	1803.0	0.4	2215.5
Pad	42016.47	0.96	0.00151	21.7	90	1.11	0.5	1806.3	1.0	3593.1	1.2	4070.4
Revegetated	54006.16	1.24	0.00194	30.3	82	2.20	0.2	1048.4	0.6	2685.2	0.7	3159.2
TOTALS	178344.9	4.09	0.00640	118	83			5054.1		10786.0		12402.8
										0.25 ac-ft		0.28 ac-ft

SB_B1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Pad	91371.01	2.10	0.00328	47.3	90	1.11	0.5	3928.1	1.0	7813.7	1.2	8851.6
Natural	26384.94	0.61	0.00095	13.7	75	3.33	0.1	209.6	0.3	753.0	0.4	925.3
Revegetated	34907.15	0.80	0.00125	22.9	82	2.20	0.2	677.6	0.6	1735.6	0.7	2042.0
TOTALS	152663.1	3.50	0.00548	84	86			677.6		1735.6		2042.0
										0.04 ac-ft		0.05 ac-ft

SB_C1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	0	0.00	0.00000	0.0	98	0.20	1.1	0.0	1.7	0.0	1.9	0.0
Pad	91265.3	2.10	0.00327	136.8	90	1.11	0.5	3923.5	1.0	7804.6	1.2	8841.3
Natural	52325.33	1.20	0.00188	27.1	75	3.33	0.1	415.6	0.3	1493.4	0.4	1835.0
Revegetated	38502.3	0.88	0.00138	21.1	82	2.20	0.2	747.4	0.6	1914.3	0.7	2252.3
TOTALS	182092.9	4.18	0.00653	185	84			5086.5		11212.3		12928.6
										0.26 ac-ft		0.30 ac-ft

SB_E2

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	13703.95	0.31	0.00049	7.5	98	0.20	1.1	1215.0	1.7	1935.8	1.9	2116.9
Pad	0	0.00	0.00000	0.0	90	1.11	0.5	0.0	1.0	0.0	1.2	0.0
Natural	26904.93	0.62	0.00097	13.9	75	3.33	0.1	213.7	0.3	767.9	0.4	943.5
Revegetated	32464.12	0.75	0.00116	17.8	82	2.20	0.2	630.2	0.6	1614.1	0.7	1899.1
TOTALS	73073	1.68	0.00262	39	82			2058.9		4317.8		4959.5
										0.10 ac-ft		0.11 ac-ft

SB_E4

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Natural	50993.98	1.17	0.00183	76.5	75	3.33	0.1	405.0	0.3	1455.4	0.4	1788.3
Revegetated	15708.03	0.36	0.00056	23.5	82	2.20	0.2	304.9	0.6	781.0	0.7	918.9
TOTALS	66702.01	1.53	0.00239	100	77			710.0		2236.4		2707.2
										0.05 ac-ft		0.06 ac-ft

SB_E3

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Revegetated	23139.08	0.53	0.00083	34.7	82	2.20	0.2	449.2	0.6	1150.5	0.7	1353.6
TOTALS	23139.08	0.53	0.00083	35	82			449.2		1150.5		1353.6
										0.03 ac-ft		0.03 ac-ft

SB_Pond1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Detention Pond	19356.6	0.44	0.00069	20.6	100	0.00	1.3	2064.7	1.9	3097.1	2.1	3355.1
Revegetated	46571.36	1.07	0.00167	69.8	82	2.20	0.2	904.0	0.6	2315.5	0.7	2724.3
Natural	28145.53	0.65	0.00101	29.9	75	3.33	0.1	223.6	0.3	803.3	0.4	987.0
TOTALS	94073.49	2.16	0.00337	120	84			3192.3		6215.8		7066.5
										0.14 ac-ft		0.16 ac-ft

SB_AltA

Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	10-YR 6-HR Rainfall (in) 1.28 Runoff (cfs)	10-YR 6-HR Rainfall (in) 1.28 Vol (cf)	10-yr 24-HR Rainfall (in) 1.92 Runoff (cfs)	10-yr 24-HR Rainfall (in) 1.92 Vol (cf)	100-YR 6-HR Rainfall (in) 2.08 Runoff (cfs)	100-YR 6-HR Rainfall (in) 2.08 Vol (cf)
Revegetated	111806.6	2.57	0.00401	167.6	82	2.20	0.2	2170.4	0.6	5559.0	0.7	6540.3
TOTALS	111806.6	2.57	0.00401	168	82			2170.4		5559.0		6540.3
										0.13 ac-ft		0.15 ac-ft

SB_AltB

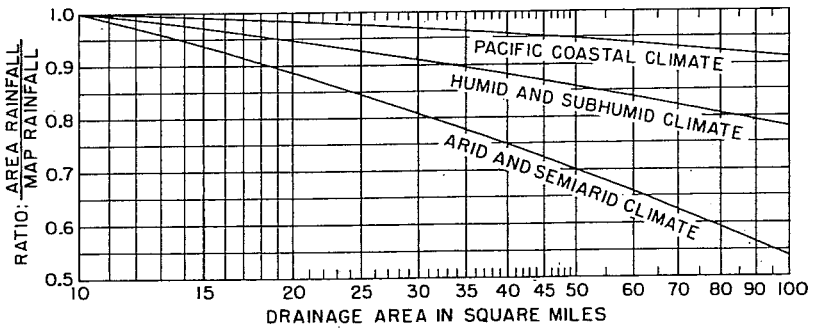
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	10-YR 6-HR Rainfall (in) 1.28 Runoff (cfs)	10-YR 6-HR Rainfall (in) 1.28 Vol (cf)	10-yr 24-HR Rainfall (in) 1.92 Runoff (cfs)	10-yr 24-HR Rainfall (in) 1.92 Vol (cf)	100-YR 6-HR Rainfall (in) 2.08 Runoff (cfs)	100-YR 6-HR Rainfall (in) 2.08 Vol (cf)
Roads	4030.63	0.09	0.00014	2.2	98	0.20	1.1	357.4	1.7	569.4	1.9	622.6
Revegetated	21513.94	0.49	0.00077	32.3	82	2.20	0.2	417.6	0.6	1069.7	0.7	1258.5
TOTALS	25544.57	0.59	0.00092	34	85			775.0		1639.0		1881.1
										0.04 ac-ft		0.04 ac-ft

SB_AltC

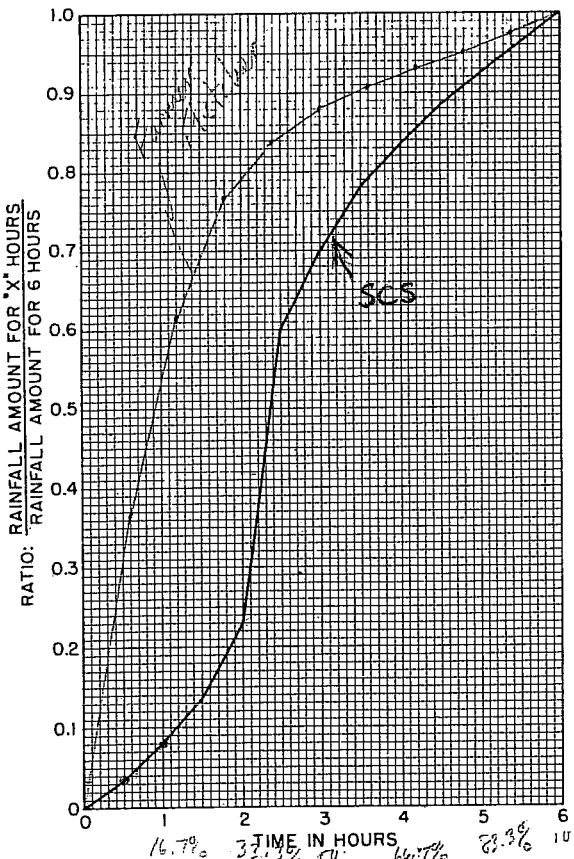
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	10-YR 6-HR Rainfall (in) 1.28 Runoff (cfs)	10-YR 6-HR Rainfall (in) 1.28 Vol (cf)	10-yr 24-HR Rainfall (in) 1.92 Runoff (cfs)	10-yr 24-HR Rainfall (in) 1.92 Vol (cf)	100-YR 6-HR Rainfall (in) 2.08 Runoff (cfs)	100-YR 6-HR Rainfall (in) 2.08 Vol (cf)
Roads	3773.2	0.09	0.00014	2.1	98	0.20	1.1	334.5	1.7	533.0	1.9	582.9
Revegetated	15615.05	0.36	0.00056	23.4	82	2.20	0.2	303.1	0.6	776.4	0.7	913.4
TOTALS	19388.25	0.45	0.00070	25	85			637.7		1309.4		1496.3
										0.03 ac-ft		0.03 ac-ft
Overall Totals	1602934	36.80	0.0575		84							

Total Approximate Storage Volumes = 2.06 ac-ft 2.37 ac-ft

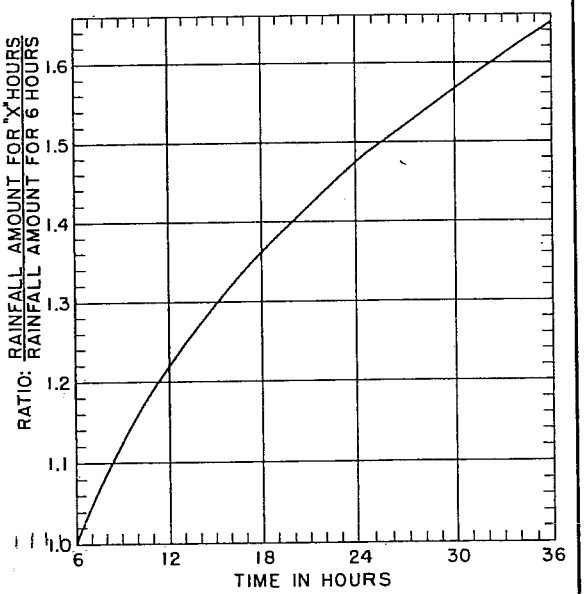
HYDROLOGY: CRITERIA FOR DESIGN STORMS USED IN DEVELOPING EMERGENCY SPILLWAY DESIGN AND FREEBOARD HYDROGRAPHS



(a) RAINFALL RATIOS FOR DRAINAGE AREAS OF 10 TO 100 SQUARE MILES



(b) SIX HOUR DESIGN STORM DISTRIBUTION



(c) RELATIVE INCREASE IN RAINFALL AMOUNT FOR STORM DURATIONS OVER SIX HOURS

FIGURE 21.2

REFERENCE	U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE ENGINEERING DIVISION - CENTRAL TECHNICAL UNIT	STANDARD DWG. NO. ES-1003 SHEET 1 OF 1 DATE 7-2-56 REVISED 9-10-63

Ref: NEH-4

```
      PROGRAM HYDRO
C.    This is the new version of hydro. Updated Nov 17, 1987.
C..   This version allows time and flow to be saved on disk.
C...  It also has been modified for output page formating.
C.... This version has been modified to ease input for subsequent
C..... runs by screen editing of input data.
$DEBUG
$LARGE
      DIMENSION GAMMA(2),DRAN(100),RANFF(11),RANSCS(13),RNSC24(49)
     1,DIMRAN(50),SDIMRN(1701),STMACC(1701),RAINEX(1701),Q(1701)
     1,QT(1701),DIMO(1701),QH(1701),GS(1701),UPL1(21),UPL2(21),UPL3(21)
     1,XX(220),YY(220),RANF2(21)
      CHARACTER ASED*1,ADIST*1,ATITLE*62,ADISTR*20,AGR*1,AFILE*3,AF*12,
     1AGAIN*3,ANEW*1,IOUT*1
      DATA RANFF/0.0,.365,.615,.769,.839,.88,.908,.932,.952,.977,1./
      DATA RANF2/0.0,.002,.009,.015,.026,.05,.10,.19,.30,.44,.586
     1,.73,.82,.87,.91,.935,.96,.97,.98,.99,1.00/
      DATA RANSCS/0.,.035,.08,.135,.23,.6,.7,.78,.835,.885,.925,.965
     1,1./
      DATA RNSC24/0.,.008,.011,.017,.022,.029,.034,.042,.048,.057
     1,.062,.072,.08,.09,.1,.111,.12,.132,.147,.163,.181,.204,.236
     1,.283,.663,.735,.772,.799,.82,.84,.854,.868,.88,.891,.901,.912
     1,.921,.930,.938,.946,.952,.96,.968,.974,.979,.985,.99,.995,1./
      DATA UPL1/0.0,.18,.36,.54,.61,.675,.74,.79,.835,.87,.895,.905,
     1.91,.91,.91,.915,.925,.94,.955,.975,1.0/
      DATA UPL2/0.0,.02,.04,.07,.105,.15,.2,.285,.485,.64,.705,.74,
     1.775,.805,.84,.875,.91,.935,.965,.985,1.0/
      DATA UPL3/0.0,.005,.015,.03,.04,.06,.07,.1,.12,.155,.215,.38,
     1.52,.70,.775,.83,.87,.91,.95,.975,1.0/
      DATA XX/0.,1.,2.,3.,4.,5.,6.,7.,8.,9.,10.,11.,12.,13.,14.,15.,16.,
     117.,18.,19.,20.,21.,22.,23.,24.,25.,26.,27.,28.,29.,30.,31.,32.,33
     1.,34.,35.,36.,37.,38.,39.,40.,41.,42.,43.,44.,45.,46.,47.,48.,49.,
     150.,51.,52.,53.,54.,55.,56.,57.,58.,59.,60.,61.,62.,63.,64.,65.,
     166.,67.,68.,69.,70.,71.,72.,73.,74.,75.,76.,77.,78.,79.,80.,81.,
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     198.,99.,100.,101.,102.,103.,104.,105.,106.,107.,108.,109.,110.,
     1111.,112.,113.,114.,115.,116.,117.,118.,119.,120.,121.,122.,123.,
     1124.,125.,126.,127.,128.,129.,130.,131.,132.,133.,134.,135.,136.,
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     1163.,164.,165.,166.,167.,168.,169.,
     1170.,180.,190.,200.,210.,220.,230.,240.,250.,260.,
     1270.,280.,290.,300.,310.,320.,330.,340.,350.,360.,370.,380.,390.,
     1400.,410.,420.,430.,440.,450.,460.,470.,480.,490.,500.,510.,520.,
     1530.,540.,550.,560.,570.,580.,590.,600.,610.,620.,630.,640.,650.,
     1660./
      DATA YY/0.,.06,.12,.18,.24,.3,.37,.47,.58,.72,.9,1.09,1.31,1.58,
     11.91,2.3,2.54,2.81,3.11,3.44,3.8,4.09,4.41,4.74,5.11,5.5,5.74,5.99
```

SCS 6 hr distribution (30 min intervals)

72 min interval

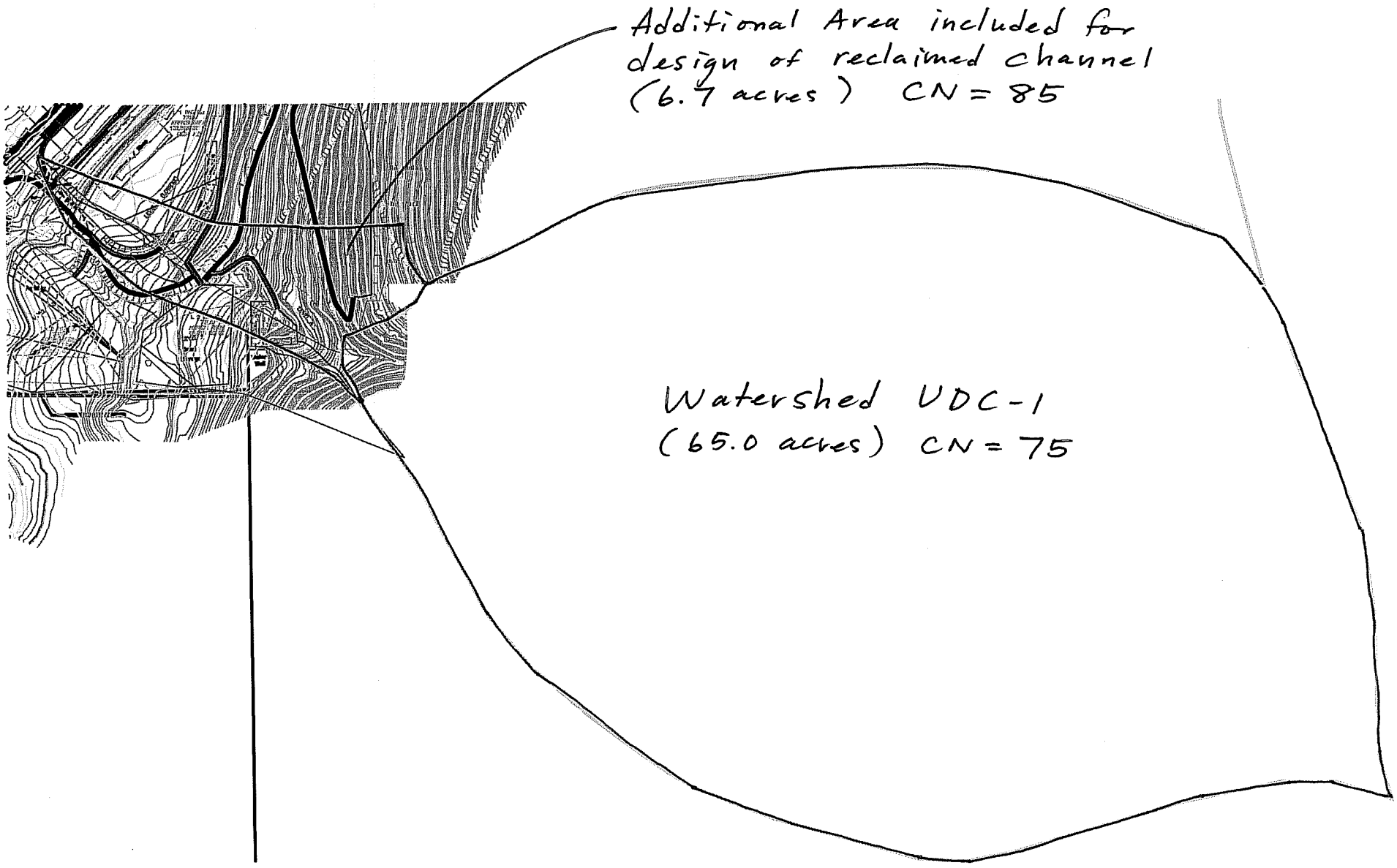
Reclaimed Channel designed for the 100yr 6hr event.

HEC-HMS analysis was performed to determine 100 yr 6hr discharge for design of the reclaimed channel.

Area weighted CN for area =

$$CN_{weighted} = \frac{(6.7\,acres)(85) + (65.0\,acres)(75)}{(6.7\,acres + 65.0\,acres)}$$

$$= \underline{\underline{76}}$$

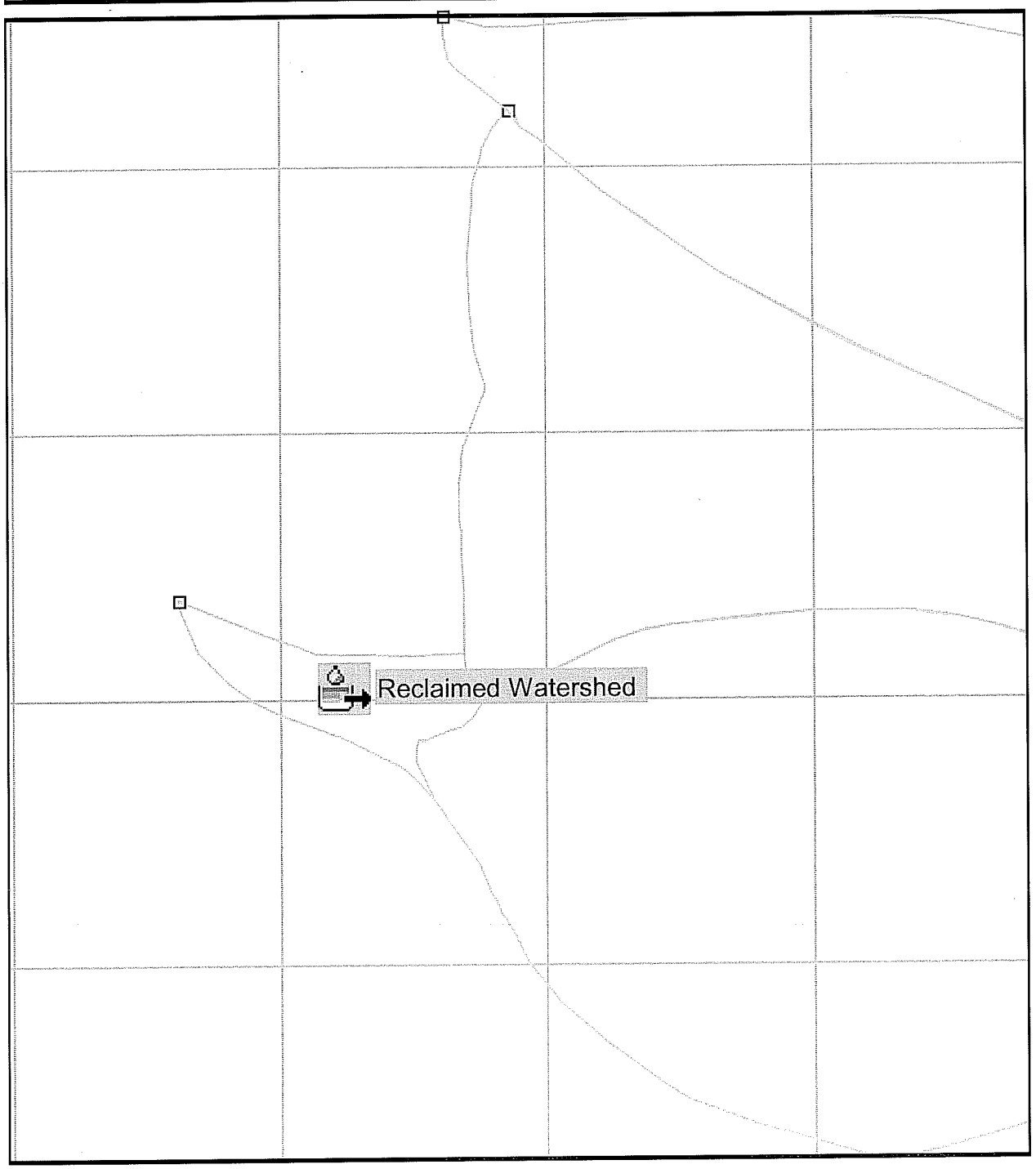

Additional Area included for design of reclaimed channel (6.7 acres) CN = 85
Watershed UDC-1 (65.0 acres) CN = 75
N
Scale: 1" = 500'

HEC-HMS

Project : Reclaimed Watershed-A

Basin Model : Kinney Mine

Aug 03 16:52:28 MDT 2007



Hydrologic Element	Drainage Area (mi2)	100yr 6hr Peak Discharge (cfs)	Time of Peak	Volume (in)
Reclaimed Watershed	0.112	11.5	01Jul2007, 04:14	0.45

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Reclaimed Channel Design (UDC-1)
PROJECT NO 305.01.400

SHEET 5 OF 7
COMPUTED TDS
CHECKED
DATE 7-6-07

Reclamation Channel Design (UDC-1)

Design Procedure:

Estimated a D50 size of 1 feet diameter from the Chart 27 from "Design of Stable Channels with Flexible Linings" - October 1975. The D50 size was based on a slope of approximately 130% and a calculated maximum flow depth of 0.5 ft (see spreadsheet calcs).

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (UDC-1)* | Chck'd
Project # *308.01.400* | Date *06-Jul-07*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	11.50	cfs
	Bottom Width:	3.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	1.0	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.040	
	Min. Bottom Slope:	0.13	ft/ft
	Max. Bottom Slope:	0.13	ft/ft
	Freeboard:	0.5	feet

Depth Check

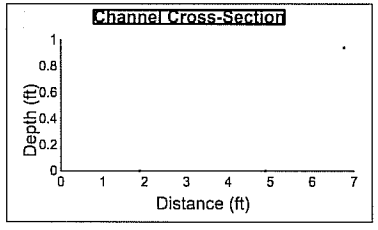
	Depth (Min. Slope):	0.44	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.94	feet
	Area:	1.72	ft2
	Perimeter:	4.98	feet
	Hydraulic Radius:	0.35	feet
	Velocity:	6.69	ft/sec
	Froude Number:	1.96	

Velocity Check

	Depth (Max. Slope):	0.44	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.94	feet
	Area:	1.72	ft2
	Perimeter:	4.98	feet
	Hydraulic Radius:	0.35	feet
	Velocity:	6.69	ft/sec
	Froude Number:	1.96	

Channel Design Summary:

Bottom Width:	3.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.13	ft/ft
Max. Bottom Slope:	0.13	ft/ft
Min. Channel Depth:	0.94	feet
Channel Top Width:	6.77	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (UDC-1)* | Chck'd
Project # *308.01.400* | Date *06-Aug-07*

DESIGN CRITERIA:

	Design Flow:	11.50	cfs
	Bottom Width:	3.00	feet
	Side Slope1:	2.00	1/m1
	Side Slope2:	2.00	1/m2
	Friction Factor:	0.04	
	Min. Bottom Slope:	13.0	%
	Max. Bottom Slope:	13.0	%
	Flow Depth (Min. S):	0.44	feet
	Flow Depth (Max. S):	0.44	feet
	Angle Repose (Ar):	42.0	degrees
	Specific Gravity	2.65	

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	1.20	
Reynolds # for Smin	85,860	
U=(gRS)^0.5 for Smax	1.20	
Reynolds # for Smax	85,860	

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.064	
K for S max (See K vs. R Chart)	0.064	
F for S min	14.9	
F for S max	14.9	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

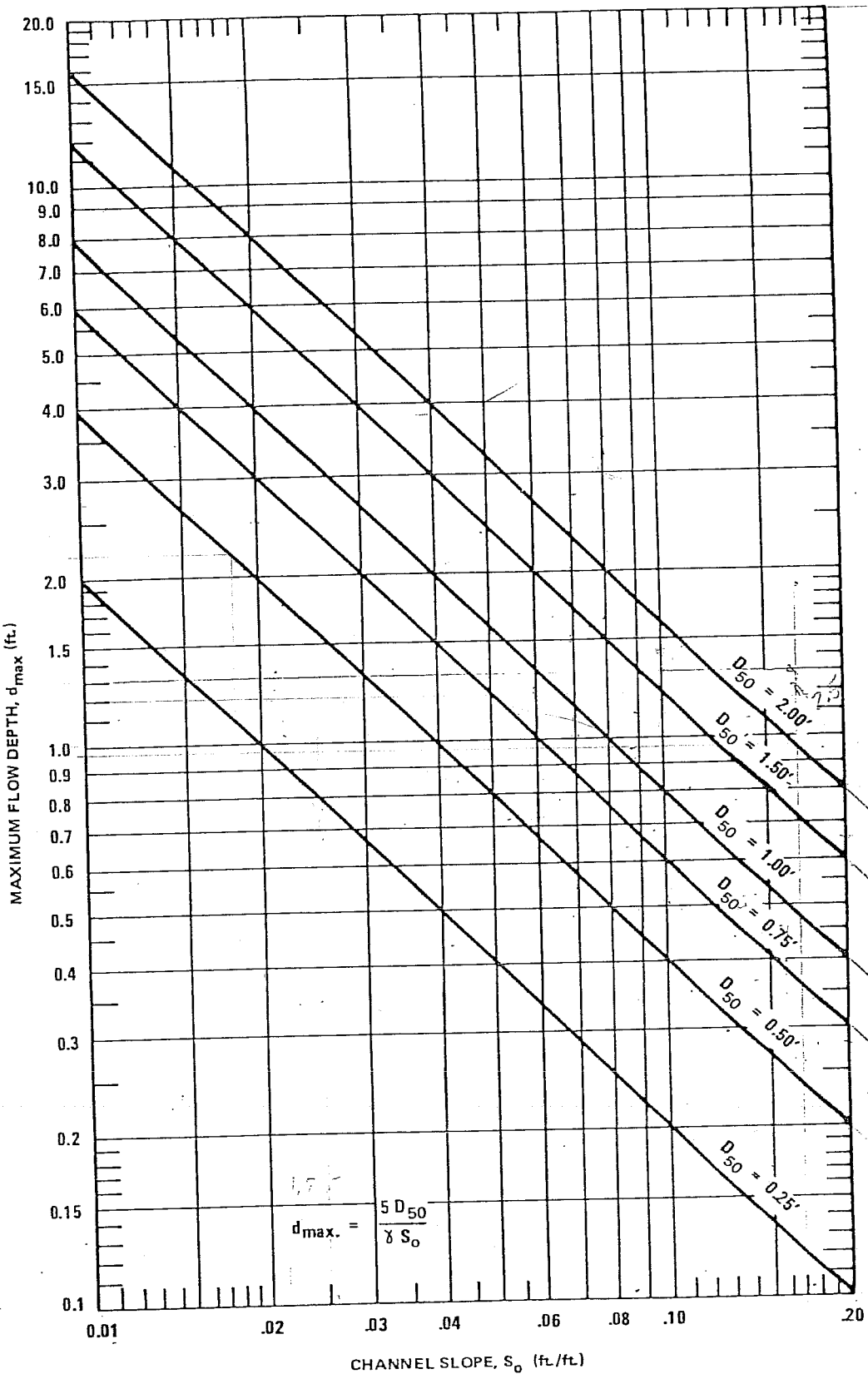
Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.00	1.00	feet
T	3.59	3.59	lb/ft2
Nb	0.52	0.52	
Tmax	2.73	2.73	lb/ft2
Ns	0.39	0.39	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	20.53	20.53	degrees
Nsp	0.29	0.29	
SFb	1.50	1.50	
SFs	1.18	1.18	

Chart 27



MAXIMUM PERMISSIBLE DEPTH OF FLOW (d_{max})
FOR CHANNELS LINED WITH ROCK RIPRAP

Ref: "Design of Stable Channels with Flexible Linings"

Ditches and Culverts

CULVERT/DITCH DESIGN FLOWS

	System Element	10yr 6hr Peak Discharge (cfs)	100yr 6hr Peak Discharge (cfs)	Model Element
Culverts	CB-1	0.9	2.9	CB-1
	CB-2	2.0	5.8	CB-2
	CC-1	2.9	8.7	J-10
	CD-1	0.3	1.6	CD-1
	CD-2	0.6	2.9	CD-2
	CE-1	2.4	7.8	CE-1
	CF-1	1.7	4.4	J-3
Ditches	DA-1	0.6	1.6	SB-A1
	DC-1	1.1	2.9	SB_C1
	DC-2	2.9	8.7	J-10
	DC-3	2.9	8.7	J-10
	DC-4	1.1	2.9	SB_C1
	DC-5	2.9	8.7	J-10
	DC-6	3.5	10.3	J-10 + SB_Pond1
	DD-1	0.2	0.7	SB_D3
	DD-2	0.2	0.9	SB_D2
	DD-3	0.3	1.6	CD-1
	DE-1	0.6	2.9	J-13
	DE-2	0.2	0.9	SB_E2
	DE-3	4.1	12.4	J-6
	DE-4	4.2	12.9	J-11
	DF-1	0.4	1.0	SB_F2
	DF-2	0.4	1.0	SB_F2
	DF-3	1.3	3.3	SB_F1
	DF-4	1.7	4.4	J-4
	DF-5	1.7	4.4	CF-2
	ALT C-1	0.2	0.5	SB_AltB
	ALT B-1	0.2	0.5	SB_AltB
	ALT A-1	0.4	1.5	SB_AltA
	ALT A-2	0.4	1.5	SB_AltA

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Culvert Sizing
PROJECT NO 308.01.400

SHEET ____ OF ____
COMPUTED TDS
CHECKED ____
DATE 6-7-07

Determined the size of culverts based of Chart 5 in the "Hydraulic Charts for the Selection of Highway Culverts" assuming HW/D = 1.0 with a projecting entrance type. Design discharge for culverts were estimated from HEC-HMS results. A minimum size culvert was assumed to be 18 in.

Culvert	10 yr 24 hr Q (cfs)	Required Diameter Based on Chart 5 (in)	Actual Diameter (in)
CF-1	1.7	12	18
CE-1	2.4	15	18
CB-1	2.0	15	18
CB-2	2.0	15	18
CD-2	0.6	10	18
CD-1	0.4	10	18
CF-2	1.7	12	18
CC-1	2.9	15	18

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE UDC-1 Culvert
PROJECT NO 308.01.400

SHEET ____ OF ____
COMPUTED GLO
CHECKED ____
DATE 12/20/07

UDC-1

Design flow = 14.3 cfs

(Based on the 100 yr - 6 hr event)

Based on Chart 5 in the "Hydraulic Charts for the selection of Highway Culverts," assuming HW/D = 1.0 with a projecting entrance type, D = 27.5 in, 30 used

D = 30 in

Culvert #1 (CDC-2)

Design Flow (Q_1) = 9.4 cfs
(Comes from UDD1 for 100yr 6hr event)

Based on Chart 5 in the "Hydraulic Charts for the Selection of Highway Culverts," assuming $H_w/D = 1.0$ with a projecting entrance type, $D_1 = 23$ in

So use $D_1 = 24$ in

Culvert #2 (CP-1)

$D_2 = 24$ in (Design based on overflow discharge from detention basin - see detention basin calculations)

Culvert #3 (CP-2)

Design Flow (Q_3) = 33.8 cfs

(Combination of flows from culvert #1 & #2, a subbasin 6-1 of, 22.5 cfs, 9.4 cfs and 1.9 cfs respectively)

Based on Chart 5 in the "Hydraulic Charts for the Selection of Highway Culverts," assuming $H_w/D = 1.0$ with a projecting entrance type, $D_3 = 42$"

There is an existing 36" diameter pipe at this location

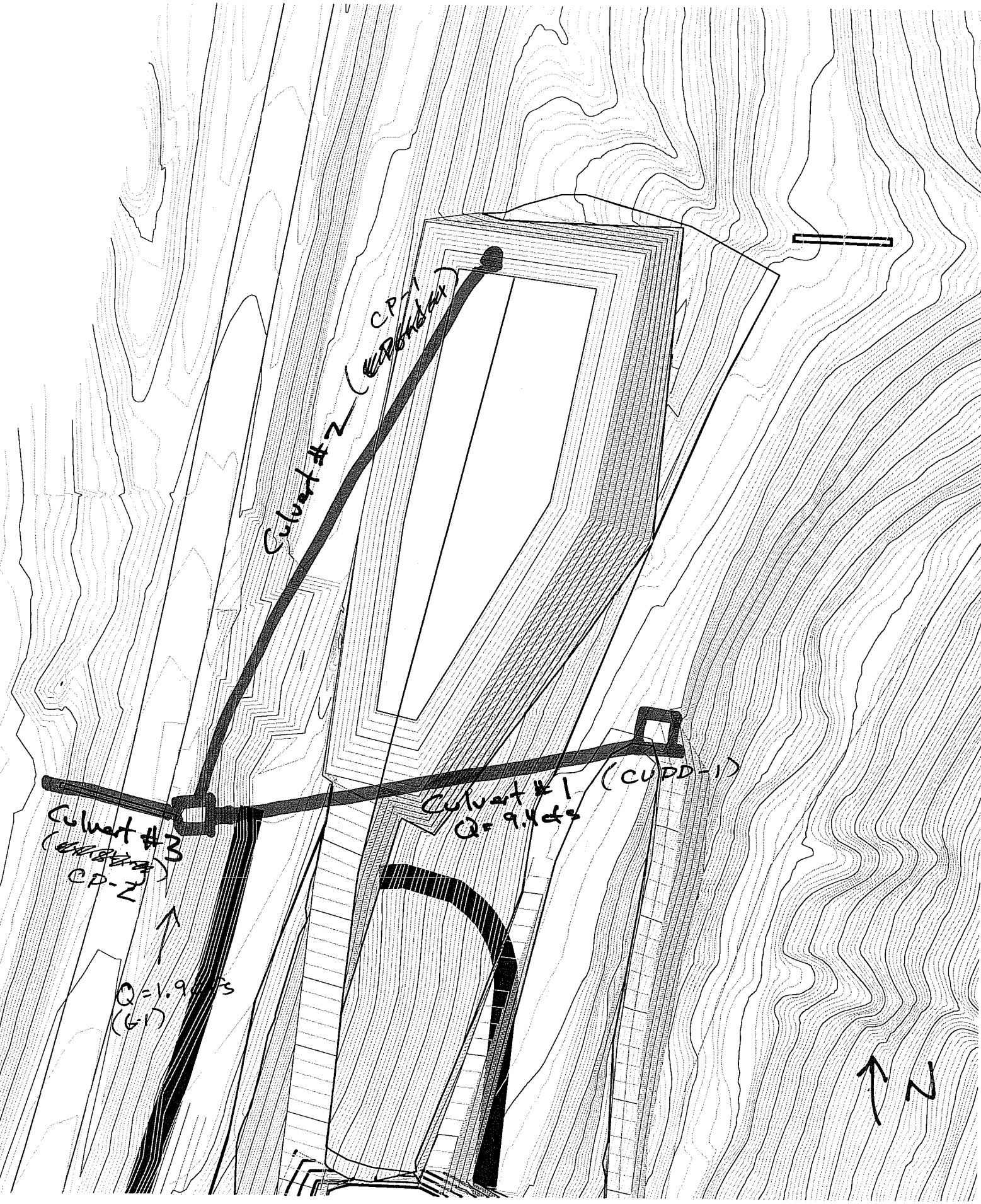
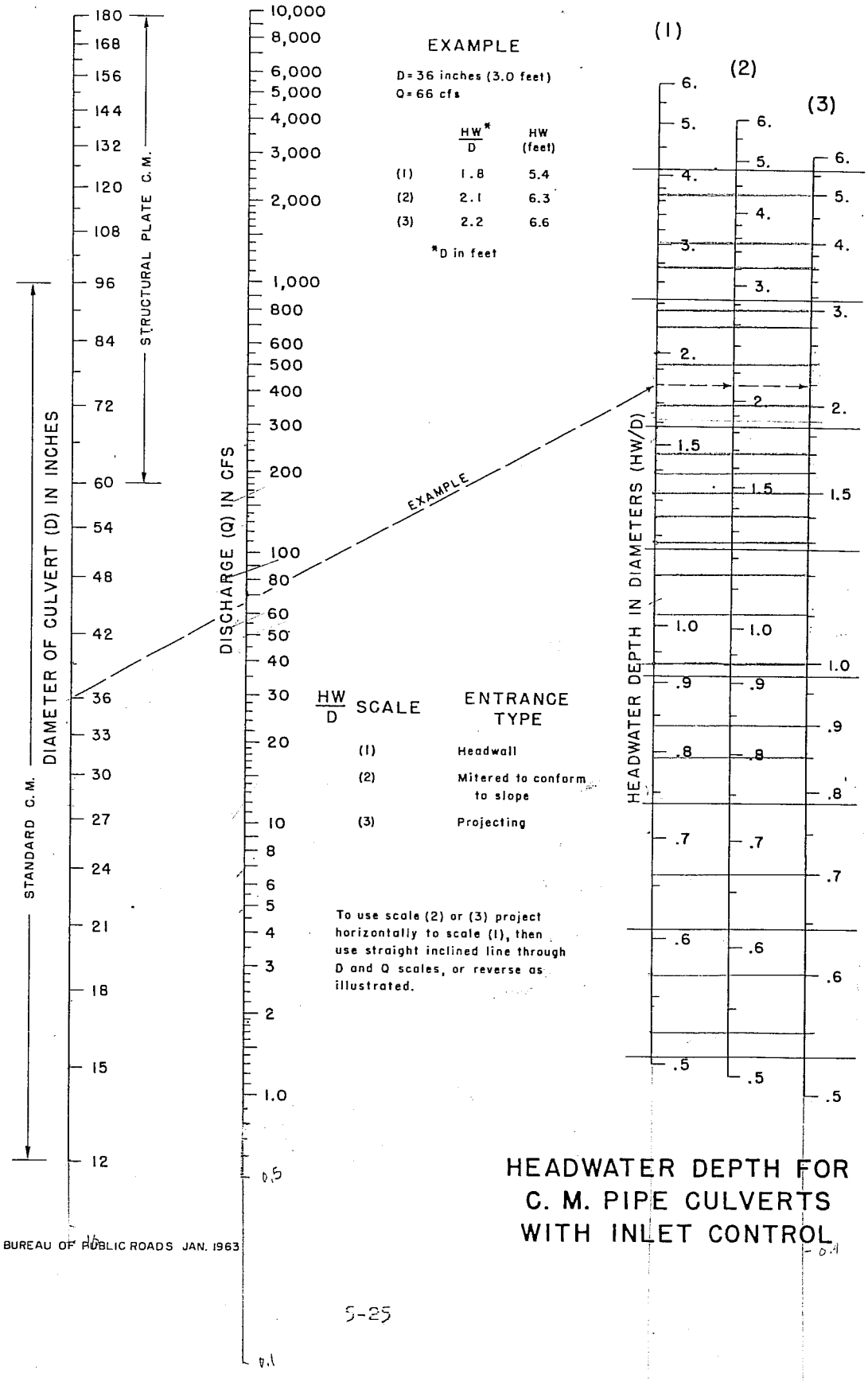

Culvert #2
CP-1
Culvert #1
(CUDD-1)
Culvert #3
CP-2
N

CHART 5



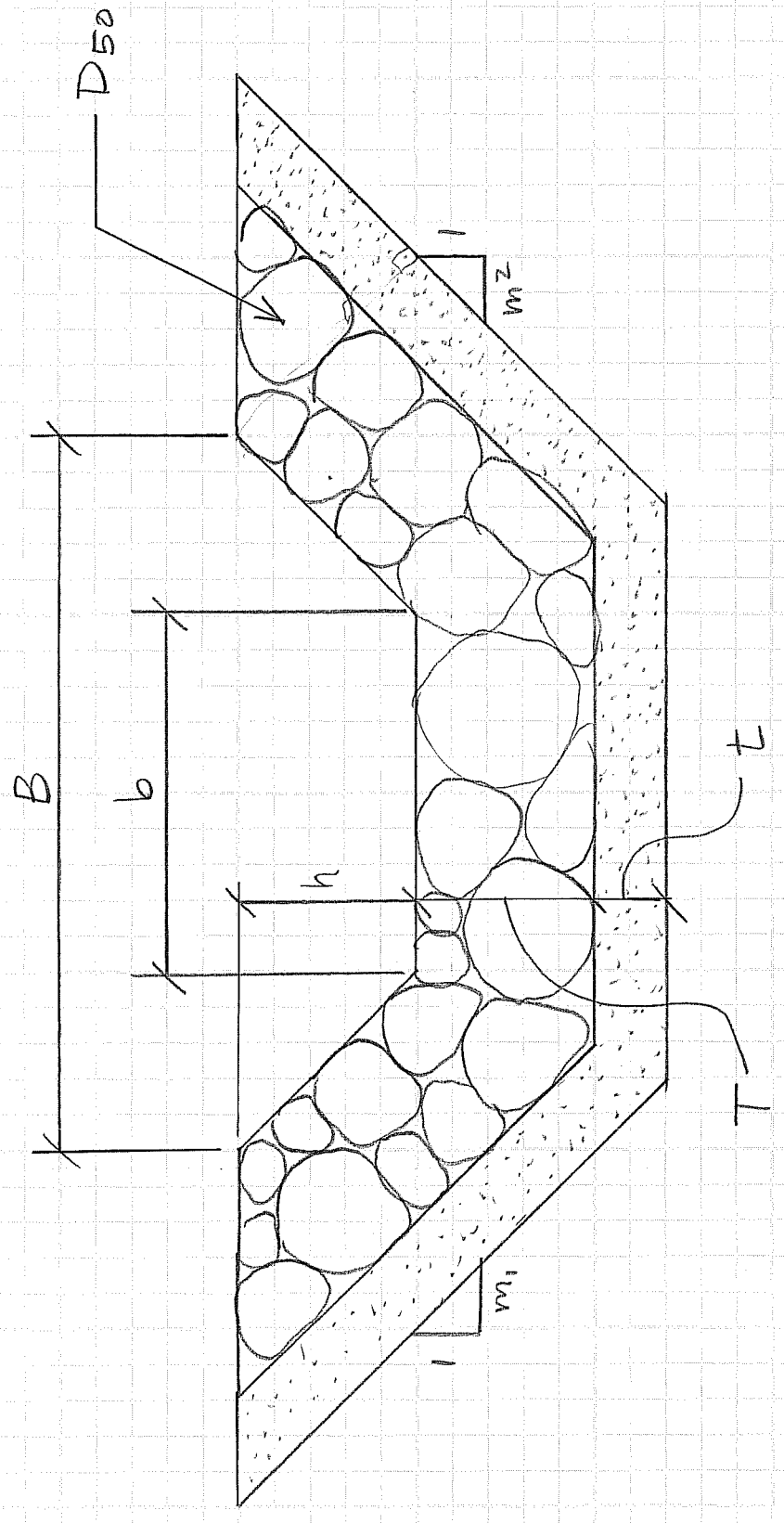
HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

Ref: Hydraulic Charts for the Selection of Highway Culverts

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Typical Ditch Cross Section
PROJECT NO 308.01.403

SHEET ____ OF ____
COMPUTED TDS
CHECKED ____
DATE 7-3-07



Ditch Design Procedure:

1. Determined velocities in ditch based on minimum and maximum slopes.
2. Ditches with velocities less than 4 ft/s will not require any rip-rap.
3. Ditches with velocities greater than or equal to 4 ft/s will require rip-rap.
   - (a) Estimated D50 size in order to achieve a minimum safety factor of 1.5.
   - (b) If D50 size was an unreasonable size for the associated ditch, the D50 size was determined to be 0.25 ft (diameter) and the ditch will need to be grouted. (This was the case for all ditches with velocities greater than 4 ft/s)

* Sizing details for each ditch are shown in "Ditch Design Details" spreadsheet.

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DA-1))* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

Trapezoidal Channel Flow Calculations

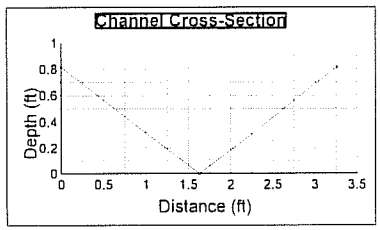
GENERAL CRITERIA:

	Design Flow:	0.90	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	ml
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	1.50	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.05	ft/ft
	Max. Bottom Slope:	0.14	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.32	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.82	feet
	Area:	0.20	ft2
	Perimeter:	1.41	feet
	Hydraulic Radius:	0.14	feet
	Velocity:	4.52	ft/sec
	Froude Number:	2.00	
Velocity Check	Depth (Max. Slope):	0.26	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.76	feet
	Area:	0.14	ft2
	Perimeter:	1.16	feet
	Hydraulic Radius:	0.12	feet
	Velocity:	6.64	ft/sec
	Froude Number:	3.25	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.05	ft/ft
Max. Bottom Slope:	0.14	ft/ft
Min. Channel Depth:	0.82	feet
Channel Top Width:	3.26	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DA-1))* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	0.90		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	5.0	%	
Max. Bottom Slope:	14.0	%	
Flow Depth (Min. S):	0.32		feet
Flow Depth (Max. S):	0.26		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.48	
Reynolds # for Smin	51,075	
U=(gRS)^0.5 for Smax	0.72	
Reynolds # for Smax	77,606	

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.065	
K for S max (See K vs. R Chart)	0.068	
F for S min	15.8	
F for S max	15.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax = Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.50	1.50	feet
T	0.98	2.27	lb/ft2
Nb	0.10	0.22	
Tmax	0.75	1.73	lb/ft2
Ns	0.08	0.17	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	4.39	9.35	degrees
Nsp	0.04	0.11	
SFb	6.39	2.62	
SFs	1.66	1.49	

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-1)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

Trapezoidal Channel Flow Calculations

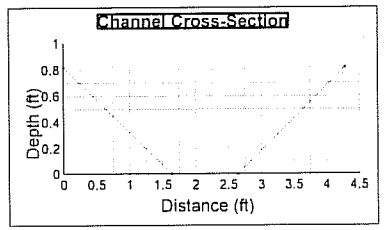
GENERAL CRITERIA:

	Design Flow:	1.00	cfs
	Bottom Width:	1.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.20	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.005	ft/ft
	Max. Bottom Slope:	0.005	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.32	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.82	feet
	Area:	0.53	ft2
	Perimeter:	2.43	feet
	Hydraulic Radius:	0.22	feet
	Velocity:	1.90	ft/sec
	Froude Number:	0.70	
Velocity Check	Depth (Max. Slope):	0.32	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.82	feet
	Area:	0.53	ft2
	Perimeter:	2.43	feet
	Hydraulic Radius:	0.22	feet
	Velocity:	1.90	ft/sec
	Froude Number:	0.70	

Channel Design Summary:

Bottom Width:	1.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.005	ft/ft
Max. Bottom Slope:	0.005	ft/ft
Min. Channel Depth:	0.82	feet
Channel Top Width:	4.28	feet



HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-1)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	1.00		cfs
Bottom Width:	1.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	0.5	%	
Max. Bottom Slope:	0.5	%	
Flow Depth (Min. S):	0.32		feet
Flow Depth (Max. S):	0.32		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.19
Reynolds # for Smin	2,666
U=(gRS)^0.5 for Smax	0.19
Reynolds # for Smax	2,666

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan(Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	0.20	0.20	feet
T	0.10	0.10	lb/ft2
Nb	0.08	0.08	
Tmax	0.08	0.08	lb/ft2
Ns	0.06	0.06	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	3.43	3.43	degrees
Nsp	0.03	0.03	
SFb	11.91	11.91	
SFs	1.70	1.70	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-2)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	2.90	cfs
	Bottom Width:	1.0	feet
	Side Slope1:	2.0	ml
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	1.50	

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

X:	1	
Input n Value when X=5:		
Calc (used) n Value:	0.020	
Min. Bottom Slope:	0.006	ft/ft
Max. Bottom Slope:	0.150	ft/ft
Freeboard:	0.5	feet

Depth Check

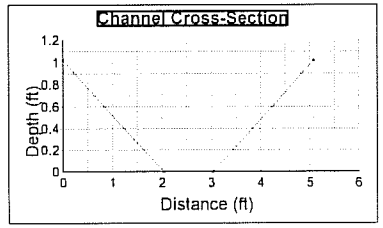
Depth (Min. Slope):	0.52	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	1.02	feet
Area:	1.06	ft2
Perimeter:	3.32	feet
Hydraulic Radius:	0.32	feet
Velocity:	2.75	ft/sec
Froude Number:	0.83	

Velocity Check

Depth (Max. Slope):	0.23	feet
Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
Required Depth:	0.73	feet
Area:	0.33	ft2
Perimeter:	2.02	feet
Hydraulic Radius:	0.17	feet
Velocity:	8.68	ft/sec
Froude Number:	3.66	

Channel Design Summary:

Bottom Width:	1.00	feet
Side Slope1:	2.00	1/ml
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.00625	ft/ft
Max. Bottom Slope:	0.15	ft/ft
Min. Channel Depth:	1.02	feet
Channel Top Width:	5.07	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-2)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	2.90		cfs
Bottom Width:	1.00		feet
Side Slope1:	2.00		1/ml
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	0.6	%	
Max. Bottom Slope:	15.0	%	
Flow Depth (Min. S):	0.52		feet
Flow Depth (Max. S):	0.23		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.25
Reynolds # for Smin	27,116
U=(gRS)^0.5 for Smax	0.89
Reynolds # for Smax	95,652

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.070	
F for S min	16.1	
F for S max	14.6	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.50	1.50	feet
T	0.20	2.14	lb/ft2
Nb	0.02	0.20	
Tmax	0.15	1.63	lb/ft2
Ns	0.02	0.15	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	0.93	8.55	degrees
Nsp	0.01	0.10	
SFb	35.63	2.68	
SFs	1.77	1.51	

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-3)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

Trapezoidal Channel Flow Calculations

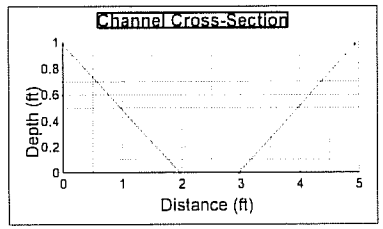
GENERAL CRITERIA:

	Design Flow:	2.90	cfs
	Bottom Width:	1.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.20	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.008	ft/ft
	Max. Bottom Slope:	0.008	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.48	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.98	feet
	Area:	0.95	ft2
	Perimeter:	3.16	feet
	Hydraulic Radius:	0.30	feet
	Velocity:	3.05	ft/sec
	Froude Number:	0.94	
Velocity Check	Depth (Max. Slope):	0.48	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.98	feet
	Area:	0.95	ft2
	Perimeter:	3.16	feet
	Hydraulic Radius:	0.30	feet
	Velocity:	3.05	ft/sec
	Froude Number:	0.94	

Channel Design Summary:

Bottom Width:	1.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.0083	ft/ft
Max. Bottom Slope:	0.0083	ft/ft
Min. Channel Depth:	0.98	feet
Channel Top Width:	4.93	feet



HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-3)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	2.90		cfs
Bottom Width:	1.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	0.8	%	
Max. Bottom Slope:	0.8	%	
Flow Depth (Min. S):	0.48		feet
Flow Depth (Max. S):	0.48		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		
Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity			
U=(gRS)^0.5 for Smin	0.28		
Reynolds # for Smin	4,051		
U=(gRS)^0.5 for Smax	0.28		
Reynolds # for Smax	4,051		
T = G*d*S where G=Unit weight of Water			
Nb = F*T/(G(SD-1)D50)			
F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500			
F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000			
F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger			
K for S min (See K vs. R Chart)	0.062		
K for S max (See K vs. R Chart)	0.062		
F for S min	16.1		
F for S max	16.1		
SFb = (Cos a tan b)/(sin a + Nb tan b)			
Tmax= Ks*G*d*S			
Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope			
Ks:	0.76		
Ns = F*Tmax/(G(SG-1)D)			
A = Atan(1/m)			
B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))			
Nsp = Ns(1+Sin(Ar+B)/2)			
SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))			

RIPRAP DESIGN:

	Smin	Smax	
D50	0.20	0.20	feet
T	0.25	0.25	lb/ft2
Nb	0.20	0.20	
Tmax	0.19	0.19	lb/ft2
Ns	0.15	0.15	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	8.53	8.53	degrees
Nsp	0.09	0.09	
SFb	4.87	4.87	
SFs	1.55	1.55	

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-4)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	1.00	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	ml
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	1.25	

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

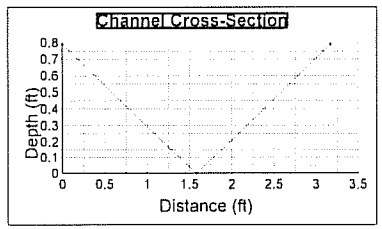
X:	1	
Input n Value when X=5:		
Calc (used) n Value:	0.020	
Min. Bottom Slope:	0.093	ft/ft
Max. Bottom Slope:	0.093	ft/ft
Freeboard:	0.5	feet

Depth Check			
	Depth (Min. Slope):	0.29	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.79	feet
	Area:	0.17	ft2
	Perimeter:	1.31	feet
	Hydraulic Radius:	0.13	feet
	Velocity:	5.86	ft/sec
	Froude Number:	2.70	

Velocity Check			
	Depth (Max. Slope):	0.29	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.79	feet
	Area:	0.17	ft2
	Perimeter:	1.31	feet
	Hydraulic Radius:	0.13	feet
	Velocity:	5.86	ft/sec
	Froude Number:	2.70	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.0932	ft/ft
Max. Bottom Slope:	0.0932	ft/ft
Min. Channel Depth:	0.79	feet
Channel Top Width:	3.17	feet



HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-4)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	1.00		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	9.3	%	
Max. Bottom Slope:	9.3	%	
Flow Depth (Min. S):	0.29		feet
Flow Depth (Max. S):	0.29		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.63
Reynolds # for Smin	55,912
U=(gRS)^0.5 for Smax	0.63
Reynolds # for Smax	55,912

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	15.7	
F for S max	15.7	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax = Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.25	1.25	feet
T	1.70	1.70	lb/ft2
Nb	0.21	0.21	
Tmax	1.29	1.29	lb/ft2
Ns	0.16	0.16	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	8.83	8.83	degrees
Nsp	0.10	0.10	
SFb	3.21	3.21	
SFs	1.52	1.52	

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-5)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	2.90	cfs
	Bottom Width:	1.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.20	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.008	ft/ft
	Max. Bottom Slope:	0.008	ft/ft
	Freeboard:	0.5	feet

Depth Check

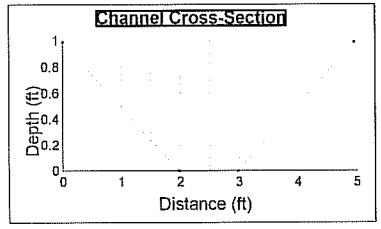
Depth (Min. Slope):	0.49	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	0.99	feet
Area:	0.96	ft2
Perimeter:	3.18	feet
Hydraulic Radius:	0.30	feet
Velocity:	3.01	ft/sec
Froude Number:	0.93	

Velocity Check

Depth (Max. Slope):	0.49	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	0.99	feet
Area:	0.96	ft2
Perimeter:	3.18	feet
Hydraulic Radius:	0.30	feet
Velocity:	3.01	ft/sec
Froude Number:	0.93	

Channel Design Summary:

Bottom Width:	1.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.008	ft/ft
Max. Bottom Slope:	0.008	ft/ft
Min. Channel Depth:	0.99	feet
Channel Top Width:	4.95	feet



HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-5)* | Chck'd
Project # *308.01.400* | Date *08-Jan-08*

DESIGN CRITERIA:

Design Flow:	2.90		cfs
Bottom Width:	1.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	0.8	%	
Max. Bottom Slope:	0.8	%	
Flow Depth (Min. S):	0.49		feet
Flow Depth (Max. S):	0.49		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.28
Reynolds # for Smin	3,992
U=(gRS)^0.5 for Smax	0.28
Reynolds # for Smax	3,992

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan(Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	0.20	0.20	feet
T	0.24	0.24	lb/ft2
Nb	0.19	0.19	
Tmax	0.19	0.19	lb/ft2
Ns	0.15	0.15	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	8.30	8.30	degrees
Nsp	0.08	0.08	
SFb	5.01	5.01	
SFs	1.56	1.56	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-6)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	3.50	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	2.25	

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.123	ft/ft
	Max. Bottom Slope:	0.123	ft/ft
	Freeboard:	0.5	feet

Depth Check

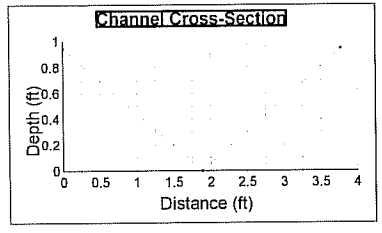
Depth (Min. Slope):	0.44	feet
Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
Required Depth:	0.94	feet
Area:	0.39	ft2
Perimeter:	1.99	feet
Hydraulic Radius:	0.20	feet
Velocity:	8.88	ft/sec
Froude Number:	3.32	

Velocity Check

Depth (Max. Slope):	0.44	feet
Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
Required Depth:	0.94	feet
Area:	0.39	ft2
Perimeter:	1.99	feet
Hydraulic Radius:	0.20	feet
Velocity:	8.88	ft/sec
Froude Number:	3.32	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.1225	ft/ft
Max. Bottom Slope:	0.1225	ft/ft
Min. Channel Depth:	0.94	feet
Channel Top Width:	3.78	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-6)* | Chck'd
Project # *308.01.400* | Date *08-Jan-08*

DESIGN CRITERIA:

Design Flow:	3.50		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	12.3	%	
Max. Bottom Slope:	12.3	%	
Flow Depth (Min. S):	0.44		feet
Flow Depth (Max. S):	0.44		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.89
Reynolds # for Smin	142,240
U=(gRS)^0.5 for Smax	0.89
Reynolds # for Smax	142,240

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062
K for S max (See K vs. R Chart)	0.062
F for S min	13.4
F for S max	13.4

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	2.25	2.25	feet
T	3.39	3.39	lb/ft2
Nb	0.20	0.20	
Tmax	2.58	2.58	lb/ft2
Ns	0.15	0.15	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	8.34	8.34	degrees
Nsp	0.09	0.09	
SFb	2.99	2.99	
SFs	1.53	1.53	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DD-1)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	0.20	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	ml
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.50	

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

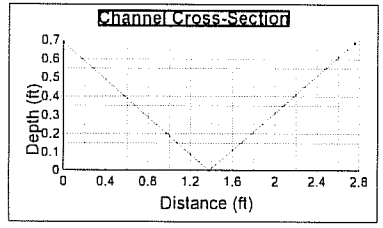
If X=5, n=input n value

X:	1	
Input n Value when X=5:		
Calc (used) n Value:	0.020	
Min. Bottom Slope:	0.038	ft/ft
Max. Bottom Slope:	0.038	ft/ft
Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.19	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.69	feet
	Area:	0.07	ft2
	Perimeter:	0.85	feet
	Hydraulic Radius:	0.08	feet
	Velocity:	2.80	ft/sec
	Froude Number:	1.60	
Velocity Check	Depth (Max. Slope):	0.19	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.69	feet
	Area:	0.07	ft2
	Perimeter:	0.85	feet
	Hydraulic Radius:	0.08	feet
	Velocity:	2.80	ft/sec
	Froude Number:	1.60	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.038	ft/ft
Max. Bottom Slope:	0.038	ft/ft
Min. Channel Depth:	0.69	feet
Channel Top Width:	2.76	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DD-1)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	0.20		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	3.8	%	
Max. Bottom Slope:	3.8	%	
Flow Depth (Min. S):	0.19		feet
Flow Depth (Max. S):	0.19		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.32
Reynolds # for Smin	11,487
U=(gRS)^0.5 for Smax	0.32
Reynolds # for Smax	11,487

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	0.50	0.50	feet
T	0.45	0.45	lb/ft2
Nb	0.14	0.14	
Tmax	0.34	0.34	lb/ft2
Ns	0.11	0.11	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	6.10	6.10	degrees
Nsp	0.06	0.06	
SFb	5.47	5.47	
SFs	1.61	1.61	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DD-2)* Chck'd
Project # *308.01.400* Date *26-Dec-07*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

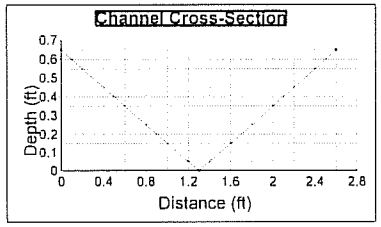
	Design Flow:	0.20	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	1.00	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.130	ft/ft
	Max. Bottom Slope:	0.130	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.15	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.65	feet
	Area:	0.05	ft2
	Perimeter:	0.67	feet
	Hydraulic Radius:	0.07	feet
	Velocity:	4.44	ft/sec
	Froude Number:	2.85	

Velocity Check	Depth (Max. Slope):	0.15	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.65	feet
	Area:	0.05	ft2
	Perimeter:	0.67	feet
	Hydraulic Radius:	0.07	feet
	Velocity:	4.44	ft/sec
	Froude Number:	2.85	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.13	ft/ft
Max. Bottom Slope:	0.13	ft/ft
Min. Channel Depth:	0.65	feet
Channel Top Width:	2.60	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet *of*
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DD-2)* Chck'd
Project # *308.01.400* Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	0.20		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	13.0	%	
Max. Bottom Slope:	13.0	%	
Flow Depth (Min. S):	0.15		feet
Flow Depth (Max. S):	0.15		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.53
Reynolds # for Smin	37,866
U=(gRS)^0.5 for Smax	0.53
Reynolds # for Smax	37,866

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500
F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000
F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.063	
K for S max (See K vs. R Chart)	0.063	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.00	1.00	feet
T	1.22	1.22	lb/ft2
Nb	0.19	0.19	
Tmax	0.93	0.93	lb/ft2
Ns	0.14	0.14	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	8.08	8.08	degrees
Nsp	0.09	0.09	
SFb	2.96	2.96	
SFs	1.53	1.53	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DD-3)* Chck'd
Project # *308.01.400* Date *26-Dec-07*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	0.30	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.50	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.038	ft/ft
	Max. Bottom Slope:	0.038	ft/ft
	Freeboard:	0.5	feet

Depth Check

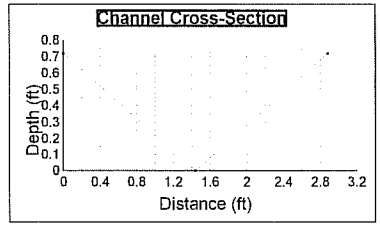
	Depth (Min. Slope):	0.22	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.72	feet
	Area:	0.10	ft2
	Perimeter:	0.98	feet
	Hydraulic Radius:	0.10	feet
	Velocity:	3.10	ft/sec
	Froude Number:	1.64	

Velocity Check

	Depth (Max. Slope):	0.22	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.72	feet
	Area:	0.10	ft2
	Perimeter:	0.98	feet
	Hydraulic Radius:	0.10	feet
	Velocity:	3.10	ft/sec
	Froude Number:	1.64	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.038	ft/ft
Max. Bottom Slope:	0.038	ft/ft
Min. Channel Depth:	0.72	feet
Channel Top Width:	2.88	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet *of*
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DD-3)* Chck'd
Project # *308.01.400* Date *08-Jan-08*

DESIGN CRITERIA:

Design Flow:	0.30		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	3.8	%	
Max. Bottom Slope:	3.8	%	
Flow Depth (Min. S):	0.22		feet
Flow Depth (Max. S):	0.22		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.35	
Reynolds # for Smin	12,395	
U=(gRS)^0.5 for Smax	0.35	
Reynolds # for Smax	12,395	

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	0.50	0.50	feet
T	0.52	0.52	lb/ft2
Nb	0.16	0.16	
Tmax	0.40	0.40	lb/ft2
Ns	0.12	0.12	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	7.09	7.09	degrees
Nsp	0.07	0.07	
SFb	4.86	4.86	
SFs	1.58	1.58	

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DE-1)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

Trapezoidal Channel Flow Calculations

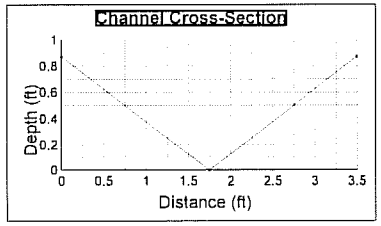
GENERAL CRITERIA:

	Design Flow:	0.60	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	ml
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.20	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt, et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.009	ft/ft
	Max. Bottom Slope:	0.009	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.37	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.87	feet
	Area:	0.28	ft2
	Perimeter:	1.67	feet
	Hydraulic Radius:	0.17	feet
	Velocity:	2.15	ft/sec
	Froude Number:	0.87	
Velocity Check	Depth (Max. Slope):	0.37	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.87	feet
	Area:	0.28	ft2
	Perimeter:	1.67	feet
	Hydraulic Radius:	0.17	feet
	Velocity:	2.15	ft/sec
	Froude Number:	0.87	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.009	ft/ft
Max. Bottom Slope:	0.009	ft/ft
Min. Channel Depth:	0.87	feet
Channel Top Width:	3.50	feet



HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DE-1)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

	Design Flow:	0.60	cfs
	Bottom Width:	0.00	feet
	Side Slope1:	2.00	1/m1
	Side Slope2:	2.00	1/m2
	Friction Factor:	0.02	
	Min. Bottom Slope:	0.9	%
	Max. Bottom Slope:	0.9	%
	Flow Depth (Min. S):	0.37	feet
	Flow Depth (Max. S):	0.37	feet
	Angle Repose (Ar):	42.0	degrees
	Specific Gravity	2.65	
	Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity		
	U=(gRS)^0.5 for Smin	0.22	
	Reynolds # for Smin	3,145	
	U=(gRS)^0.5 for Smax	0.22	
	Reynolds # for Smax	3,145	
	T = G*d*S where G=Unit weight of Water		
	Nb = F*T/(G(SD-1)D50)		
	F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500		
	F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000		
	F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger		
	K for S min (See K vs. R Chart)	0.062	
	K for S max (See K vs. R Chart)	0.062	
	F for S min	16.1	
	F for S max	16.1	
	SFb = (Cos a tan b)/(sin a + Nb tan b)		
	Tmax= Ks*G*d*S		
	Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope		
	Ks:	0.76	
	Ns = F*Tmax/(G(SG-1)D)		
	A = Atan(1/m)		
	B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))		
	Nsp = Ns(1+Sin(Ar+B)/2)		
	SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))		

RIPRAP DESIGN:

	Smin	Smax	
D50	0.20	0.20	feet
T	0.21	0.21	lb/ft2
Nb	0.16	0.16	
Tmax	0.16	0.16	lb/ft2
Ns	0.13	0.13	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	7.16	7.16	degrees
Nsp	0.07	0.07	
SFb	5.73	5.73	
SFs	1.59	1.59	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DE-2)* Chck'd
Project # *308.01.400* Date *02-Jan-08*

Trapezoidal Channel Flow Calculations

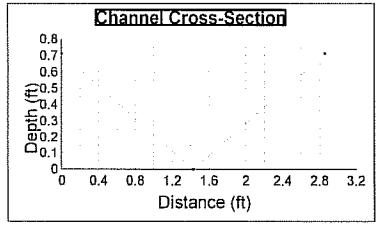
GENERAL CRITERIA:

	Design Flow:	0.20	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.25	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.020	ft/ft
	Max. Bottom Slope:	0.020	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.21	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.71	feet
	Area:	0.09	ft2
	Perimeter:	0.96	feet
	Hydraulic Radius:	0.10	feet
	Velocity:	2.18	ft/sec
	Froude Number:	1.18	
Velocity Check	Depth (Max. Slope):	0.21	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.71	feet
	Area:	0.09	ft2
	Perimeter:	0.96	feet
	Hydraulic Radius:	0.10	feet
	Velocity:	2.18	ft/sec
	Froude Number:	1.18	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.01961	ft/ft
Max. Bottom Slope:	0.01961	ft/ft
Min. Channel Depth:	0.71	feet
Channel Top Width:	2.86	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet *of*
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DE-2)* Chck'd
Project # *308.01.400* Date *08-Jan-08*

DESIGN CRITERIA:

Design Flow:	0.20		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	2.0	%	
Max. Bottom Slope:	2.0	%	
Flow Depth (Min. S):	0.21		feet
Flow Depth (Max. S):	0.21		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.25
Reynolds # for Smin	4,390
U=(gRS)^0.5 for Smax	0.25
Reynolds # for Smax	4,390

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062
K for S max (See K vs. R Chart)	0.062
F for S min	16.1
F for S max	16.1

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	0.25	0.25	feet
T	0.26	0.26	lb/ft2
Nb	0.16	0.16	
Tmax	0.20	0.20	lb/ft2
Ns	0.12	0.12	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	7.14	7.14	degrees
Nsp	0.07	0.07	
SFb	5.38	5.38	
SFs	1.59	1.59	

HANSEN ALLEN & LUCE inc
ENGINEERS

Client: Carbon Resources | Sheet:
Project: Kinney Mine Hydrology | Comp.: TDS
Feature: West Side Ditch Design (DE-3) | Chck'd:
Project #: 308.01.400 | Date: 20-Dec-07

Trapezoidal Channel Flow Calculations

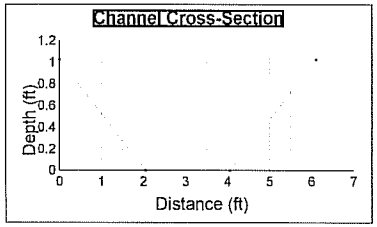
GENERAL CRITERIA:

	Design Flow:	4.10	cfs
	Bottom Width:	2.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.25	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	5	
	Input n Value when X=5:		
	Calc (used) n Value:	0.030	
	Min. Bottom Slope:	0.01	ft/ft
	Max. Bottom Slope:	0.01	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.53	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	1.03	feet
	Area:	1.61	ft2
	Perimeter:	4.35	feet
	Hydraulic Radius:	0.37	feet
	Velocity:	2.55	ft/sec
	Froude Number:	0.72	
Velocity Check	Depth (Max. Slope):	0.53	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	1.03	feet
	Area:	1.61	ft2
	Perimeter:	4.35	feet
	Hydraulic Radius:	0.37	feet
	Velocity:	2.55	ft/sec
	Froude Number:	0.72	

Channel Design Summary:

Bottom Width:	2.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.01	ft/ft
Max. Bottom Slope:	0.01	ft/ft
Min. Channel Depth:	1.03	feet
Channel Top Width:	6.10	feet



HANSEN ALLEN & LUCE inc
ENGINEERS

Client: Carbon Resources | Sheet: of
Project: Kinney Mine Hydrology | Comp.: TDS
Feature: West Side Ditch Design (DE-3) | Chck'd:
Project #: 308.01.400 | Date: 08-Jan-08

DESIGN CRITERIA:

Design Flow:	4.10		cfs
Bottom Width:	2.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.03		
Min. Bottom Slope:	1.0	%	
Max. Bottom Slope:	1.0	%	
Flow Depth (Min. S):	0.53		feet
Flow Depth (Max. S):	0.53		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		
Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity			
U=(gRS)^0.5 for Smin	0.34		
Reynolds # for Smin	6,154		
U=(gRS)^0.5 for Smax	0.34		
Reynolds # for Smax	6,154		
T = G*d*S where G=Unit weight of Water			
Nb = F*T/(G(SD-1)D50)			
F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500			
F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000			
F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger			
K for S min (See K vs. R Chart)	0.062		
K for S max (See K vs. R Chart)	0.062		
F for S min	16.1		
F for S max	16.1		
SFb = (Cos a tan b)/(sin a + Nb tan b)			
Tmax= Ks*G*d*S			
Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope			
Ks:	0.76		
Ns = F*Tmax/(G(SG-1)D)			
A = Atan(1/m)			
B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))			
Nsp = Ns(1+Sin(Ar+B)/2)			
SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))			

RIPRAP DESIGN:

	0.2	Smax	
D50	0.25	0.25	feet
T	0.33	0.33	lb/ft2
Nb	0.21	0.21	
Tmax	0.25	0.25	lb/ft2
Ns	0.16	0.16	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	8.93	8.93	degrees
Nsp	0.09	0.09	
SFb	4.61	4.61	
SFs	1.54	1.54	

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *West Side Ditch Design (DE-4)* | Chck'd
Project # *308.01.400* | Date *20-Dec-07*

Trapezoidal Channel Flow Calculations

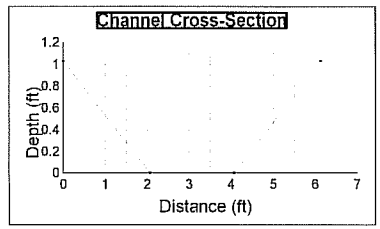
GENERAL CRITERIA:

	Design Flow:	4.20	cfs
	Bottom Width:	2.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.25	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	5	
	Input n Value when X=5:		
	Calc (used) n Value:	0.030	
	Min. Bottom Slope:	0.01	ft/ft
	Max. Bottom Slope:	0.01	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.53	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	1.03	feet
	Area:	1.63	ft2
	Perimeter:	4.38	feet
	Hydraulic Radius:	0.37	feet
	Velocity:	2.57	ft/sec
	Froude Number:	0.72	
Velocity Check	Depth (Max. Slope):	0.53	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	1.03	feet
	Area:	1.63	ft2
	Perimeter:	4.38	feet
	Hydraulic Radius:	0.37	feet
	Velocity:	2.57	ft/sec
	Froude Number:	0.72	

Channel Design Summary:

Bottom Width:	2.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.01	ft/ft
Max. Bottom Slope:	0.01	ft/ft
Min. Channel Depth:	1.03	feet
Channel Top Width:	6.13	feet



HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *West Side Ditch Design (DE-4)* | Chck'd
Project # *308.01.400* | Date *08-Jan-08*

DESIGN CRITERIA:

Design Flow:	4.20		cfs
Bottom Width:	2.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.03		
Min. Bottom Slope:	1.0	%	
Max. Bottom Slope:	1.0	%	
Flow Depth (Min. S):	0.53		feet
Flow Depth (Max. S):	0.53		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		
Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity			
U=(gRS)^0.5 for Smin	0.35		
Reynolds # for Smin	6,186		
U=(gRS)^0.5 for Smax	0.35		
Reynolds # for Smax	6,186		

T = G*d*S where G=Unit weight of Water
Nb = F*T/(G(SD-1)D50)
F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500
F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000
F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)
Tmax= Ks*G*d*S
Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)
A = Atan(1/m)
B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))
Nsp = Ns(1+Sin(Ar+B)/2)
SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	0.2	Smax	
D50	0.25	0.25	feet
T	0.33	0.33	lb/ft2
Nb	0.21	0.21	
Tmax	0.25	0.25	lb/ft2
Ns	0.16	0.16	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	9.04	9.04	degrees
Nsp	0.09	0.09	
SFb	4.56	4.56	
SFs	1.53	1.53	

HANSEN ALLEN & LUCE INC ENGINEERS

Client Carbon Resources | Sheet
Project Kinney Mine Hydrology | Comp. TDS
Feature Ditch Design (DF-1)) | Chck'd
Project # 308.01.400 | Date 26-Dec-07

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

Design Flow:	0.40	cfs
Bottom Width:	0.0	feet
Side Slope1:	2.0	ml
Side Slope2:	2.0	m2
Friction Factor:		
Assumed D50:	1.25	

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

X:	1	
Input n Value when X=5:		
Calc (used) n Value:	0.020	
Min. Bottom Slope:	0.033	ft/ft
Max. Bottom Slope:	0.143	ft/ft
Freeboard:	0.5	feet

Depth Check

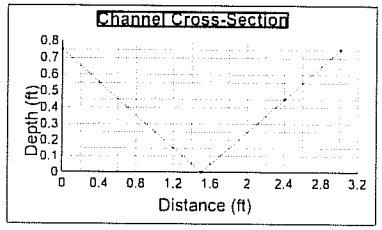
Depth (Min. Slope):	0.25	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	0.75	feet
Area:	0.13	ft2
Perimeter:	1.13	feet
Hydraulic Radius:	0.11	feet
Velocity:	3.16	ft/sec
Froude Number:	1.57	

Velocity Check

Depth (Max. Slope):	0.19	feet
Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
Required Depth:	0.69	feet
Area:	0.07	ft2
Perimeter:	0.86	feet
Hydraulic Radius:	0.09	feet
Velocity:	5.47	ft/sec
Froude Number:	3.12	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.033	ft/ft
Max. Bottom Slope:	0.143	ft/ft
Min. Channel Depth:	0.75	feet
Channel Top Width:	3.01	feet



HANSEN ALLEN & LUCE INC ENGINEERS

Client Carbon Resources | Sheet of
Project Kinney Mine Hydrology | Comp. TDS
Feature Ditch Design (DF-1)) | Chck'd
Project # 308.01.400 | Date 03-Jan-08

DESIGN CRITERIA:

Design Flow:	0.40	cfs
Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Friction Factor:	0.02	
Min. Bottom Slope:	3.3	%
Max. Bottom Slope:	14.3	%
Flow Depth (Min. S):	0.25	feet
Flow Depth (Max. S):	0.19	feet
Angle Repose (Ar):	42.0	degrees
Specific Gravity	2.65	

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.35
Reynolds # for Smin	30,883
U=(gRS)^0.5 for Smax	0.63
Reynolds # for Smax	56,029

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.063	
K for S max (See K vs. R Chart)	0.063	
F for S min	16.1	
F for S max	15.7	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.25	1.25	feet
T	0.52	1.71	lb/ft2
Nb	0.06	0.21	
Tmax	0.39	1.30	lb/ft2
Ns	0.05	0.16	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	2.84	8.75	degrees
Nsp	0.03	0.10	
SFb	9.83	2.70	
SFs	1.71	1.51	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-2)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

Trapezoidal Channel Flow Calculations

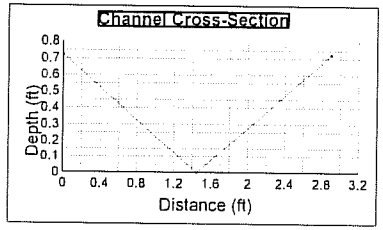
GENERAL CRITERIA:

	Design Flow:	0.40	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	ml
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.75	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.061	ft/ft
	Max. Bottom Slope:	0.061	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.22	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.72	feet
	Area:	0.10	ft2
	Perimeter:	1.00	feet
	Hydraulic Radius:	0.10	feet
	Velocity:	3.97	ft/sec
	Froude Number:	2.09	
Velocity Check	Depth (Max. Slope):	0.22	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.72	feet
	Area:	0.10	ft2
	Perimeter:	1.00	feet
	Hydraulic Radius:	0.10	feet
	Velocity:	3.97	ft/sec
	Froude Number:	2.09	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.061	ft/ft
Max. Bottom Slope:	0.061	ft/ft
Min. Channel Depth:	0.72	feet
Channel Top Width:	2.90	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-2)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	0.40		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	6.1	%	
Max. Bottom Slope:	6.1	%	
Flow Depth (Min. S):	0.22		feet
Flow Depth (Max. S):	0.22		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.44
Reynolds # for Smin	23,786
U=(gRS)^0.5 for Smax	0.44
Reynolds # for Smax	23,786

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax = Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	0.75	0.75	feet
T	0.85	0.85	lb/ft2
Nb	0.18	0.18	
Tmax	0.65	0.65	lb/ft2
Ns	0.14	0.14	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	7.69	7.69	degrees
Nsp	0.08	0.08	
SFb	4.05	4.05	
SFs	1.56	1.56	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-3)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

Design Flow:	1.30	cfs
Bottom Width:	0.0	feet
Side Slope1:	2.0	m1
Side Slope2:	2.0	m2
Friction Factor:		
Assumed D50:	1.50	

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

X:	1	
Input n Value when X=5:		
Calc (used) n Value:	0.020	
Min. Bottom Slope:	0.100	ft/ft
Max. Bottom Slope:	0.100	ft/ft
Freeboard:	0.5	feet

Depth Check

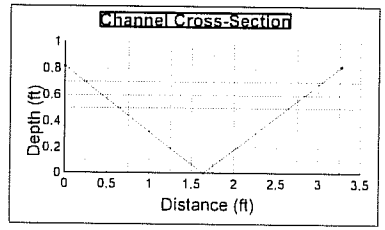
Depth (Min. Slope):	0.32	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	0.82	feet
Area:	0.20	ft2
Perimeter:	1.42	feet
Hydraulic Radius:	0.14	feet
Velocity:	6.42	ft/sec
Froude Number:	2.84	

Velocity Check

Depth (Max. Slope):	0.32	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	0.82	feet
Area:	0.20	ft2
Perimeter:	1.42	feet
Hydraulic Radius:	0.14	feet
Velocity:	6.42	ft/sec
Froude Number:	2.84	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.1	ft/ft
Max. Bottom Slope:	0.1	ft/ft
Min. Channel Depth:	0.82	feet
Channel Top Width:	3.27	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-3)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	1.30	cfs
Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Friction Factor:	0.02	
Min. Bottom Slope:	10.0	%
Max. Bottom Slope:	10.0	%
Flow Depth (Min. S):	0.32	feet
Flow Depth (Max. S):	0.32	feet
Angle Repose (Ar):	42.0	degrees
Specific Gravity	2.65	

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.68
Reynolds # for Smin	72,524
U=(gRS)^0.5 for Smax	0.68
Reynolds # for Smax	72,524

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.063	
K for S max (See K vs. R Chart)	0.063	
F for S min	15.2	
F for S max	15.2	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.50	1.50	feet
T	1.99	1.99	lb/ft2
Nb	0.20	0.20	
Tmax	1.51	1.51	lb/ft2
Ns	0.15	0.15	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	8.36	8.36	degrees
Nsp	0.09	0.09	
SFb	3.24	3.24	
SFs	1.53	1.53	

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-4)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

Design Flow:	1.70	cfs
Bottom Width:	0.0	feet
Side Slope1:	2.0	m1
Side Slope2:	2.0	m2
Friction Factor:		
Assumed D50:	1.00	

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

X:	1	
Input n Value when X=5:		
Calc (used) n Value:	0.020	
Min. Bottom Slope:	0.057	ft/ft
Max. Bottom Slope:	0.057	ft/ft
Freeboard:	0.5	feet

Depth Check

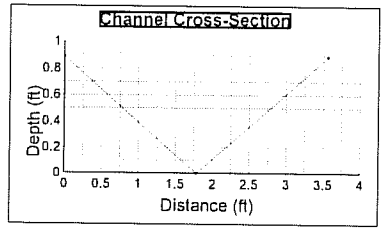
Depth (Min. Slope):	0.39	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	0.89	feet
Area:	0.31	ft2
Perimeter:	1.75	feet
Hydraulic Radius:	0.17	feet
Velocity:	5.56	ft/sec
Froude Number:	2.22	

Velocity Check

Depth (Max. Slope):	0.39	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	0.89	feet
Area:	0.31	ft2
Perimeter:	1.75	feet
Hydraulic Radius:	0.17	feet
Velocity:	5.56	ft/sec
Froude Number:	2.22	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.057	ft/ft
Max. Bottom Slope:	0.057	ft/ft
Min. Channel Depth:	0.89	feet
Channel Top Width:	3.56	feet



HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-4)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

DESIGN CRITERIA:

Design Flow:	1.70	cfs
Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Friction Factor:	0.02	
Min. Bottom Slope:	5.7	%
Max. Bottom Slope:	5.7	%
Flow Depth (Min. S):	0.39	feet
Flow Depth (Max. S):	0.39	feet
Angle Repose (Ar):	42.0	degrees
Specific Gravity	2.65	

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.57
Reynolds # for Smin	40,463
U=(gRS)^0.5 for Smax	0.57
Reynolds # for Smax	40,463

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.063	
K for S max (See K vs. R Chart)	0.063	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.00	1.00	feet
T	1.39	1.39	lb/ft2
Nb	0.22	0.22	
Tmax	1.06	1.06	lb/ft2
Ns	0.17	0.17	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	9.33	9.33	degrees
Nsp	0.10	0.10	
SFb	3.56	3.56	
SFs	1.51	1.51	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DF-5)* Chck'd
Project # *308.01.400* Date *26-Dec-07*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	1.70	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	1.00	

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*|2.25+5.23*LOG(R/D50)|}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

X:	1	
Input n Value when X=5:		
Calc (used) n Value:	0.020	
Min. Bottom Slope:	0.057	ft/ft
Max. Bottom Slope:	0.057	ft/ft
Freeboard:	0.5	feet

Depth Check

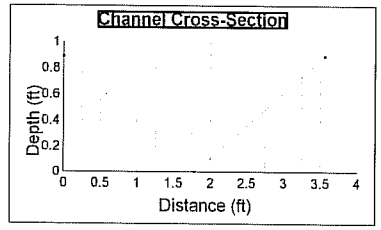
Depth (Min. Slope):	0.39	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	0.89	feet
Area:	0.31	ft2
Perimeter:	1.75	feet
Hydraulic Radius:	0.17	feet
Velocity:	5.56	ft/sec
Froude Number:	2.22	

Velocity Check

Depth (Max. Slope):	0.39	feet
Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
Required Depth:	0.89	feet
Area:	0.31	ft2
Perimeter:	1.75	feet
Hydraulic Radius:	0.17	feet
Velocity:	5.56	ft/sec
Froude Number:	2.22	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.057	ft/ft
Max. Bottom Slope:	0.057	ft/ft
Min. Channel Depth:	0.89	feet
Channel Top Width:	3.56	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet *of*
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DF-5)* Chck'd
Project # *308.01.400* Date *08-Jan-08*

DESIGN CRITERIA:

Design Flow:	1.70		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	5.7	%	
Max. Bottom Slope:	5.7	%	
Flow Depth (Min. S):	0.39		feet
Flow Depth (Max. S):	0.39		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.57
Reynolds # for Smin	40,463
U=(gRS)^0.5 for Smax	0.57
Reynolds # for Smax	40,463

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.063	
K for S max (See K vs. R Chart)	0.063	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan(Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.00	1.00	feet
T	1.39	1.39	lb/ft2
Nb	0.22	0.22	
Tmax	1.06	1.06	lb/ft2
Ns	0.17	0.17	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	9.33	9.33	degrees
Nsp	0.10	0.10	
SFb	3.56	3.56	
SFs	1.51	1.51	

d	=	Depth of flow;
S	=	Channel slope in feet per feet;
SG	=	Specific gravity of rock, and
D_{50}	=	Mean riprap size, in feet.

An analysis of side slope stability was completed by applying equations 784.14-12 through 784.14-14.

$$SF = \frac{\cos \alpha \tan \phi}{\eta' \tan \phi + \sin \alpha \cos \beta} \qquad (742.312\text{-}12)$$

$$\beta = \arctan \left(\frac{\cos \theta}{\frac{2 \sin \alpha}{\eta \tan \phi} + \sin \theta} \right) \qquad (742.312\text{-}13)$$

$$\eta' = C \eta \left(\frac{1 + \sin (\theta + \beta)}{2} \right) \qquad (742.312\text{-}14)$$

where

α	=	Tan^{-1} (1/sideslope); and
C	=	0.76 for 2H:1V sideslopes
	=	0.86 for 3H:1V sideslopes.

Sideslope is defined as the number of feet horizontal per foot vertical of the channel embankments. All other variables are as previously defined.

Once mean riprap size is determined, a riprap gradation and thickness must be determined. Table 742.312a, Recommended Riprap Gradation Limits, shows the recommended gradation for both mild and steep channel conditions. In some cases, grout was used in riprapped sections to increase channel stability and/or reduce riprap size.

Conveyor Lining. A second type of channel lining utilized consists of overlapped conveyor belt material. This lining was installed in excavated channels in short pieces so that the upstream belt material overlapped the downstream piece thereby preventing water from washing beneath the downstream liner. Each section of channel lining was secured with wire and rebar anchors. The locations of lined channel sections are shown on Maps 731.720a through 731.720c.

TABLE 742.312a
Recommended Riprap Gradation Limits

DESIGN RATIO	STEEP SLOPE	MILD SLOPE
$\frac{D_{max}}{D_{50}}$	1.25	2
$\frac{D_{50}}{D_{10-20}}$	2-3	2-3

From "Surface Mining Water Diversion Design Manual", 1982

Half Round CMP Pipe. In other locations such as around Ponds 4 and 6, half round CMP pipe has been placed to provide the required erosion protection. CMP pipe has also been used in steep areas where channel flow is infeasible but yet the water must be conveyed down a hillside. Examples of such areas are noted near the upper mine portals and along the roadway leading to the upper mine offices located on the Lion Deck.

Ditch sections requiring erosion protection are shown on Maps 731.720a through 731.720c. Areas downstream from culvert installations requiring similar protection are shown on Maps 731.720d through 731.720f. Specific mention should be made with regard to the design of erosion protection at some of the locations shown on the maps. Current riprap design methodologies do not allow for the design of erosion protection on extremely steep slopes using such materials as rock riprap. In some locations, however, such as at Culverts 57A through 60A (as well as at other locations within the mine permit area), consideration must be given to the fact that local drainage must be transferred down a steep hillside or stream channel. At such locations, procedures are not available for designing riprap erosion protection and, therefore, calculations under such conditions have not been, nor can they be made.

An effort has been made by CPMC to reduce or eliminate the potential for serious erosion at these locations by placing culvert exits onto existing or man-made rock rubble piles, or onto rock ledges which act as energy dissipation devices and effectively reduce downstream erosion. CPMC will continue to monitor culvert outfalls at these locations and thereby determine the efficiency of the rock rubble piles and what additional action, if any, should or can be taken.

Conditions related to lining of individual ditches are shown on Maps 731.720a through 731.720c. Conditions related to culvert outfall linings are shown on Maps 731.720d through 731.720f. Channel and Culvert riprap calculations are presented in Exhibit 742.312a, Riprap Calculations.

Culvert Design.

Following the determination of a given peak watershed discharge, design sizes for culverts were calculated as part of the runoff diversion and conveyance facilities. Flow capacity calculations were made

In the design of riprap-lined channels, National Cooperative Highway Research Program Report No. 108, "Tentative Design Procedure for Riprap-Lined Channels"[10] details the procedure for determining a design stone size such that the stone is stable under the design flow conditions with a reasonable factor of safety. The design stone size used is the d_{50}, or median stone diameter, defined as that stone size which is exceeded in weight by 50 percent of the mixture.

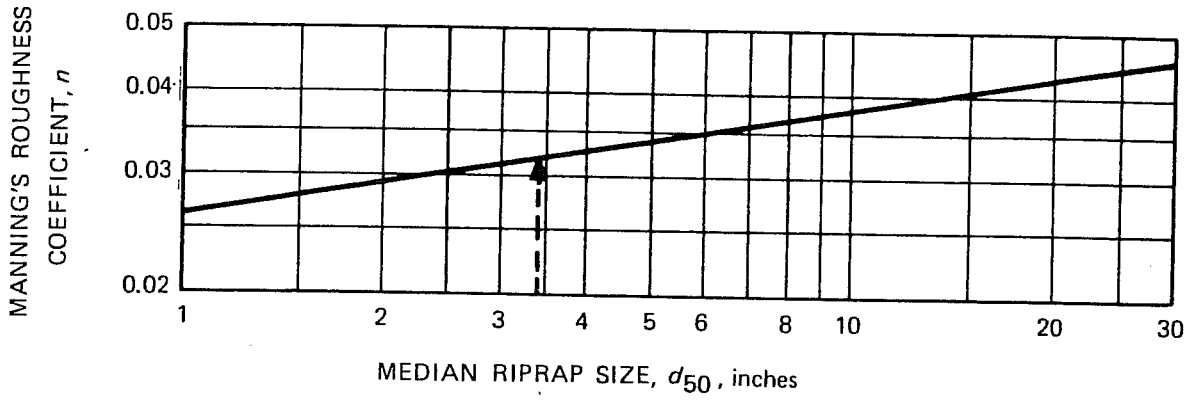


Figure I-17. Manning's n for riprap-lined channels.[1]

Erosive forces of flowing water are greater in bends than in straight channels. Therefore, riprap size for bends and straights in the channel must be computed. If the riprap size (d_{50}) computed for bends is less than 10 percent greater than the riprap size for straight channels, then the riprap size for straight channels shall be considered to be of adequate size; otherwise, the larger riprap size shall be used in the bend. This is done in order to minimize the number of riprap sizes required. No more than two riprap sizes should be used on any single contract, in order to minimize construction problems caused by too many sizes. The riprap size to be used in a bend shall extend upstream from the point of curvature, and downstream from the point of tangency a distance equal to five times the channel bottom width (length = 5 b). This riprap size shall extend across the bottom and up both sides of the channel.

Riprap

The riprap shall be composed of a well-graded mixture down to the 1-inch size particle, such that 50 percent of the mixture by weight shall be larger than the d_{50} size. A well-graded mixture is defined as a mixture composed primarily of the larger stone sizes but with a sufficient mixture of other sizes to fill the progressively-smaller voids between the stones. The diameter of the largest stone size in such a mixture shall be considered to be 1.5 times the d_{50} size. The riprap size as shown on the plans and specifications or for other construction purposes shall be the size of the largest stone in the mixture, i.e., 1.5 x d_{50}. The minimum thickness of the riprap layer shall be 1.5 times the maximum stone diameter but not less than 6 inches. The riprap shall extend up the banks to a height equal to maximum depth of flow or to a point where vegetation can be established to adequately protect the channel.

Ref: "Erosion and Sediment Control
Surface Mining in the Eastern U.S"
EPA Technology Transfer Seminar Publication
October 1976

In channels where there is no riprap or paving in the bottom, the toe of the bank riprap shall extend below the channel bottom a distance at least 1.5 times the maximum stone size, but in no case less than 1 foot. The only exception to this would be in the event that there is a non-erodible hard rock bottom. The channel bank shall not be steeper than 2.0 horizontal to 1.0 vertical.

After determining the riprap size that will be stable under the flow conditions, the designer shall consider that size to be a minimum size and then, based on riprap graduations actually available in the area, shall select the size or sizes that equal or exceed the minimum size. The possibility of damage by children shall be considered in selecting a riprap size, especially if there is nearby water to to toss the stones into.

Filter

A filter is a layer of material placed between the riprap and the underlying soil surface to prevent soil movement into and through the riprap.

Riprap shall have a filter placed under it when either of the following conditions exist:

1. The riprap is not well graded down to the 1-inch size particle.

2. Riprap is placed on the side slopes of a channel and the soil is sand-size or finer with a plasticity index, *PI*, less than 10. This requirement applies to slopes having this soil in lenses or layers greater than 3 inches in thickness.

A filter can be of two general forms. One is a single layer of plastic filter cloth manufactured for that express purpose. The plastic filter cloth shall be woven of polypropylene monofilament yarns and shall be equivalent to "Poly-Filter X" as manufactured by Carthage Mills, Inc., Cincinnati, Ohio. Another is a properly graded layer of sand, gravel, or stone.

The criteria for the design of an aggregate filter are as follows:

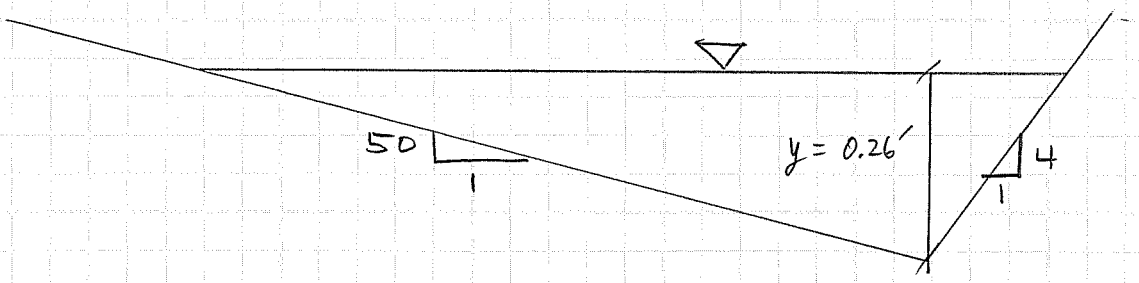
$$\frac{d_{15}\ \text{Riprap}}{d_{85}\ \text{Filter}} \leqslant 5 \qquad \frac{d_{15}\ \text{Filter}}{d_{85}\ \text{Base}} \leqslant 5$$

in which d_{15} or d_{85} is the size of base, filter or riprap material. In these equations, 15 and 85 percent, respectively, are finer. The base is the soil layer underneath the filter. The filter shall be graded down to sand-size particles. Riprap 12 inches and larger shall not be dumped directly onto the plastic filter cloth, since it may tear or displace the filter cloth. Instead, a 4-inch-minimum thickness blanket of gravel shall be placed over the filter cloth or the riprap shall be placed directly on the filter cloth by hand or by the bucket of the equipment. Side slopes shall be 2:1 or flatter to prevent the gravel from sliding down the filter cloth before placing the riprap.

Soil Size Classification

Soil sizes given herein are according to the Unified Soil Classification System as shown on the following page.

Road / Ditch design to contain 100 yr 6hr discharge of 9.4 cfs.



Road w/ these minimum dimensions will pass the 100yr 6hr event of 9.4 cfs.

Client	*Carbon Resources*	Sheet	
Project	*Kinney Mine Hydrology*	Comp.	*TDS*
Feature	*Ditch Design (UDD-1)*	Chck'd	
Project #	*308.01.400*	Date	*06-Jul-07*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

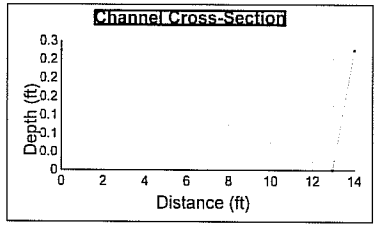
	Design Flow:	9.40	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	50.0	m1
	Side Slope2:	4.0	m2
	Friction Factor:		
	Assumed D50:	0.1	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	5	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.07	ft/ft
	Max. Bottom Slope:	0.07	ft/ft
	Freeboard:	0.0	feet

Depth Check	Depth (Min. Slope):	0.26	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.26	feet
	Area:	1.81	ft2
	Perimeter:	14.03	feet
	Hydraulic Radius:	0.13	feet
	Velocity:	5.18	ft/sec
	Froude Number:	2.54	

Velocity Check	Depth (Max. Slope):	0.26	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.26	feet
	Area:	1.81	ft2
	Perimeter:	14.03	feet
	Hydraulic Radius:	0.13	feet
	Velocity:	5.18	ft/sec
	Froude Number:	2.54	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	50.00	1/m1
Side Slope2:	4.00	1/m2
Min. Bottom Slope:	0.074	ft/ft
Max. Bottom Slope:	0.074	ft/ft
Min. Channel Depth:	0.26	feet
Channel Top Width:	14.00	feet



Client	*Carbon Resources*	Sheet	*of*
Project	*Kinney Mine Hydrology*	Comp.	*TDS*
Feature	*Ditch Design (UDD-1)*	Chck'd	
Project #	*308.01.400*	Date	*06-Aug-07*

DESIGN CRITERIA:

Design Flow:	9.40		cfs
Bottom Width:	0.00		feet
Side Slope1:	50.00		1/m1
Side Slope2:	4.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	7.4	%	
Max. Bottom Slope:	7.4	%	
Flow Depth (Min. S):	0.26		feet
Flow Depth (Max. S):	0.26		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		
Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity			
U=(gRS)^0.5 for Smin	0.56		
Reynolds # for Smin	3,964		
U=(gRS)^0.5 for Smax	0.56		
Reynolds # for Smax	3,964		

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	0.10	0.10	feet
T	1.20	1.20	lb/ft2
Nb	1.87	1.87	
Tmax	0.91	0.91	lb/ft2
Ns	1.42	1.42	
m Critical	4.00	4.00	
A (m crit)	14.04	14.04	degrees
B	65.63	65.63	degrees
Nsp	1.38	1.38	
SFb	0.51	0.51	
SFs	0.65	0.65	

Area tributary
to UDD-1
(65.0 acres)

CN = 75

Q (100 yr 6 hr) = 9.4 cfs

↑ N

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-5)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

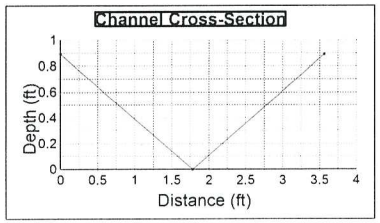
	Design Flow:	1.70	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	1.00	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.057	ft/ft
	Max. Bottom Slope:	0.057	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.39	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.89	feet
	Area:	0.31	ft2
	Perimeter:	1.75	feet
	Hydraulic Radius:	0.17	feet
	Velocity:	5.56	ft/sec
	Froude Number:	2.22	

Velocity Check	Depth (Max. Slope):	0.39	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.89	feet
	Area:	0.31	ft2
	Perimeter:	1.75	feet
	Hydraulic Radius:	0.17	feet
	Velocity:	5.56	ft/sec
	Froude Number:	2.22	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.057	ft/ft
Max. Bottom Slope:	0.057	ft/ft
Min. Channel Depth:	0.89	feet
Channel Top Width:	3.56	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-5)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

DESIGN CRITERIA:

Design Flow:	1.70		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	5.7	%	
Max. Bottom Slope:	5.7	%	
Flow Depth (Min. S):	0.39		feet
Flow Depth (Max. S):	0.39		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.57
Reynolds # for Smin	40,463
U=(gRS)^0.5 for Smax	0.57
Reynolds # for Smax	40,463

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.063
K for S max (See K vs. R Chart)	0.063
F for S min	16.1
F for S max	16.1

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax = Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.00	1.00	feet
T	1.39	1.39	lb/ft2
Nb	0.22	0.22	
Tmax	1.06	1.06	lb/ft2
Ns	0.17	0.17	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	9.33	9.33	degrees
Nsp	0.10	0.10	
SFb	3.56	3.56	
SFs	1.51	1.51	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT C-1)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	0.20	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	1.00	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.053	ft/ft
	Max. Bottom Slope:	0.143	ft/ft
	Freeboard:	0.5	feet

Depth Check

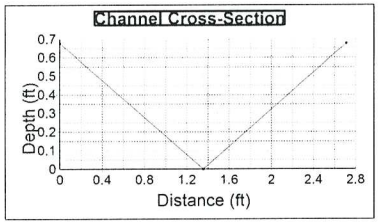
	Depth (Min. Slope):	0.18	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.68	feet
	Area:	0.06	ft2
	Perimeter:	0.79	feet
	Hydraulic Radius:	0.08	feet
	Velocity:	3.17	ft/sec
	Froude Number:	1.88	

Velocity Check

	Depth (Max. Slope):	0.15	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.65	feet
	Area:	0.04	ft2
	Perimeter:	0.66	feet
	Hydraulic Radius:	0.07	feet
	Velocity:	4.60	ft/sec
	Froude Number:	2.98	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.053	ft/ft
Max. Bottom Slope:	0.143	ft/ft
Min. Channel Depth:	0.68	feet
Channel Top Width:	2.71	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT C-1)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

DESIGN CRITERIA:

	Design Flow:	0.20	cfs
	Bottom Width:	0.00	feet
	Side Slope1:	2.00	1/m1
	Side Slope2:	2.00	1/m2
	Friction Factor:	0.02	
	Min. Bottom Slope:	5.3	%
	Max. Bottom Slope:	14.3	%
	Flow Depth (Min. S):	0.18	feet
	Flow Depth (Max. S):	0.15	feet
	Angle Repose (Ar):	42.0	degrees
	Specific Gravity	2.65	

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.37	
Reynolds # for Smin	26,297	
U=(gRS)^0.5 for Smax	0.55	
Reynolds # for Smax	39,362	

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan(Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.00	1.00	feet
T	0.59	1.32	lb/ft2
Nb	0.09	0.21	
Tmax	0.45	1.00	lb/ft2
Ns	0.07	0.16	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	4.01	8.68	degrees
Nsp	0.04	0.10	
SFb	6.62	2.72	
SFs	1.67	1.51	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT B-1)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

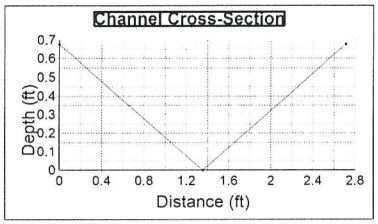
	Design Flow:	0.20	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	1.00	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.053	ft/ft
	Max. Bottom Slope:	0.143	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.18	feet
	Q-1.49AR(2/3)S(1/2)/n=	0.000	Accuracy
	Required Depth:	0.68	feet
	Area:	0.06	ft2
	Perimeter:	0.79	feet
	Hydraulic Radius:	0.08	feet
	Velocity:	3.17	ft/sec
	Froude Number:	1.88	

Velocity Check	Depth (Max. Slope):	0.15	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.65	feet
	Area:	0.04	ft2
	Perimeter:	0.66	feet
	Hydraulic Radius:	0.07	feet
	Velocity:	4.60	ft/sec
	Froude Number:	2.98	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.053	ft/ft
Max. Bottom Slope:	0.143	ft/ft
Min. Channel Depth:	0.68	feet
Channel Top Width:	2.71	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT B-1)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

DESIGN CRITERIA:

Design Flow:	0.20		cfs
Bottom Width:	0.00		feet
Side Slope1:	2.00		1/m1
Side Slope2:	2.00		1/m2
Friction Factor:	0.02		
Min. Bottom Slope:	5.3	%	
Max. Bottom Slope:	14.3	%	
Flow Depth (Min. S):	0.18		feet
Flow Depth (Max. S):	0.15		feet
Angle Repose (Ar):	42.0		degrees
Specific Gravity	2.65		

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.37
Reynolds # for Smin	26,297
U=(gRS)^0.5 for Smax	0.55
Reynolds # for Smax	39,362

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062
K for S max (See K vs. R Chart)	0.062
F for S min	16.1
F for S max	16.1

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	1.00	1.00	feet
T	0.59	1.32	lb/ft2
Nb	0.09	0.21	
Tmax	0.45	1.00	lb/ft2
Ns	0.07	0.16	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	4.01	8.68	degrees
Nsp	0.04	0.10	
SFb	6.62	2.72	
SFs	1.67	1.51	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT A-1)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

Trapezoidal Channel Flow Calculations

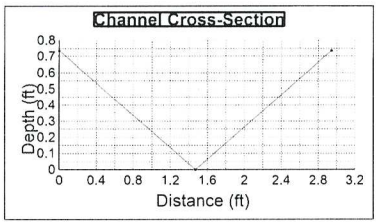
GENERAL CRITERIA:

	Design Flow:	0.40	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	m1
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.50	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.047	ft/ft
	Max. Bottom Slope:	0.047	ft/ft
	Freeboard:	0.5	feet

Depth Check	Depth (Min. Slope):	0.24	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.74	feet
	Area:	0.11	ft2
	Perimeter:	1.05	feet
	Hydraulic Radius:	0.11	feet
	Velocity:	3.60	ft/sec
	Froude Number:	1.85	
Velocity Check	Depth (Max. Slope):	0.24	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.74	feet
	Area:	0.11	ft2
	Perimeter:	1.05	feet
	Hydraulic Radius:	0.11	feet
	Velocity:	3.60	ft/sec
	Froude Number:	1.85	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.047	ft/ft
Max. Bottom Slope:	0.047	ft/ft
Min. Channel Depth:	0.74	feet
Channel Top Width:	2.94	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT A-1)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

DESIGN CRITERIA:

	Design Flow:	0.40	cfs
	Bottom Width:	0.00	feet
	Side Slope1:	2.00	1/m1
	Side Slope2:	2.00	1/m2
	Friction Factor:	0.02	
	Min. Bottom Slope:	4.7	%
	Max. Bottom Slope:	4.7	%
	Flow Depth (Min. S):	0.24	feet
	Flow Depth (Max. S):	0.24	feet
	Angle Repose (Ar):	42.0	degrees
	Specific Gravity	2.65	

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

U=(gRS)^0.5 for Smin	0.40	
Reynolds # for Smin	14,262	
U=(gRS)^0.5 for Smax	0.40	
Reynolds # for Smax	14,262	

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

K for S min (See K vs. R Chart)	0.062	
K for S max (See K vs. R Chart)	0.062	
F for S min	16.1	
F for S max	16.1	

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks:	0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

RIPRAP DESIGN:

	Smin	Smax	
D50	0.50	0.50	feet
T	0.69	0.69	lb/ft2
Nb	0.22	0.22	
Tmax	0.53	0.53	lb/ft2
Ns	0.16	0.16	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	9.32	9.32	degrees
Nsp	0.10	0.10	
SFb	3.72	3.72	
SFs	1.52	1.52	

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT A-2)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

Trapezoidal Channel Flow Calculations

GENERAL CRITERIA:

	Design Flow:	0.40	cfs
	Bottom Width:	0.0	feet
	Side Slope1:	2.0	ml
	Side Slope2:	2.0	m2
	Friction Factor:		
	Assumed D50:	0.50	
Anderson et al. (1970)	If X=1, n=0.0395(D50)^1/6		
Abt. et al. (1987, 1988)	If X=2, n=0.0456(D50*S)^0.0159		
	If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}		
	Generally Applicable for R/D50 > 0.5		
Jarrett (1984)	If X=4, n=0.39*(S^0.38)*(R^0.16)		
	If X=5, n=input n value		
	X:	1	
	Input n Value when X=5:		
	Calc (used) n Value:	0.020	
	Min. Bottom Slope:	0.047	ft/ft
	Max. Bottom Slope:	0.047	ft/ft
	Freeboard:	0.5	feet

Depth Check

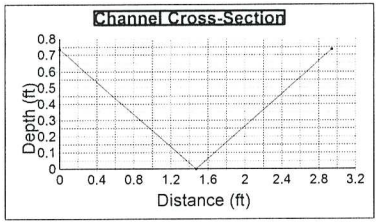
	Depth (Min. Slope):	0.24	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.74	feet
	Area:	0.11	ft2
	Perimeter:	1.05	feet
	Hydraulic Radius:	0.11	feet
	Velocity:	3.60	ft/sec
	Froude Number:	1.85	

Velocity Check

	Depth (Max. Slope):	0.24	feet
	Q-1.49AR(2/3)S(1/2)/n=	-0.000	Accuracy
	Required Depth:	0.74	feet
	Area:	0.11	ft2
	Perimeter:	1.05	feet
	Hydraulic Radius:	0.11	feet
	Velocity:	3.60	ft/sec
	Froude Number:	1.85	

Channel Design Summary:

Bottom Width:	0.00	feet
Side Slope1:	2.00	1/m1
Side Slope2:	2.00	1/m2
Min. Bottom Slope:	0.047	ft/ft
Max. Bottom Slope:	0.047	ft/ft
Min. Channel Depth:	0.74	feet
Channel Top Width:	2.94	feet



HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT A-2)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

DESIGN CRITERIA:

	Design Flow:	0.40	cfs
	Bottom Width:	0.00	feet
	Side Slope1:	2.00	1/m1
	Side Slope2:	2.00	1/m2
	Friction Factor:	0.02	
	Min. Bottom Slope:	4.7	%
	Max. Bottom Slope:	4.7	%
	Flow Depth (Min. S):	0.24	feet
	Flow Depth (Max. S):	0.24	feet
	Angle Repose (Ar):	42.0	degrees
	Specific Gravity	2.65	
	Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity		
	U=(gRS)^0.5 for Smin	0.40	
	Reynolds # for Smin	14,262	
	U=(gRS)^0.5 for Smax	0.40	
	Reynolds # for Smax	14,262	
	T = G*d*S where G=Unit weight of Water		
	Nb = F*T/(G(SD-1)D50)		
	F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500		
	F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000		
	F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger		
	K for S min (See K vs. R Chart)	0.062	
	K for S max (See K vs. R Chart)	0.062	
	F for S min	16.1	
	F for S max	16.1	
	SFb = (Cos a tan b)/(sin a + Nb tan b)		
	Tmax= Ks*G*d*S		
	Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope		
	Ks:	0.76	
	Ns = F*Tmax/(G(SG-1)D)		
	A = Atan(1/m)		
	B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))		
	Nsp = Ns(1+Sin(Ar+B)/2)		
	SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))		

RIPRAP DESIGN:

	Smin	Smax	
D50	0.50	0.50	feet
T	0.69	0.69	lb/ft2
Nb	0.22	0.22	
Tmax	0.53	0.53	lb/ft2
Ns	0.16	0.16	
m Critical	2.00	2.00	
A (m crit)	26.57	26.57	degrees
B	9.32	9.32	degrees
Nsp	0.10	0.10	
SFb	3.72	3.72	
SFs	1.52	1.52	

Sedimentation Pond 1

Storage Element	Volume (ac-ft)	Cumulative Volume (ac-ft)	Depth (ft)	Elevation (ft)
1. Pond Bottom	0.00	0.00	0.0	7681.5
2. 5.3yr Sediment	1.12	1.12	2.3	7683.8
(calculated a required 0.64 ac-ft but increased to 1.12 ac-ft)				
3. 10yr 24hr	2.06	3.18	5.4	7686.9
4. 100yr 6hr	1.67	4.85	7.5	7689.0
(A depth of 2.1 ft was calculated to pass the 100yr 6hr flow of 22.5 ft³/s through a 24-in diameter overflow pipe. Cumulative volume was taken from stage - volume spreadsheet)				
5. Freeboard	0.89	5.74	8.5	7690.0

HANSEN ALLEN & LUCE inc ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Detail Volume
PROJECT NO 308.01.400

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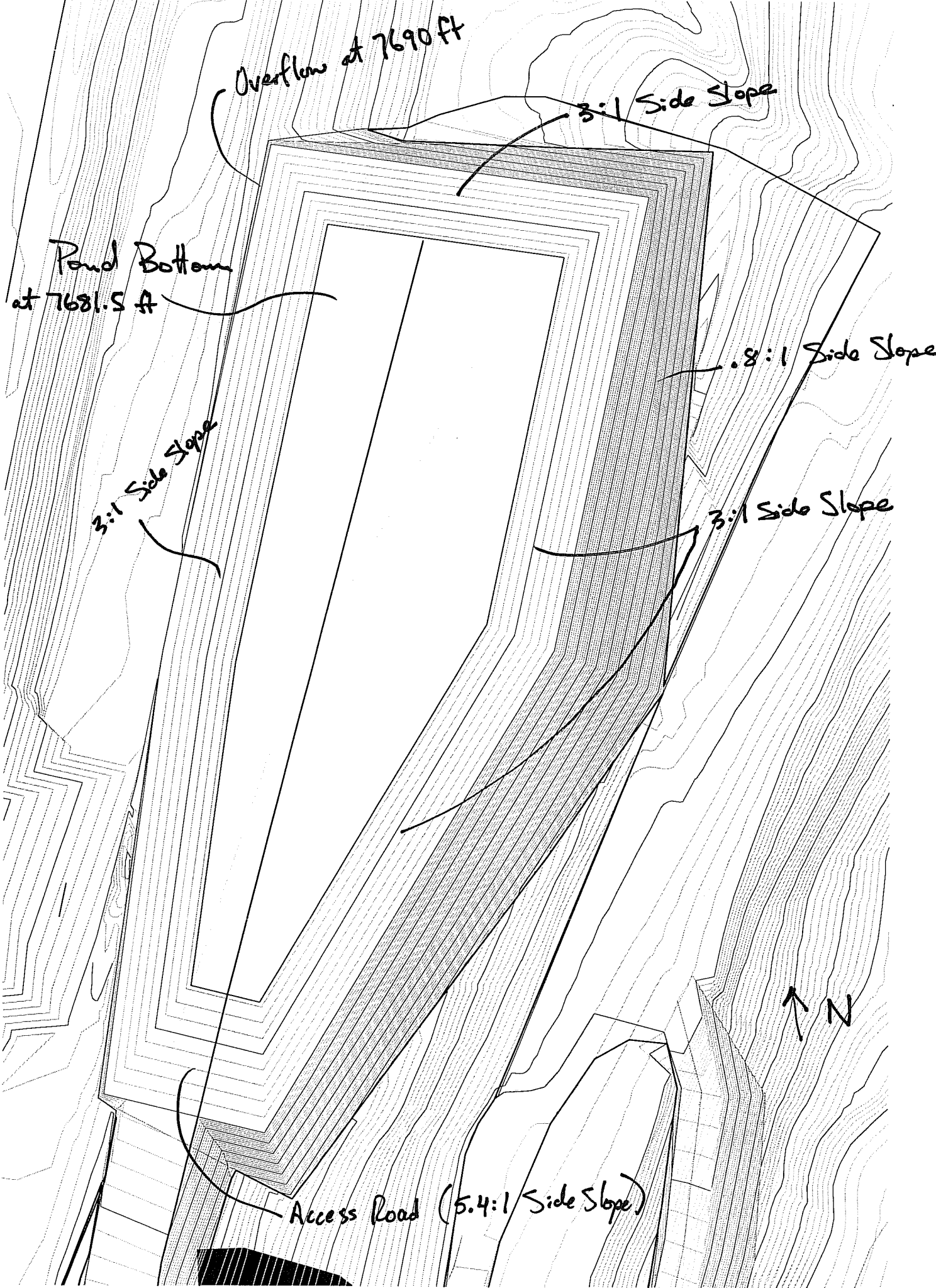
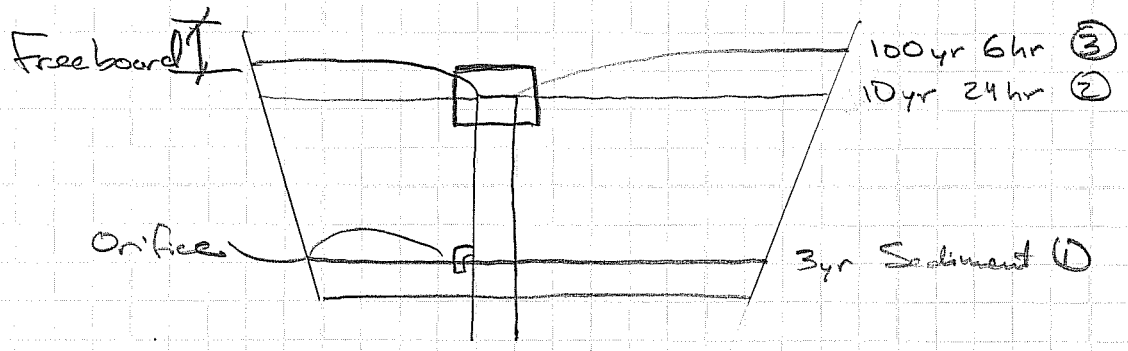
COMPUTED
CHECKED
DATE 12/26/07


Overflow at 7690 ft
3:1 Side Slope
Pond Bottom
at 7681.5 ft
.8:1 Side Slope
3:1 Side Slope
3:1 Side Slope
3:1 Side Slope
N
Access Road (5.4:1 Side Slope)

Sediment / Detention Volumes



(1) 3yr Sediment Volume

$A = (R)(K)(LS)(C)(P)$ → Universal Soil Loss Equation (USLE)

where:

A = Soil loss (tons/acre/yr)
R = Rainfall factor (ft-tons/acre/hr)
K = Soil Erodibility Factor
LS = Topographic factor
C = Cover or cropping management factor
P = Erosion control Practice factor

Values of R and K were determined from Clyde et al. (1978)

R = 22.0 tons/acre/yr ←

K = 0.28 tons/acre/yr/unit of R ←

$$LS = \frac{(650 + 450S + 65S^2)(L/72.6)^m}{10{,}000 + S^2}$$

where:

L = average overland flow length (ft)
S = Slope (%)
m = exponent dependant upon steepness of slope

m = 0.3 for S < .5%, m = 0.5 for 0.5% < S < 10%

m = 0.6 for S > 10%

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Detention Volume
PROJECT NO 305.01.400

SHEET ___ OF ___
COMPUTED GLT
CHECKED ___
DATE 12/21/07

L & S Calculations

Subbasin	L (ft)	S (%)
SB L 1.5	640	2.0
SB L 2	1840	9.5
SB L 3	830	20.7
SB Access A	560	9.3
SB L 1	840	0.9
SB Access B	520	2.8
SB L 5	1540	7.2
SB L 2.5	800	14.2
SB L .75	1250	4.2
SB Ditch B	1310	2.4
SB Ditch A	590	4.4
SB Pond	610	9.1
Average	944	7.2

$$LS = \frac{(650 + 450(7.2) + 65(7.2)^2)\left(944\ ft / 72.6\right)^{0.5}}{10{,}000 + (7.2)^2}$$

$$= 2.6 \leftarrow$$

Values of C and P were determined from the U.S. Soil Conservation Service (1977)

C = 1.0 (for disturbed)

P = 1.0

$$A = (R)(K)(LS)(C)(P)$$

$$= (22.0\ tons/acre/yr)(0.28\ tons/acre/yr/Unit\ of\ R)(2.6)(1.0)(1.0)$$

$$= 16.0\ tons/acre/yr$$

Sediment density of 75 lb/ft^3 was used in conjunction with the USLE to determine volume of reservoir sediment storage required.

Pond is designed so that sediment will be removed when the sediment volume reaches 60% of accumulated sediment storage volume.

$$A(0.6) = 16.0 \text{ tons/acre/yr } (0.6)$$

$$= 9.6 \text{ tons/acre/yr}$$

$$\forall \text{ (ac-ft/ac/yr)} = \frac{A}{\gamma_{sediment}}$$

$$= \frac{(9.6 \text{ tons/acre/yr})\left(\frac{2000 \text{ lb}}{1 \text{ ton}}\right)}{75 \text{ lb/ft}^3 \left(\frac{43{,}560 \text{ ft}^3}{1 \text{ acre-ft}}\right)}$$

$$= 0.00588 \text{ acre-ft/acre/yr}$$

$$\forall \text{ (3 yrs)} = (0.00588 \text{ acre-ft/acre/yr})(3 \text{ yr})(36.3 \text{ ac})$$

$$= \underline{0.64 \text{ acre-ft}}$$

(2) 10 yr 24 hr Volume was determined from spreadsheet calculations.

$$V_{10yr\text{-}24hr} = \underline{2.06\ ac\text{-}ft}$$

- The orifice was sized to drain the 10yr 24hr runoff volume over a 24 hr period. See Spreadsheet

$$D_{orifice} = \underline{6.2\ in}$$

(3) Volume in the detent basin required to pass the 100 yr 6hr flow is based on the heigth required to pass the flow (22.5 ft^3/s). Volume of 1.67 ac-ft is required above 10yr 24hr volume. (Cumulative volume selected from stage-volume Spreadsheet)

- h required above 10yr 24hr depth to pass the 100yr 6hr flow

$$Q_{100yr6hr} = 22.5\ ft^3/s \text{ (from HMS model)}$$

$$Q = C_d A \sqrt{2gh}$$

$$= C_d \left(\frac{\pi d^2}{4}\right) \sqrt{2gh}$$

$d = 24$ in
$C_d = 0.62$
$g = 32.2\ ft/s^2$
$h = ?$

$$h = \frac{\left[\dfrac{Q}{C_d\left(\frac{\pi d^2}{4}\right)}\right]^2}{2g}$$

$$= \frac{\left[\dfrac{22.5\ ft^3/s}{0.62\left(\frac{\pi(2\ ft)^2}{4}\right)}\right]^2}{2(32.2\ ft/s^2)} = 2.1\ ft$$

Orifice Sizing to Drain 10-yr 24-hr Volume Over a 24 hour Period

V initial = 2.67 ac-ft (10-yr 24-hr + 3yr sediment volume)
116305 ft3

Orifice Design Parameters
D = 6.2 in
Cd = 0.62
Heigth to center of orifice above pond bottom = 1.60 ft (top of 3yr sediment volume + orifice diameter/2)

Time (min)	Time (hr)	Volume (ft3)	Depth (ft)	Q (ft3/s)	ΔVolume (ft3)
0	0.00	116305	4.7	1.84	1653
15	0.25	114652	4.6	1.81	1627
30	0.50	113025	4.6	1.81	1627
45	0.75	111399	4.5	1.78	1599
60	1.00	109799	4.5	1.78	1599
75	1.25	108200	4.4	1.75	1571
90	1.50	106629	4.4	1.75	1571
105	1.75	105057	4.3	1.71	1543
120	2.00	103514	4.2	1.68	1514
135	2.25	102000	4.2	1.68	1514
150	2.50	100486	4.1	1.65	1485
165	2.75	99001	4.1	1.65	1485
180	3.00	97516	4.0	1.62	1455
195	3.25	96061	4.0	1.62	1455
210	3.50	94606	3.9	1.58	1424
225	3.75	93182	3.9	1.58	1424
240	4.00	91757	3.8	1.55	1393
255	4.25	90364	3.8	1.55	1393
270	4.50	88971	3.7	1.51	1361
285	4.75	87610	3.7	1.51	1361
300	5.00	86249	3.6	1.48	1328
315	5.25	84921	3.6	1.48	1328
330	5.50	83593	3.5	1.44	1295
345	5.75	82298	3.5	1.44	1295
360	6.00	81003	3.4	1.40	1260
375	6.25	79743	3.4	1.40	1260
390	6.50	78483	3.4	1.40	1260
405	6.75	77223	3.3	1.36	1225
420	7.00	75998	3.3	1.36	1225
435	7.25	74773	3.2	1.32	1188
450	7.50	73585	3.2	1.32	1188
465	7.75	72397	3.1	1.28	1150
480	8.00	71247	3.1	1.28	1150
495	8.25	70096	3.0	1.24	1112
510	8.50	68985	3.0	1.24	1112
525	8.75	67873	3.0	1.24	1112
540	9.00	66762	2.9	1.19	1071
555	9.25	65690	2.9	1.19	1071
570	9.50	64619	2.8	1.14	1029
585	9.75	63590	2.8	1.14	1029
600	10.00	62561	2.7	1.09	985
615	10.25	61576	2.7	1.09	985
630	10.50	60590	2.7	1.09	985
645	10.75	59605	2.6	1.04	940
660	11.00	58665	2.6	1.04	940

Time (min)	Time (hr)	Volume (ft3)	Depth (ft)	Q (ft3/s)	ΔVolume (ft3)
675	11.25	57726	2.6	1.04	940
690	11.50	56786	2.5	0.99	891
705	11.75	55895	2.5	0.99	891
720	12.00	55003	2.4	0.93	841
735	12.25	54162	2.4	0.93	841
750	12.50	53322	2.4	0.93	841
765	12.75	52481	2.3	0.87	786
780	13.00	51695	2.3	0.87	786
795	13.25	50908	2.3	0.87	786
810	13.50	50122	2.2	0.81	728
825	13.75	49394	2.2	0.81	728
840	14.00	48666	2.2	0.81	728
855	14.25	47937	2.2	0.81	728
870	14.50	47209	2.1	0.74	665
885	14.75	46544	2.1	0.74	665
900	15.00	45879	2.1	0.74	665
915	15.25	45214	2.0	0.66	595
930	15.50	44619	2.0	0.66	595
945	15.75	44024	2.0	0.66	595
960	16.00	43429	2.0	0.66	595
975	16.25	42834	1.9	0.57	516
990	16.50	42319	1.9	0.57	516
1005	16.75	41803	1.9	0.57	516
1020	17.00	41287	1.9	0.57	516
1035	17.25	40772	1.9	0.57	516
1050	17.50	40256	1.8	0.47	422
1065	17.75	39834	1.8	0.47	422
1080	18.00	39413	1.8	0.47	422
1095	18.25	38991	1.8	0.47	422
1110	18.50	38570	1.8	0.47	422
1125	18.75	38148	1.7	0.33	299
1140	19.00	37849	1.7	0.33	299
1155	19.25	37549	1.7	0.33	299
1170	19.50	37250	1.7	0.33	299
1185	19.75	36951	1.7	0.33	299
1200	20.00	36651	1.7	0.33	299
1215	20.25	36352	1.7	0.33	299
1230	20.50	36053	1.7	0.33	299
1245	20.75	35753	1.6	0.04	38
1260	21.00	35715	1.6	0.04	38
1275	21.25	35677	1.6	0.04	38
1290	21.50	35638	1.6	0.04	38
1305	21.75	35600	1.6	0.04	38
1320	22.00	35562	1.6	0.04	38
1335	22.25	35523	1.6	0.04	38
1350	22.50	35485	1.6	0.04	38
1365	22.75	35447	1.6	0.04	38
1380	23.00	35408	1.6	0.04	38
1395	23.25	35370	1.6	0.04	38
1410	23.50	35332	1.6	0.04	38
1425	23.75	35293	1.6	0.04	38
1440	24.00	35255	1.6	0.04	38

Detention Basin Stage-Volume

Elevation (ft)	Area (ft2)	Volume (ft3)	Cum Volume (ft3)	Cum Volume (ac-ft)
7681.5	19356.6	0	0	0.00
7681.6	19561	1946	1946	0.04
7681.7	19765	1966	3912	0.09
7681.8	19970	1987	5899	0.14
7681.9	20174	2007	7906	0.18
7682.0	20379	2028	9934	0.23
7682.1	20596	2049	11982	0.28
7682.2	20813	2070	14053	0.32
7682.3	21030	2092	16145	0.37
7682.4	21248	2114	18259	0.42
7682.5	21465	2136	20395	0.47
7682.6	21682	2157	22552	0.52
7682.7	21900	2179	24731	0.57
7682.8	22117	2201	26932	0.62
7682.9	22334	2223	29154	0.67
7683.0	22551	2244	31399	0.72
7683.1	22778	2266	33665	0.77
7683.2	23004	2289	35954	0.83
7683.3	23230	2312	38266	0.88
7683.4	23457	2334	40600	0.93
7683.5	23683	2357	42957	0.99
7683.6	23909	2380	45337	1.04
7683.7	24135	2402	47739	1.10
7683.8	24362	2425	50164	1.15
7683.9	24588	2447	52612	1.21
7684.0	24814	2470	55082	1.26
7684.1	25050	2493	57575	1.32
7684.2	25285	2517	60092	1.38
7684.3	25520	2540	62632	1.44
7684.4	25756	2564	65196	1.50
7684.5	25991	2587	67783	1.56
7684.6	26227	2611	70394	1.62
7684.7	26462	2634	73028	1.68
7684.8	26697	2658	75686	1.74
7684.9	26933	2682	78368	1.80
7685.0	27168	2705	81073	1.86
7685.1	27412	2729	83802	1.92
7685.2	27657	2753	86555	1.99
7685.3	27901	2778	89333	2.05
7685.4	28146	2802	92136	2.12
7685.5	28390	2827	94962	2.18
7685.6	28634	2851	97814	2.25
7685.7	28879	2876	100689	2.31

Elevation (ft)	Area (ft2)	Volume (ft3)	Cum Volume (ft3)	Cum Volume (ac-ft)
7685.8	29123	2900	103589	2.38
7685.9	29367	2925	106514	2.45
7686.0	29612	2949	109463	2.51
7686.1	29865	2974	112437	2.58
7686.2	30119	2999	115436	2.65
7686.3	30372	3025	118460	2.72
7686.4	30626	3050	121510	2.79
7686.5	30879	3075	124586	2.86
7686.6	31133	3101	127686	2.93
7686.7	31386	3126	130812	3.00
7686.8	31639	3151	133963	3.08
7686.9	31893	3177	137140	3.15
7687.0	32146	3202	140342	3.22
7687.1	32409	3228	143570	3.30
7687.2	32671	3254	146824	3.37
7687.3	32934	3280	150104	3.45
7687.4	33196	3306	153410	3.52
7687.5	33459	3333	156743	3.60
7687.6	33721	3359	160102	3.68
7687.7	33983	3385	163487	3.75
7687.8	34246	3411	166899	3.83
7687.9	34508	3438	170337	3.91
7688.0	34771	3464	173800	3.99
7688.1	35042	3491	177291	4.07
7688.2	35314	3518	180809	4.15
7688.3	35585	3545	184354	4.23
7688.4	35857	3572	187926	4.31
7688.5	36129	3599	191525	4.40
7688.6	36400	3626	195152	4.48
7688.7	36672	3654	198805	4.56
7688.8	36943	3681	202486	4.65
7688.9	37215	3708	206194	4.73
7689.0	37486	3735	209929	4.82
7689.1	37767	3763	213692	4.91
7689.2	38047	3791	217482	4.99
7689.3	38328	3819	221301	5.08
7689.4	38609	3847	225148	5.17
7689.5	38889	3875	229023	5.26
7689.6	39170	3903	232926	5.35
7689.7	39450	3931	236857	5.44
7689.8	39731	3959	240816	5.53
7689.9	40011	3987	244803	5.62
7690.0	40292	4015	248818	5.71

SCS CURVE NUMBER
Kinney Mine Hydrology

SB_F1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	2288.29	0.05	0.00008	1.4	98	0.20	1.1	202.9	1.7	323.2	1.9	353.5
Pad	122526.6	2.81	0.00440	75.7	90	1.11	0.5	5267.5	1.0	10478.0	1.2	11869.8
Natural	21443.42	0.49	0.00077	13.2	75	3.33	0.1	170.3	0.3	612.0	0.4	752.0
Revegetated	15641.47	0.36	0.00056	9.7	82	2.20	0.2	303.6	0.6	777.7	0.7	915.0
TOTALS	161899.8	3.72	0.00581	100	87			5944.3		12190.9		13890.2
										0.28 ac-ft		0.32 ac-ft

SB_D1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	2165.29	0.05	0.00008	2.5	98	0.20	1.1	192.0	1.7	305.9	1.9	334.5
Pad	40914.9	0.94	0.00147	33.7	90	1.11	0.5	1758.9	1.0	3498.9	1.2	3963.6
Natural	67374.28	1.55	0.00242	55.5	75	3.33	0.1	535.2	0.3	1922.9	0.4	2362.7
Revegetated	10895.72	0.25	0.00039	9.0	82	2.20	0.2	211.5	0.6	541.7	0.7	637.4
TOTALS	121350.2	2.79	0.00435	101	81			2697.6		6269.3		7298.2
										0.14 ac-ft		0.17 ac-ft

SB_D2

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	2442.07	0.06	0.00009	2.8	98	0.20	1.1	216.5	1.7	345.0	1.9	377.2
Pad	12679.13	0.29	0.00045	14.8	90	1.11	0.5	545.1	1.0	1084.3	1.2	1228.3
Natural	59411.24	1.36	0.00213	69.1	75	3.33	0.1	471.9	0.3	1695.6	0.4	2083.5
Revegetated	11426.79	0.26	0.00041	13.3	82	2.20	0.2	221.8	0.6	568.1	0.7	668.4
TOTALS	85959.23	1.97	0.00308	100	79			1455.3		3693.0		4357.4
										0.08 ac-ft		0.10 ac-ft

SB_F2

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	10732.04	0.25	0.00038	19.4	98	0.20	1.1	951.5	1.7	1516.0	1.9	1657.8
Natural	0	0.00	0.00000	0.0	75	3.33	0.1	0.0	0.3	0.0	0.4	0.0
Revegetated	44561.29	1.02	0.00160	80.6	82	2.20	0.2	865.0	0.6	2215.6	0.7	2606.7
TOTALS	55293.33	1.27	0.00198	100	85			1816.6		3731.6		4264.5
										0.09 ac-ft		0.10 ac-ft

SB_E1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Pad	143106.9	3.29	0.00513	74.1	90	1.11	0.5	6152.2	1.0	12237.9	1.2	13863.5
Natural	9446.91	0.22	0.00034	4.9	75	3.33	0.1	75.0	0.3	269.6	0.4	331.3
Revegetated	40693.85	0.93	0.00146	21.1	82	2.20	0.2	789.9	0.6	2023.3	0.7	2380.5
TOTALS	193247.7	4.44	0.00693	100	88			7017.2		14530.8		16575.3
										0.33 ac-ft		0.38 ac-ft

SB_D3

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	11513.94	0.26	0.00041	19.7	98	0.20	1.1	1020.9	1.7	1626.4	1.9	1778.6
Natural	39630.22	0.91	0.00142	20.5	75	3.33	0.1	314.8	0.3	1131.0	0.4	1389.8
Revegetated	7211.62	0.17	0.00026	12.4	82	2.20	0.2	140.0	0.6	358.6	0.7	421.9
TOTALS	58355.78	1.34	0.00209	53	80			1475.6		3116.0		3590.2
										0.07 ac-ft		0.08 ac-ft

SB_A1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	19147.5	0.44	0.00069	32.8	98	0.20	1.1	1697.7	1.7	2704.7	1.9	2957.8
Natural	63174.77	1.45	0.00227	32.7	75	3.33	0.1	501.8	0.3	1803.0	0.4	2215.5
Pad	42016.47	0.96	0.00151	21.7	90	1.11	0.5	1806.3	1.0	3593.1	1.2	4070.4
Revegetated	54006.16	1.24	0.00194	30.3	82	2.20	0.2	1048.4	0.6	2685.2	0.7	3159.2
TOTALS	178344.9	4.09	0.00640	118	83			5054.1		10786.0		12402.8
										0.25 ac-ft		0.28 ac-ft

SB_B1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Pad	91371.01	2.10	0.00328	47.3	90	1.11	0.5	3928.1	1.0	7813.7	1.2	8851.6
Natural	26384.94	0.61	0.00095	13.7	75	3.33	0.1	209.6	0.3	753.0	0.4	925.3
Revegetated	34907.15	0.80	0.00125	22.9	82	2.20	0.2	677.6	0.6	1735.6	0.7	2042.0
TOTALS	152663.1	3.50	0.00548	84	86			677.6		1735.6		2042.0
										0.04 ac-ft		0.05 ac-ft

SB_C1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	0	0.00	0.00000	0.0	98	0.20	1.1	0.0	1.7	0.0	1.9	0.0
Pad	91265.3	2.10	0.00327	136.8	90	1.11	0.5	3923.5	1.0	7804.6	1.2	8841.3
Natural	52325.33	1.20	0.00188	27.1	75	3.33	0.1	415.6	0.3	1493.4	0.4	1835.0
Revegetated	38502.3	0.88	0.00138	21.1	82	2.20	0.2	747.4	0.6	1914.3	0.7	2252.3
TOTALS	182092.9	4.18	0.00653	185	84			5086.5		11212.3		12928.6
										0.26 ac-ft		0.30 ac-ft

SB_E2

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	13703.95	0.31	0.00049	7.5	98	0.20	1.1	1215.0	1.7	1935.8	1.9	2116.9
Pad	0	0.00	0.00000	0.0	90	1.11	0.5	0.0	1.0	0.0	1.2	0.0
Natural	26904.93	0.62	0.00097	13.9	75	3.33	0.1	213.7	0.3	767.9	0.4	943.5
Revegetated	32464.12	0.75	0.00116	17.8	82	2.20	0.2	630.2	0.6	1614.1	0.7	1899.1
TOTALS	73073	1.68	0.00262	39	82			2058.9		4317.8		4959.5
										0.10 ac-ft		0.11 ac-ft

SB_E4

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Natural	50993.98	1.17	0.00183	76.5	75	3.33	0.1	405.0	0.3	1455.4	0.4	1788.3
Revegetated	15708.03	0.36	0.00056	23.5	82	2.20	0.2	304.9	0.6	781.0	0.7	918.9
TOTALS	66702.01	1.53	0.00239	100	77			710.0		2236.4		2707.2
										0.05 ac-ft		0.06 ac-ft

SB_E3

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Revegetated	23139.08	0.53	0.00083	34.7	82	2.20	0.2	449.2	0.6	1150.5	0.7	1353.6
TOTALS	23139.08	0.53	0.00083	35	82			449.2		1150.5		1353.6
										0.03 ac-ft		0.03 ac-ft

SB_Pond1

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Detention Pond	19356.6	0.44	0.00069	20.6	100	0.00	1.3	2064.7	1.9	3097.1	2.1	3355.1
Revegetated	46571.36	1.07	0.00167	69.8	82	2.20	0.2	904.0	0.6	2315.5	0.7	2724.3
Natural	28145.53	0.65	0.00101	29.9	75	3.33	0.1	223.6	0.3	803.3	0.4	987.0
TOTALS	94073.49	2.16	0.00337	120	84			3192.3		6215.8		7066.5
										0.14 ac-ft		0.16 ac-ft

SB_AltA

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Revegetated	111806.6	2.57	0.00401	167.6	82	2.20	0.2	2170.4	0.6	5559.0	0.7	6540.3
TOTALS	111806.6	2.57	0.00401	168	82			2170.4		5559.0		6540.3
										0.13 ac-ft		0.15 ac-ft

SB_AltB

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	4030.63	0.09	0.00014	2.2	98	0.20	1.1	357.4	1.7	569.4	1.9	622.6
Revegetated	21513.94	0.49	0.00077	32.3	82	2.20	0.2	417.6	0.6	1069.7	0.7	1258.5
TOTALS	25544.57	0.59	0.00092	34	85			775.0		1639.0		1881.1
										0.04 ac-ft		0.04 ac-ft

SB_AltC

							10-YR 6-HR		10-yr 24-HR		100-YR 6-HR	
							Rainfall (in)	1.28	Rainfall (in)	1.92	Rainfall (in)	2.08
Subbasin Area	AREA (ft2)	AREA (acres)	AREA (mi2)	% AREA (%)	CN	S	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)	Runoff (cfs)	Vol (cf)
Roads	3773.2	0.09	0.00014	2.1	98	0.20	1.1	334.5	1.7	533.0	1.9	582.9
Revegetated	15615.05	0.36	0.00056	23.4	82	2.20	0.2	303.1	0.6	776.4	0.7	913.4
TOTALS	19388.25	0.45	0.00070	25	85			637.7		1309.4		1496.3
										0.03 ac-ft		0.03 ac-ft

Overall Totals	1602934	36.80	0.0575		84

Total Approximate Storage Volumes = 2.06 ac-ft 2.37 ac-ft

Pond No.	Available Sediment Storage Volume (acre-feet)	Required 3-year Accumulated Sediment Storage Volume (acre-feet)	Available Runoff Storage Volume (acre-feet)	Required 10-yr, 24-hr Runoff Storage Volume (acre-feet)	Comments and Recommendations
7	0.04	0.04	0.63	0.58	Pond Adequate
8	1.1	1.1	2.77	2.20	Pond Adequate
9	2.02	1.98	4.50	4.45	Pond Adequate

Note: Pond No. 1 is classified as a treatment facility and not a sedimentation pond.

The sediment ponds and treatment facility were designed (where possible) to contain the accumulated sediment volume from a three-year period and to prevent short circuiting. The amount of sediment to be yielded to the sedimentation ponds was determined from the Universal Soil Loss Equation (USLE) (Clyde et al., 1978, and U. S. Soil Conservation Service, 1977). In accordance with this equation, soil erosion caused by water is determined from

$$A = R*K*LS*C*P \qquad (742\text{-}2)$$

where:

A = computed amount of soil loss, in tons/acre/year;
R = rainfall factor, in foot-tons/acre/hour;
K = soil erodibility factor, in tons/acre/year/unit of R;
LS = topographic factor (length and steepness of slope), dimensionless;
C = cover or cropping management factor, dimensionless; and
P = erosion control practice factor, dimensionless.

Values for R and K were determined from Clyde et al. (1978). The topographic factor (LS) was determined from

$$LS = \frac{(650 + 450\,S + 65\,S^2)\,(L/72.6)^m}{10,000 + S^2} \qquad (742\text{-}3)$$

where:

L = average overland flow length, in feet;
S = average steepness of slope, in percent; and
m = an exponent dependent upon the steepness of slope (0.3 for slopes less than 0.5%, 0.5 for slopes 0.51% to 10%, and 0.6 for slopes greater than 10%).

The average overland flow length (L) was determined from Williams and Berndt (1972) as defined by the equation

$$L = \frac{0.5\ DA}{LCH} \qquad (742\text{-}4)$$

where:

DA = drainage area, in square feet; and
LCH = total length of channels in the watershed, in feet.

Values for C and P were determined from the U. S. Soil Conservation Service (1977).

A sediment density of 75 lb/ft^3 was used in conjunction with the USLE to determine the volume of reservoir sediment storage required. This value was obtained based upon on-site soil surveys (see Section 200 for more soils related information) which show that local soils consist mostly of a mixture of silty clayey sands. Sands commonly have unit weights in the order of 85-100 pcf based upon ASCE findings (see Sedimentation Engineering - ASCE M & R No. 54) with values more commonly used in the order of 95 pcf. Other references confirm this and indicate that silts and clays usually have lower unit weights, but at times do range from 27 to 100 pcf. Because local soil complexes do contain substantial quantities of silts and clays, a more conservative sediment density of 75 pcf was chosen as the appropriate value to use for calculation of sediment volume.

The ponds have been designed so that sediment will be removed when the sediment volume reaches 60 percent of the accumulated sediment storage volume. All sediments will be disposed of in the washed coal refuse pile. Sediment yield parameters and the accumulated sediment volume for each pond (including Treatment Facility No. 1) are contained in Table 742.221b, Sediment Design Parameters for Sediment Ponds 1 through 9.

TABLE 742.221b
Sediment Design Parameters for Sediment Ponds 1 through 9.

Sedimentation Pond No.	Contributing Area D-Disturbed U-Undisturbed	Rainfall Factor (R) ft-tons/ac/hr	Soil Erodibility Factor (K) tons/ac/yr per unit of R	Slope Length Factor L ft.	Slope Gradient Factor S percent	LS	Cover Factor	Erosion Control Practice Factor (P)	Estimated Soil Loss (A) ton/ac/yr	Sediment Delivery Ratio	Estimated Sediment Contribution in Sedimentation Ponds			
											ac-ft/ac/yr	ac-ft/yr	Accumulated Sediment Volume ac-ft	
													3-year	2-year
1	D-5.1 U-9.5	22.0 22.0	0.28 0.28	82 105	3.0 70.0	0.28 29.4	1.0 0.2	1.0 1.0	1.7 36.2	0.65 0.60	0.0007 0.0133	0.004 0.126	0.39	0.26
2	D-9.1 U-6.0	22.0 22.0	0.28 0.28	200 220	34.0 39.0	11.9 19.8	1.0 0.2	1.0 1.0	73.3 24.4	0.60 0.56	0.0269 0.0084	0.245 0.050	0.89	0.59
3	D-5.0 U-52.1	22.0 22.0	0.28 0.28	63 140	2.0 65.0	0.17 31.7	1.0 0.2	1.0 1.0	1.0 39.0	0.60 0.45	0.0004 0.0107	0.002 0.557	1.68	1.11
4	D-23.0 U-17.6	22.0 22.0	0.28 0.28	160 84	12.8 45.0	2.7 13.8	1.0 0.2	1.0 1.0	16.6 17.0	0.52 0.60	0.0053 0.0062	0.122 0.109	0.69	0.46
5	D-65.6 U-29.4	22.0 22.0	0.28 0.28	205 118	16.0 54.0	4.5 22.2	1.0 0.2	1.0 1.0	27.7 27.4	0.45 0.50	0.0076 0.0084	0.499 0.247	2.24	1.49
6	D-27.5 U-6.5	22.0 22.0	0.28 0.28	99 99	10.0 43.5	1.4 14.5	1.0 0.2	1.0 1.0	8.6 17.9	0.50 0.65	0.0026 0.0071	0.072 0.046	0.35	0.24

Energy Dissipation Structures

Design of rip-rap apron for outlets of ICP-2 and UDC-1 using Drainage Criteria Manual (V.2)

	Pipe Size (in)	Design Flow (cfs)	
CP-2	42	33.8	
UDC-1	30	14.3 + 1 cfs = 15.3 cfs	(Assumed minimal irrigation pipe)

Design of rip-rap apron completed for both throughout:

$$Q_{full} = \frac{1.49}{n} A_{full} (R_{full})^{2/3} (S_o)^{1/2}$$

$n = 0.024$ (Ref: Civil Engineering Reference Manual, 2006)

$$A_{full} = \frac{\pi D^2}{4}$$

$$= \frac{\pi \left(\frac{42\ in}{12\ in}\right)^2}{4} = 9.6211\ ft^2 \quad (4.9087\ ft^2)$$

$$R_{full} = \frac{D}{4} = \frac{\left(\frac{42\ in}{12\ in}\right)}{4} = 0.875\ ft \quad (0.625\ ft)$$

$$S_o = \frac{(7667.61\ ft - 7655.45\ ft)}{74.1\ ft} = 0.1641\ ft/ft \quad (0.0761\ ft/ft)$$

$$Q_{full} = \frac{1.49}{0.024} (9.6211\ ft^2)(0.875\ ft)^{2/3} (0.1641\ ft/ft)^{1/2}$$

$$= 221.357\ ft^3/s \quad (61.455\ ft^3/s)$$

$$V_{full} = \frac{Q_{full}}{A_{full}} = \frac{221.357\ ft^3/s}{9.6211\ ft^2} = 23.01\ ft/s \quad (12.52\ ft/s)$$

Q_{design} (see culvert design calcs) = 33.8 ft^3/s (15.3 ft^3/s)

$$\frac{Q_{design}}{Q_{full}} = \frac{33.8\ ft^3/s}{221.357\ ft^3/s} = 0.153\ (0.249)$$

Using Figure HS-18b $\frac{d}{D} = 0.30$ (0.38)

using Figure HS-19 $\frac{d}{D} = 0.42$ (0.435)

$$\frac{Q_{design}}{D^{2.5}} = \frac{33.8\ ft^3/s}{(3.5\ ft)^{2.5}} = 1.47\ (1.55)$$

Using Figure HS-18b: $\frac{A}{A_{full}} = 0.25\ (0.35)$

$$A = \left(\frac{A}{A_{full}}\right) A_{full}$$

$$= (0.25)(9.6211\ ft^2) = 2.4053\ ft^2\ (1.7180\ ft^2)$$

$$V_{design} = \frac{Q_{design}}{A}$$

$$= \frac{33.8\ ft^3/s}{2.4053\ ft^2} = 14.05\ ft/s\ (8.91\ ft/s)$$

$$P_d = (V^2 + gd)^{1/2} \quad (HS-16)$$

$V = 14.05\ ft/s\ (8.91\ ft/s)$
$g = 32.2\ ft/s^2$
$d = 1.05\ ft\ (0.95)$

$$\frac{d}{D} = 0.3\ (0.38)$$

$d = 0.3\ (3.5\ ft) = 1.05\ ft\ (0.95)$

$$P_d = \left[(14.05 \text{ ft/s})^2 + (32.2 \text{ ft/s}^2)(1.05 \text{ ft}) \right]^{1/2}$$

$$= 15.21 \text{ ft/s}$$

$$(10.49 \text{ ft/s})$$

* Based on the 42-inch pipe and a P_d of 15.21 ft/s, rip-rap type L should be used.

$\rightarrow D_{50} =$ 9 inches (0.75 ft)

* Based on the 30-inch pipe and a P_d of 10.49 ft/s, rip-rap type L should be used.

$\rightarrow D_{50} =$ 9 inches (0.75 ft)

$$T = 1.75 (D_{50})$$

$$= 1.75 (0.75 \text{ ft}) = 1.31 \text{ ft} \ (1.31 \text{ ft})$$

$$L = 4 D$$

$$= 4 (3.5 \text{ ft}) = 14 \text{ ft} \ (10 \text{ ft})$$

$$L = (D)^{1/2} \left(\frac{V}{2} \right)$$

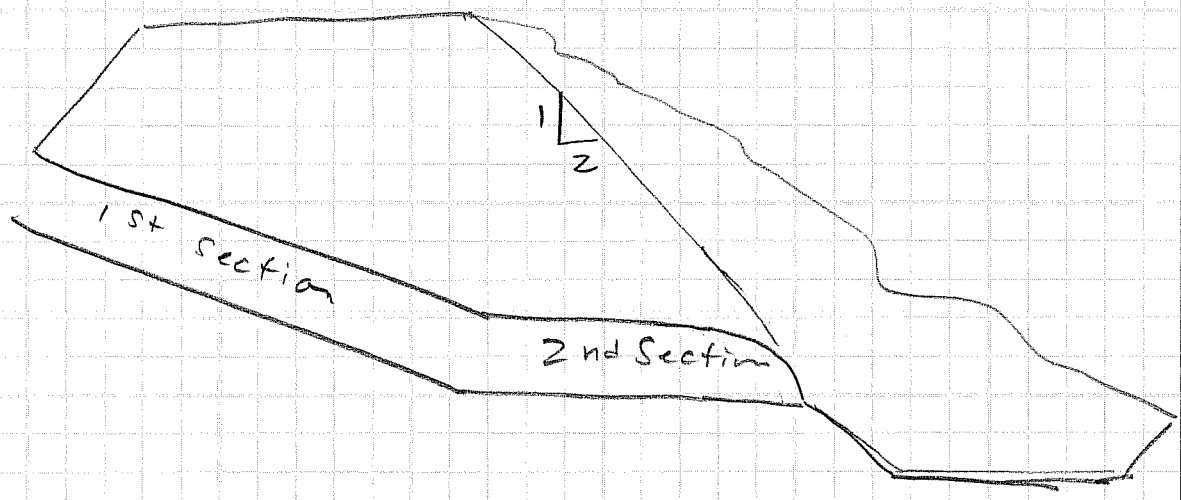
$$= (3.5 \text{ ft})^{1/2} \left(\frac{14.05 \text{ ft/s}}{2} \right) = 8.90 \text{ ft} \ (7.04 \text{ ft})$$

$$L = 14 \text{ ft} \ (10 \text{ ft})$$

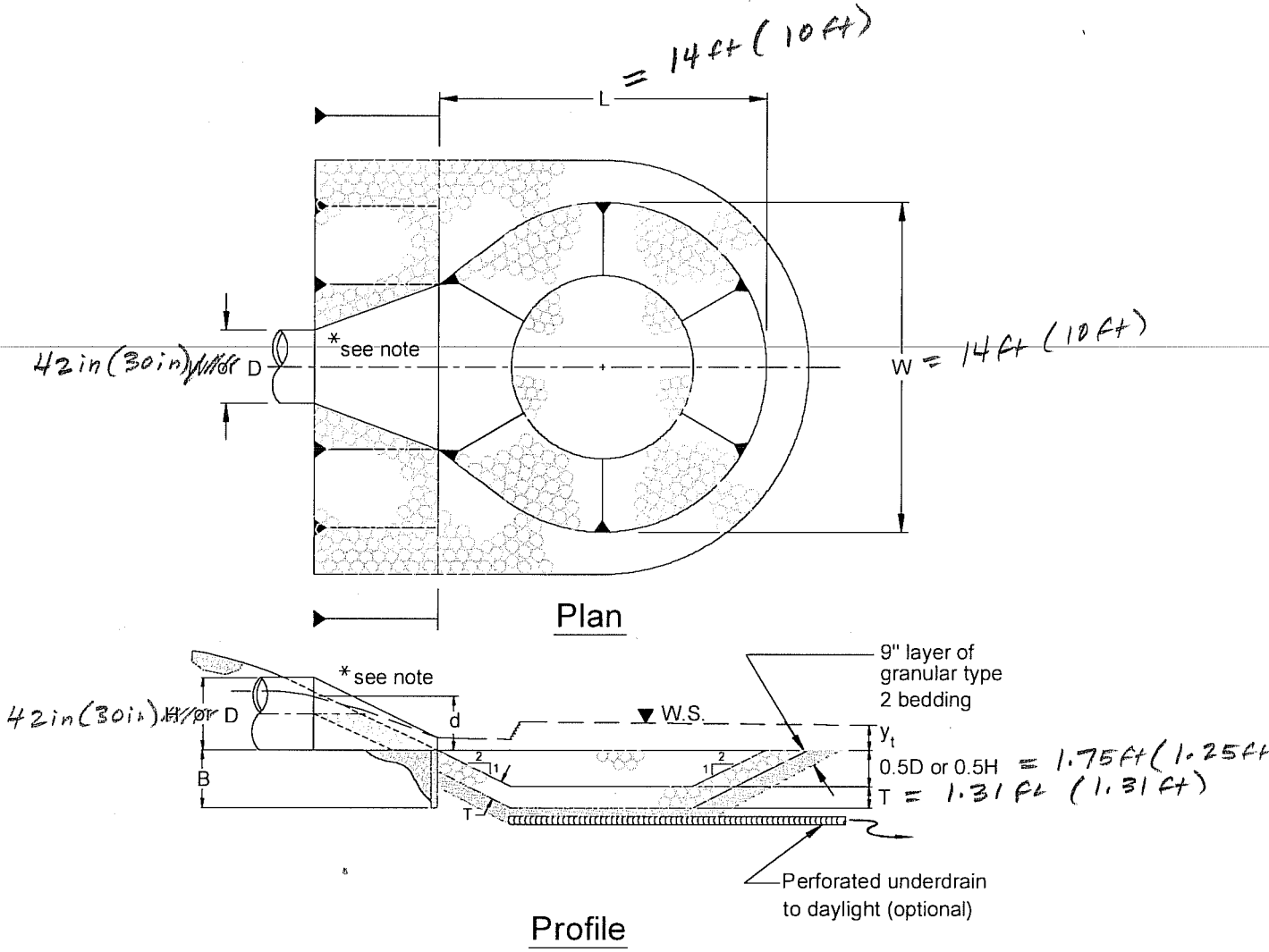
$$W = 4 D$$

$$= 4 (3.5 \text{ ft}) = 14 \text{ ft} \ (10 \text{ ft})$$

- Refer to page HS-76 for typical rip-rap apron outlet.
- In order to maintain the flat bottom for the rip-rap apron, a change in grade of the outlet pipes may require a deflection when going under the highway (see drawing). The second section of pipe should be installed with a slope of 0.16 ft/ft (CP-2) and 0.08 ft/ft (UDC-1) or less.



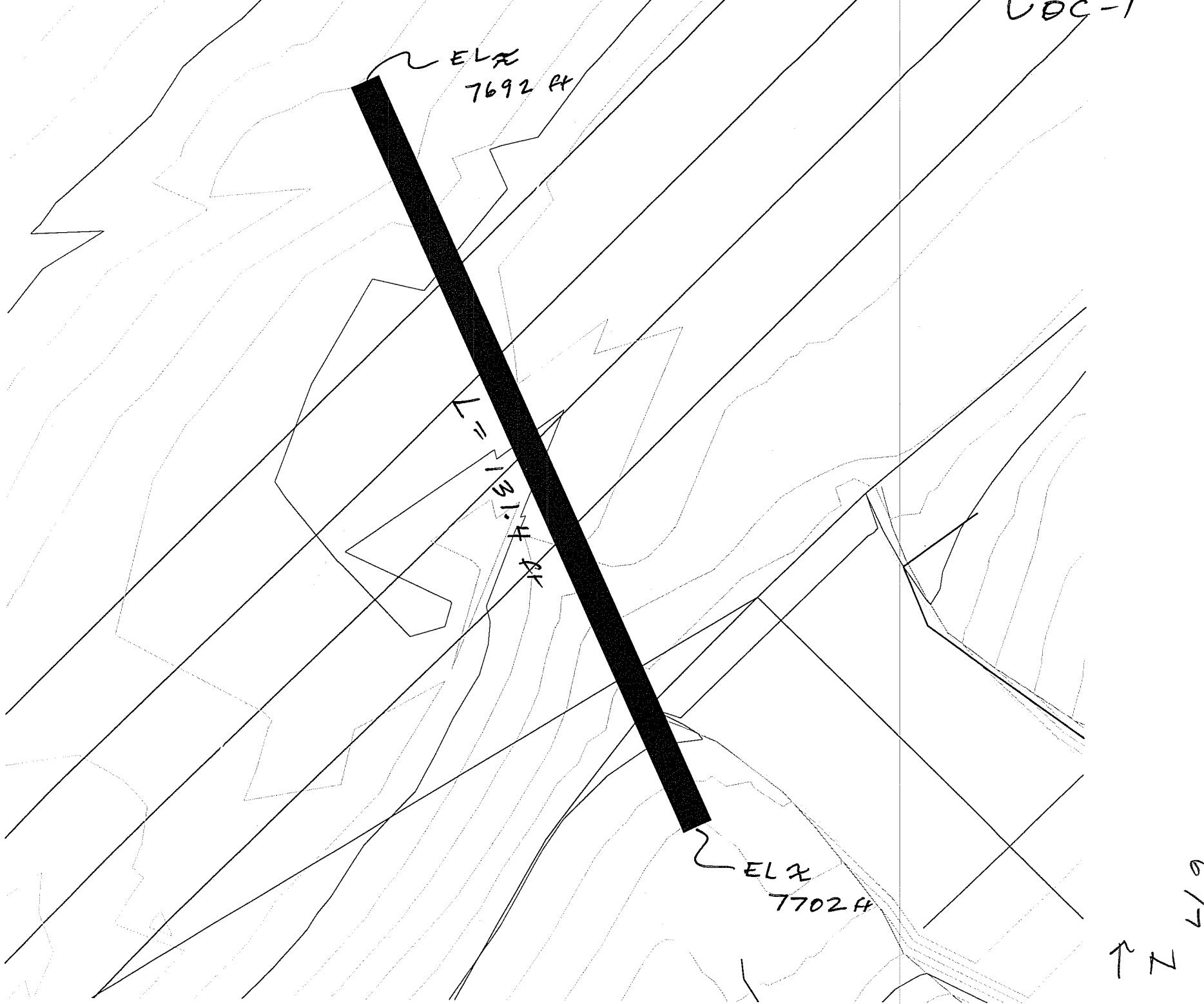
SPECIAL NOTE:
ENERGY DISSIPATION POOL WILL BE COORDINATED WITH UDOT. IF INSUFFICIENT ROW CAN BE UTILIZED FOR CONSTRUCTION, AN ALTERNATIVE WILL BE WORKED OUT WHEREIN A CONCRETE ENERGY DISSIPATION DEVICE CAN BE USED TO MINIMIZE REQUIRED AREA.



* Note: For rectangular conduits use a standard design for a headwall with wingwalls, paved bottom between the wingwalls, with an end cutoff wall extending to a minimum depth equal to B

Figure HS-18A—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Low Tailwater Basin at Pipe Outlets

(Stevens and Urbonas 1996)


LOC-1
EL≈
7692 ft
L = 1,400 ft
EL≈
7702 ft
N

CP-2

386
7658.38
TOP 36IN CMP
FL ≈ 7655.45 ft
L = 74.1 ft
390
7667.61
FL
389
7670.54
TOP 36IN CMP
N

APPENDIX 17.F
Corrugated Metal Pipe

Corrugated metal pipe (CMP, also known as *corrugated steel pipe*) is frequently used for culverts. Pipe is made from corrugated sheets of galvanized steel that are rolled and riveted together along a longitudinal seam. Aluminized steel may also be used in certain ranges of soil pH. Standard round pipe diameters range from 8 to 96 in (200 to 2450 mm). Metric dimensions of standard diameters are usually rounded to the nearest 25 or 50 mm (e.g., a 42 in culvert would be specified as a 1050 mm culvert, not 1067 mm).

Larger and noncircular culverts can be created out of curved steel plate. Standard section lengths are 10 to 20 ft (3 to 6 m). Though most corrugations are transverse (i.e., annular), helical corrugations are also used. Metal gages of 8, 10, 12, 14, and 16 are commonly used, depending on the depth of burial.

The most common corrugated steel pipe has transverse corrugations that are 1/2 in (13 mm) deep and 2 2/3 in (68 mm) from crest to crest. These are referred to as "2 1/2 inch" or "68 × 13" corrugations. For larger culverts, corrugations with a 2 in (25 mm) depth and 3, 5, and 6 in (76, 125, or 152 mm) pitches are used. Plate-based products using 6 in by 2 in (152 mm by 51 mm) corrugations are known as *structural plate corrugated steel pipe* (SPCSP) and *multiplate* after the trade-named product "Multi-Plate™."

The flow area for circular culverts is based on the nominal culvert diameter, regardless of the gage of the plate metal used to construct the pipe. Flow area is calculated to (at most) three significant digits.

A Hazen-Williams coefficient, C, of 60 is typically used with all sizes of corrugated pipe. Values of C and Manning's constant, n, for corrugated pipe are generally not affected by age. *Design Charts for Open Channel Flow* (U.S. Department of Transportation, 1979) recommends a Manning constant of $n = 0.024$ for all cases. The U.S. Department of the Interior recommends the following values. For standard (2 2/3 in by 1/2 in or 68 mm by 13 mm) corrugated pipe with the diameters given: 12 in (457 mm), 0.027; 24 in (610 mm), 0.025; 36 to 48 in (914 to 1219 mm), 0.024; 60 to 84 in (1524 to 2134 mm), 0.023; 96 in (2438 mm), 0.022. For (6 in by 2 in or 152 mm by 51 mm) multiplate construction with the diameters given: 5 to 6 ft (1.5 to 1.8 m), 0.034; 7 to 8 ft (2.1 to 2.4 m), 0.33; 9 to 11 ft (2.7 to 3.3 m), 0.32; 12 to 13 ft (3.6 to 3.9 m), 0.31; 14 to 15 (4.2 to 4.5 m), 0.030; 16 to 18 ft (4.8 to 5.4 m), 0.029; 19 to 20 ft (5.8 to 6.0 m), 0.028; 21 to 22 ft (6.3 to 6.6 m), 0.027.

If the inside of the corrugated pipe has been asphalted completely smooth 360° circumferentially, Manning's n ranges from 0.009 to 0.011. For culverts with 40% asphalted inverts, $n = 0.019$. For other percentages of paved invert, the resulting value is proportional to the percentage and the values normally corresponding to that diameter pipe. For field-bolted corrugated metal pipe arches, $n = 0.025$.

It is also possible to calculate the Darcy friction loss if the corrugation depth, 0.5 in (13 mm) for standard corrugations and 2.0 in (51 mm) for multiplate, is taken as the specific roughness.

Ref: Civil Engineering Reference Manual, 2006

Support Material

accumulation at the upstream row of baffles.

Flow entering the chute should be well distributed laterally across the width of the chute. The velocity should be below critical velocity at the crest of the chute. To insure low velocities at the upstream end of the chute, it may be necessary to provide a short energy dissipating pool. The sequent or conjugate depth in the approach basin should be maintained to prevent jump sweep-out, but the basin length may be considerably less than a conventional hydraulic jump basin since the primary purpose of this pool is only to reduce the average entrance velocity. A basin length of twice the sequent depth will usually provide ample basin length. The end check of the pool may be used as the crest of the chute as shown in Figure HS-17.

3.4 Low Tailwater Basins

3.4.1 General

The design of low tailwater riprap basins for storm sewer pipe outlets and some culverts is necessary when the receiving channel may have little or no flow and uncontrolled pipe velocities would create erosional problems in the channel. Design criteria are provided in Figures HS-18a through HS-20.

3.4.2 Objective

By providing a low tailwater basin at the end of a storm sewer conduit or culvert, the kinetic energy of the discharge is dissipated under controlled conditions without causing scour at the channel bottom. Photograph HS-12 shows a representative low tailwater basin.

3.4.3 Low Tailwater Basin Design

For storm sewers, low tailwater is defined as being equal to or less than ⅓ of the storm sewer height, that is:

$$y_t \leq \frac{D}{3} \quad \text{or} \quad y_t \leq \frac{H}{3}$$

in which:

y_t = tailwater depth at design

D = diameter of circular pipe (ft)

H = height of rectangular pipe (ft)

3.4.3.1 Finding Flow Depth and Velocity of Storm Sewer Pipe Outlets

The first step in the design of a scour protection basin at the outlet of a storm sewer is to find the depth and velocity of flow at the outlet. Pipe-full flow can be found using Manning's equation and the pipe-full velocity can be found using the well-known and standard continuity equation. Namely,

$$Q_{full} = \frac{1.49}{n} A_{full} \left(R_{full}\right)^{2/3} S_o^{1/2}$$

in which:

Q_{full} = pipe full discharge at its slope (cfs)

n = Manning's n for the pipe full depth

A_{full} = cross-sectional area of the pipe (ft^2)

S_o = longitudinal slope of the pipe (ft/ft)

R = hydraulic radius of the pipe flowing full, ft [$R_{full} = D/4$ for circular pipes, $R_{full} = A_{full}/(2H + 2w)$ for rectangular pipes, where D = diameter of a circular conduit, H = height of a rectangular conduit, and w = width of a rectangular conduit (ft)]

Then,

$$V_{full} = Q_{full} / A_{full}$$

In which:

V_{full} = flow velocity of the pipe flowing full (ft/sec)

The normal depth of flow, d, and the velocity at that depth in a conduit can be found with the aid of Figure HS-18b. Using the known design discharge, Q, and the calculated pipe-full discharge, Q_{full}, enter Figure HS-18b with the value of Q/Q_{full} and find d/D for a circular pipe of d/H for a rectangular pipe.

Compare the value of this d/D (or d/H) with that obtained from Figure HS-19 using the Froude parameter, namely,

$$Q/D^{2.5} \quad \text{or} \quad Q/\left(wH^{1/5}\right)$$

Choose the smaller of the two (d/D or d/H) ratios to calculate the flow depth at the end of the pipe, namely,

$$d = D(d/D) \quad \text{or} \quad d = H(d/H)$$

Again, enter Figure HS-18b using the smaller d/D (or d/H) ratio to find the A/A_{full} ratio. Use this to calculate the area of flow at the end of the pipe, namely,

$$A = \left(A/A_{full}\right)A_{full}$$

in which:

A = area of the design flow in the end of the pipe (ft^2)

Finally,

$$V = Q/A$$

in which:

V = design flow velocity at the pipe outlet (ft/sec)

3.4.3.2 Riprap Size

For the design velocity, use Figure HS-20 to find the size and type of the riprap to use in the scour protection basin downstream of the pipe outlet (i.e., B18, H, M or L). First, calculate the riprap sizing design parameter, P_d, namely,

$$P_d = \left(V^2 + gd\right)^{1/2} \qquad \text{(HS-16)}$$

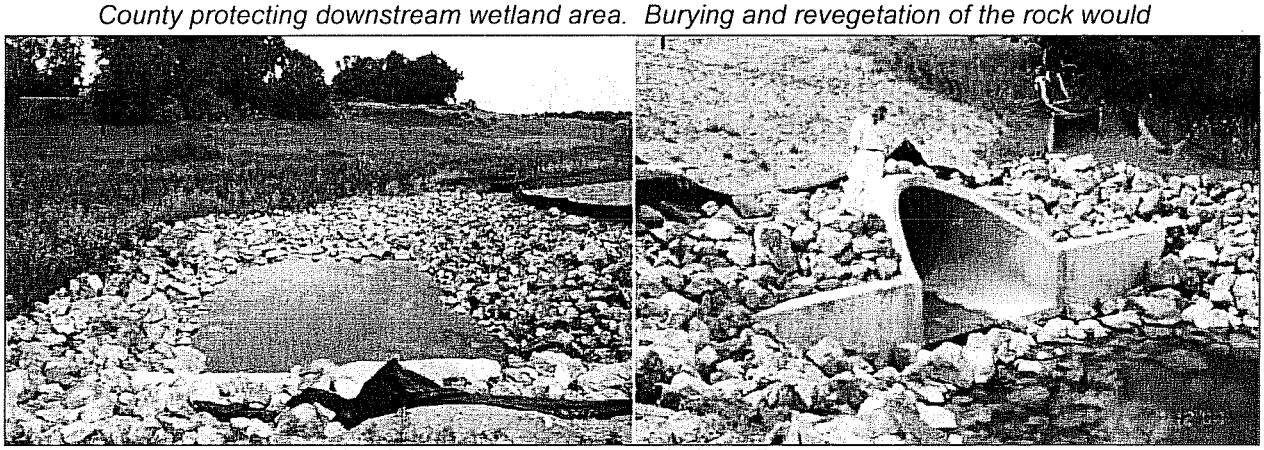
in which:

V = design flow velocity at pipe outlet (ft/sec)

g = acceleration due to gravity = 32.2 ft/sec^2

d = design depth of flow at pipe outlet (ft)

Photograph HS-12—Upstream and downstream views of a low tailwater basin in Douglas County protecting downstream wetland area. Burying and revegetation of the rock would blend the structure better with the adjacent terrain.



When the riprap sizing design parameter indicates conditions that place the design above the Type H riprap line in Figure HS-20, use B18, or larger, grouted boulders. An alternative to a grouted boulder or loose riprap basin is to use the standard USBR Basin VI, as described in Section 3.2.

After the riprap size has been selected, the minimum thickness of the riprap layer, T, in feet, in the basin is set at:

$$T = 1.75 D_{50} \qquad \text{(HS-17)}$$

in which:

D_{50} = the median size of the riprap (see Table HS-9.)

Table HS-9—Median (i.e., D_{50}) Size of District's Riprap

Riprap Type	D_{50}—Median Rock Size (inches)
L	9
M	12
H	18
B18	18 (grouted)

3.4.3.3 Basin Length

The minimum length of the basin, L, in Figure HS-18a, is defined as being the greater of the following lengths:

for circular pipe,

$$L = 4D \quad \text{or} \quad L = (D)^{1/2}\left(\frac{V}{2}\right) \qquad \text{(HS-18)}$$

for rectangular pipe,

$$L = 4H \quad \text{or} \quad L = (H)^{1/2}\left(\frac{V}{2}\right) \qquad \text{(HS-19)}$$

in which:

L = basin length (Figure HS-18a)

H = height of rectangular conduit

V = design flow velocity at outlet

D = diameter of circular conduit

3.4.3.4 Basin Width

The minimum width, W, of the basin downstream of the pipe's flared end section is set as follows:

for circular pipes,

$$W = 4D \qquad \text{(HS-20)}$$

for rectangular pipe,

$$W = w + 4H \qquad \text{(HS-21)}$$

in which:

W = basin width (Figure HS-18a)

D = diameter of circular conduit

w = width of rectangular conduit

3.4.3.5 Other Design Requirements

All slopes in the pre-shaped riprapped basin are 2H to 1V.

Provide pipe joint fasteners and a structural concrete cutoff wall at the end of the flared end section for a circular pipe or a headwall with wingwalls and a paved bottom between the walls, both with a cutoff wall that extends down to a depth of

$$B = \frac{D}{2} + T \quad \text{or} \quad B = \frac{H}{2} + T \qquad \text{(HS-22)}$$

in which:

B = cutoff wall depth

D = diameter of circular conduit

T = Equation HS-17

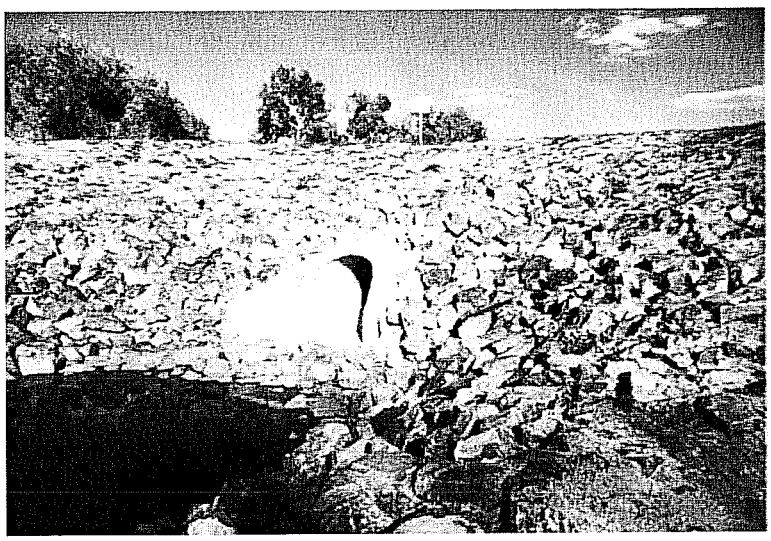
The riprap must be extended up the outlet embankment's slope to the mid-pipe level.

3.5 Culvert Outlets

Culvert outlets in the Denver area represent a persistent problem because of concentrated discharges and turbulence that are not fully controlled prior to the flow reaching the standard downstream channel configuration. Too often the designer's efforts are focused on the culvert inlet and the culvert sizing with the outlet hydraulics receiving only passing attention. A culvert design is not complete until adequate attention is paid to the outlet hydraulics and proper stilling of the design flow.

Culvert outlet energy dissipator and flow spreading may require special structures downstream of the culvert outlet to limit local scour, general stream degradation, and troublesome head cutting.

Local scour is typified by a scour hole produced at the culvert outlet. This is the result of high exit velocities, and the effects extend only a limited distance downstream. Coarse material scoured from the circular or elongated hole is deposited immediately downstream, often forming a low bar. Finer material is transported further downstream. The dimensions of the scour hole change due to sedimentation during low flows and the varying erosive effects of storm events. The scour hole is generally deepest during passage of the peak flow. Methods for predicting scour hole dimensions are found in HEC No. 14 (Corry, et al. 1975).



Photograph HS-13—Culvert outlets are often left unprotected causing downstream degradation. The designer's job is not complete until the outlet hydraulic provisions are made. Burying of riprap and revegetation of the surface would have blended this structure better into the adjacent landscape.

General storm degradation, or head cutting, can be a phenomenon independent of culvert performance. Natural causes produce a lowering of the streambed over time. The identification of a degrading stream is an essential part of the original site investigation. However, high-energy discharges from a culvert often cause stream degradation that is similar to the former, though limited in distance. Both types of scour can occur simultaneously at a culvert outlet.

As described in HEC No. 14, various measures exist to control culvert outlet flow, as listed below. It is beyond the scope of this *Manual* to provide information about these controls, but the District encourages their proper application and design.

1. Colorado State University rigid boundary basin

2. Tumbling flow rectangular section
3. Increased resistance—box culverts
4. Roughness elements—circular culverts
5. USBR Type II
6. USBR Type III
7. USBR Type IV
8. Contra Costa
9. Hook-type energy dissipator
10. Straight drop structure
11. Riprap basins

In addition, one might consider an extended culvert apron with one or more rows of baffles, or using large rows of offset racks set downstream of the culvert outlet on a bed of suitable riprap without a basin, but with an adequate tailwater depth, all designed in accordance with the criteria given in Section 2.0 of this chapter.

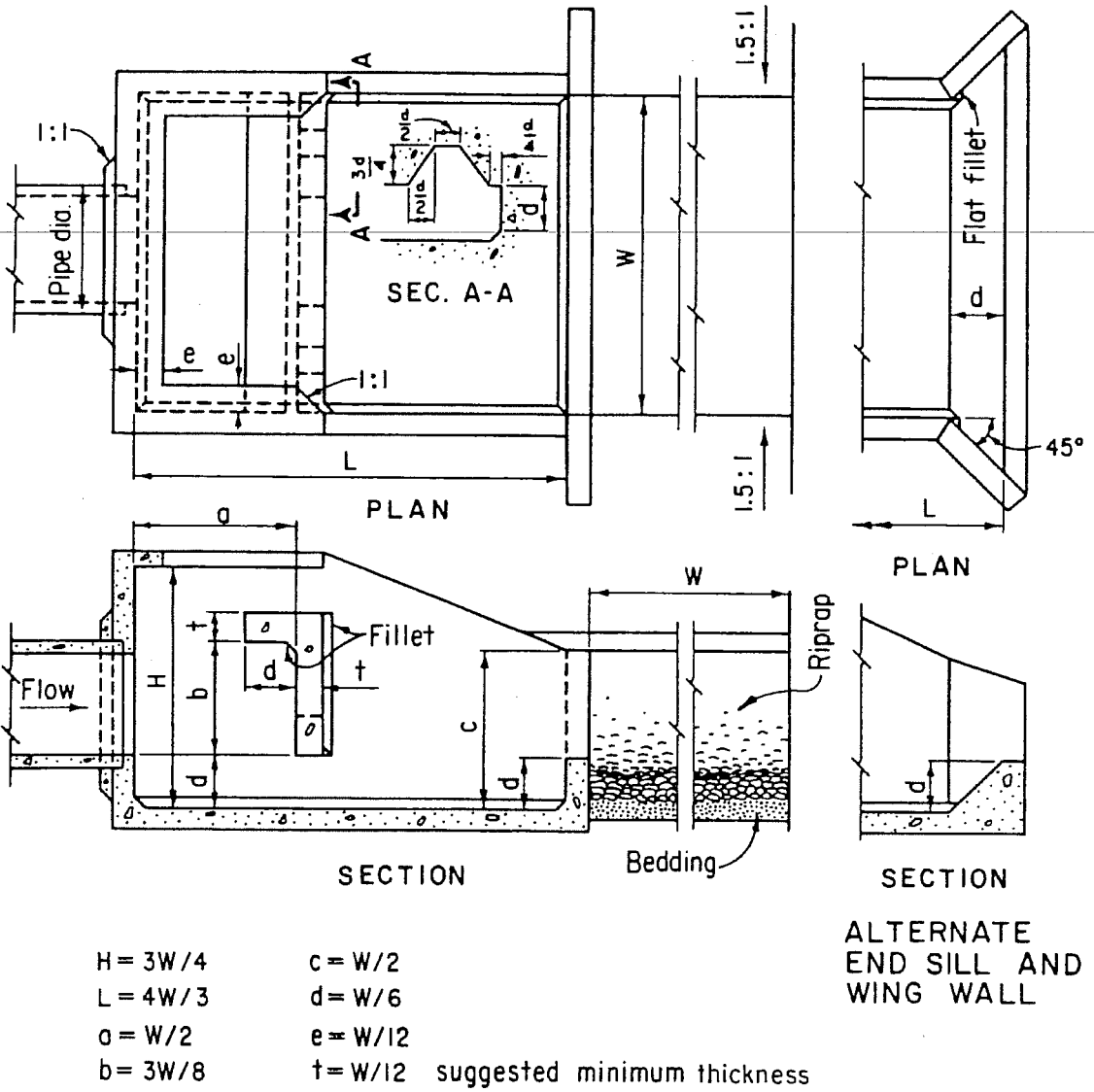
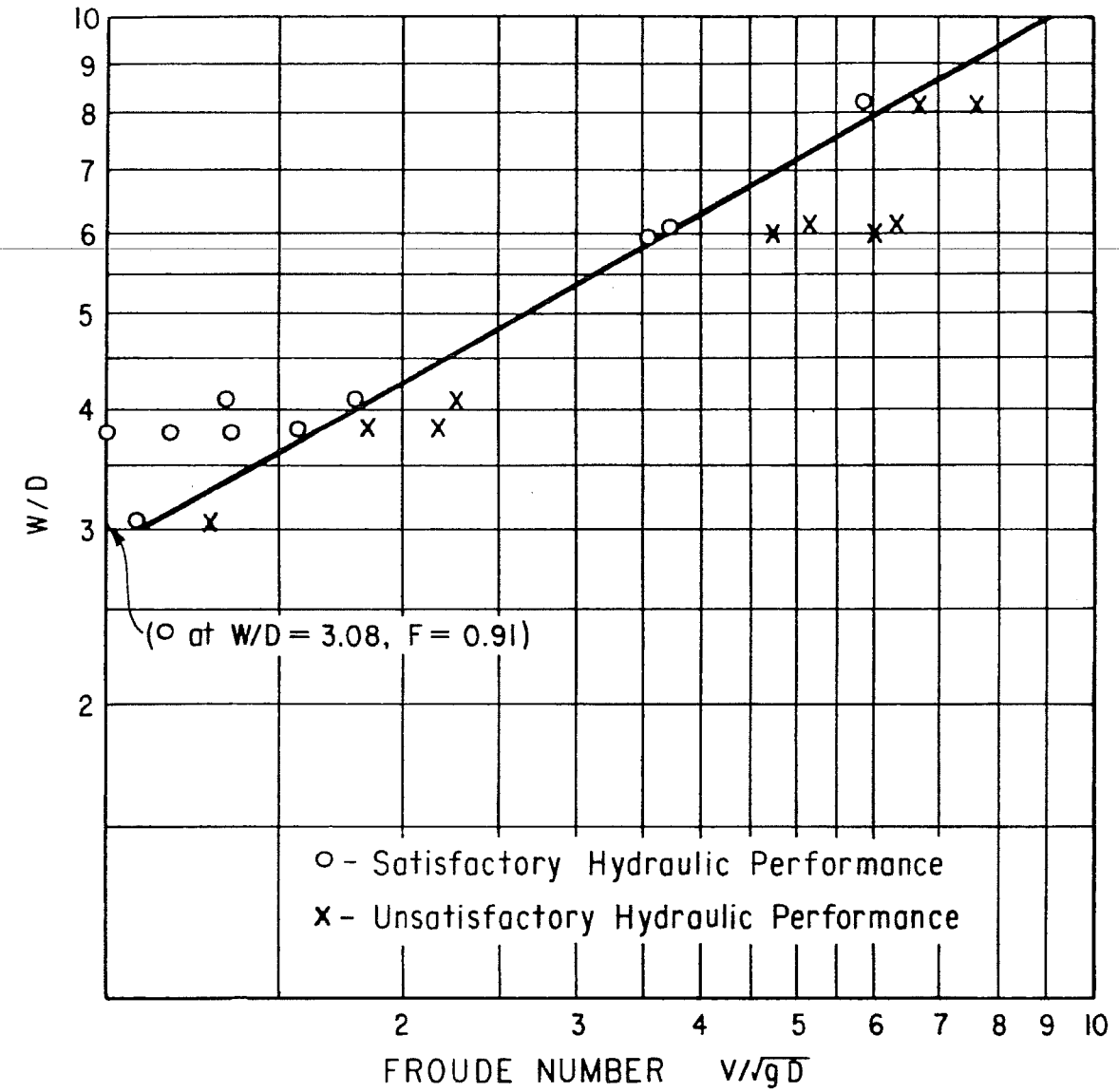
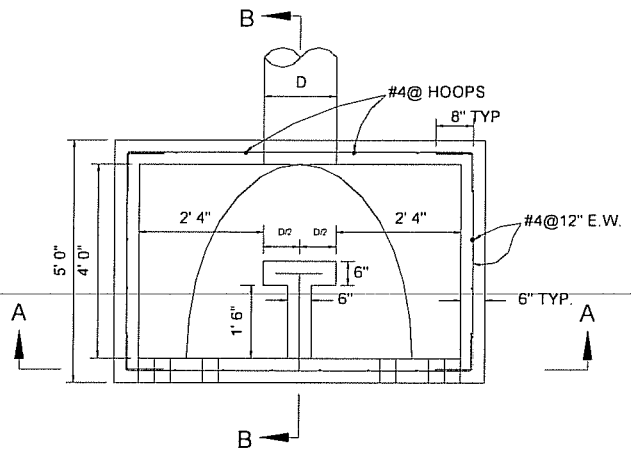


Figure HS-14—General Design Dimensions Impact Stilling Basin (USBR VI)

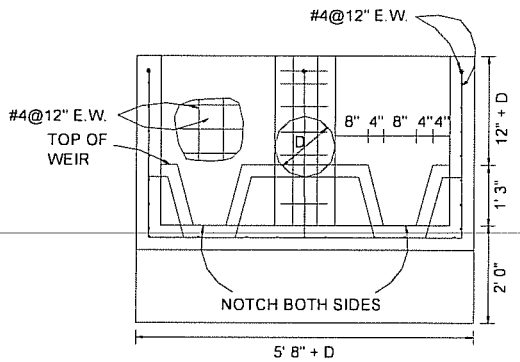


"W" is the inside width of the basin.
"D" represents the depth of flow entering the basin and is the square root of the flow area at the conduit outlet.
"V" is the velocity of the incoming flow.
The tailwater depth is uncontrolled.

Figure HS-15—Basin Width Diagram for an Impact Stilling Basin (USBR VI)



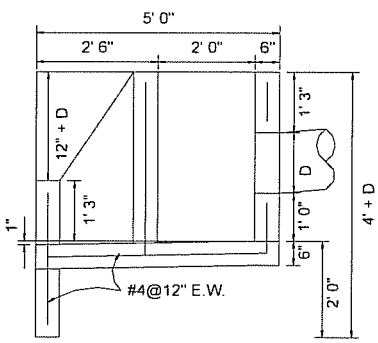
PLAN VIEW



SECTION A-A

CONCRETE DISSIPATOR NOTES

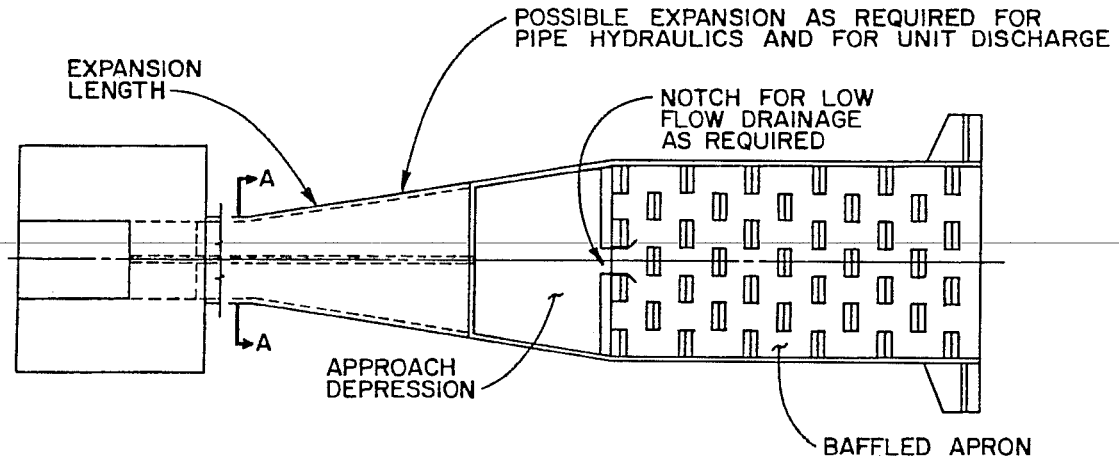
1. ALL CONCRETE SHALL BE CLASS A UNLESS OTHERWISE APPROVED BY ENGINEER.
2. ALL REINFORCING STEEL SHALL CONFORM TO ATSM A 615, GRADE 60
3. 8 INCHES OF TYPE II BEDDING SHALL BE PLACED UNDER ALL STRUCTURAL SLAB AREAS & COMPACTED PRIOR TO CONCRETE POUR
4. ALL REINFORCING SHALL HAVE 3" CLEAR COVER



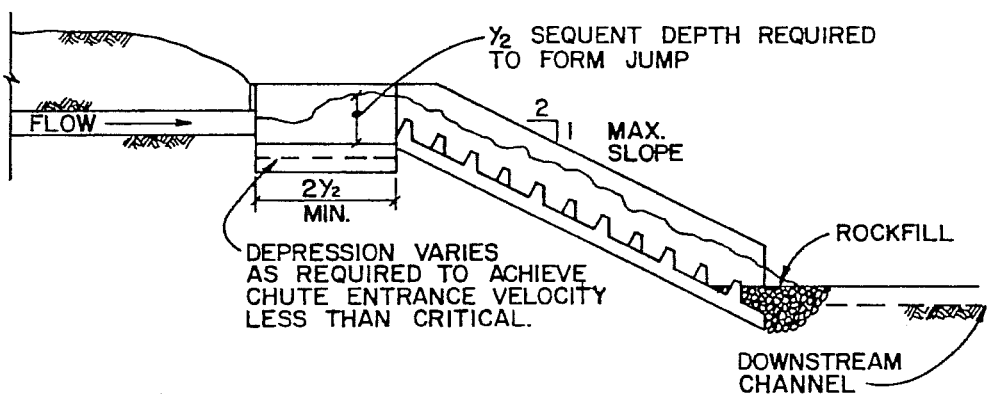
SECTION B-B

ENERGY DISSIPATOR FOR PIPE OULET DIAMETERS ≤ 36"

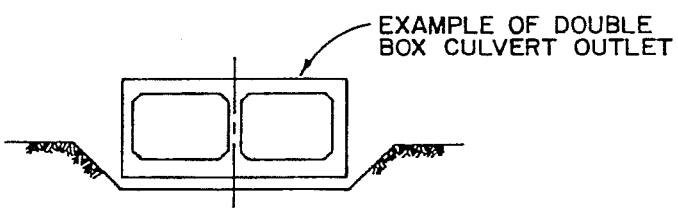
Figure HS-16—Modifications of Impact Stilling Basin to Allow Basin Drainage for Urban Applications



PLAN



PROFILE



SECTION A-A

Figure HS-17—Baffle Chute Pipe Outlet

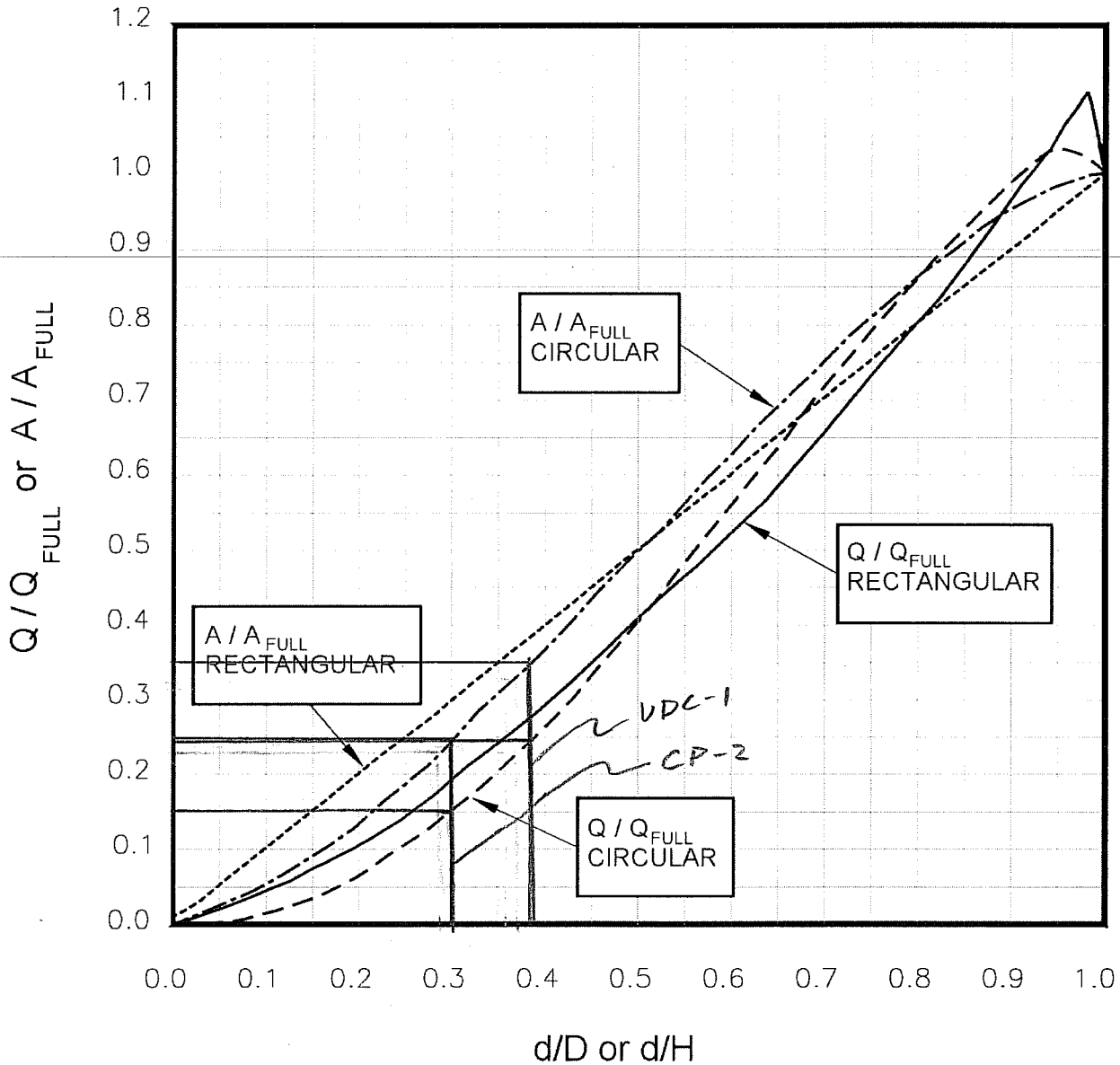


Figure HS-18b—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Discharge and Flow Area Relationships for Circular and Rectangular Pipes

(Ratios for Flow Based on Manning's n Varying With Depth)
(Stevens and Urbonas 1996)

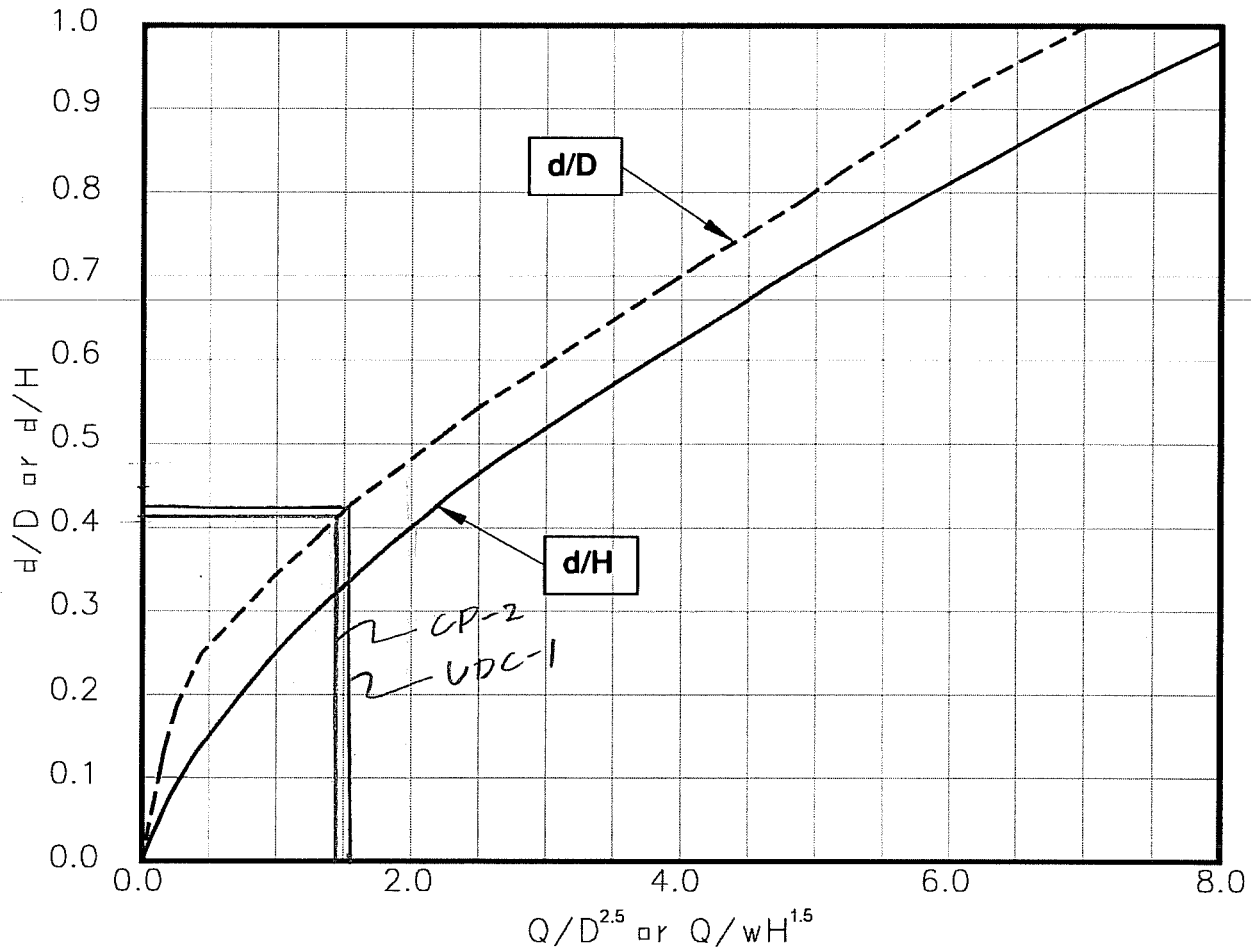


Figure HS-19—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Brink Depth for Horizontal Pipe Outlets

(Stevens and Urbonas 1996)

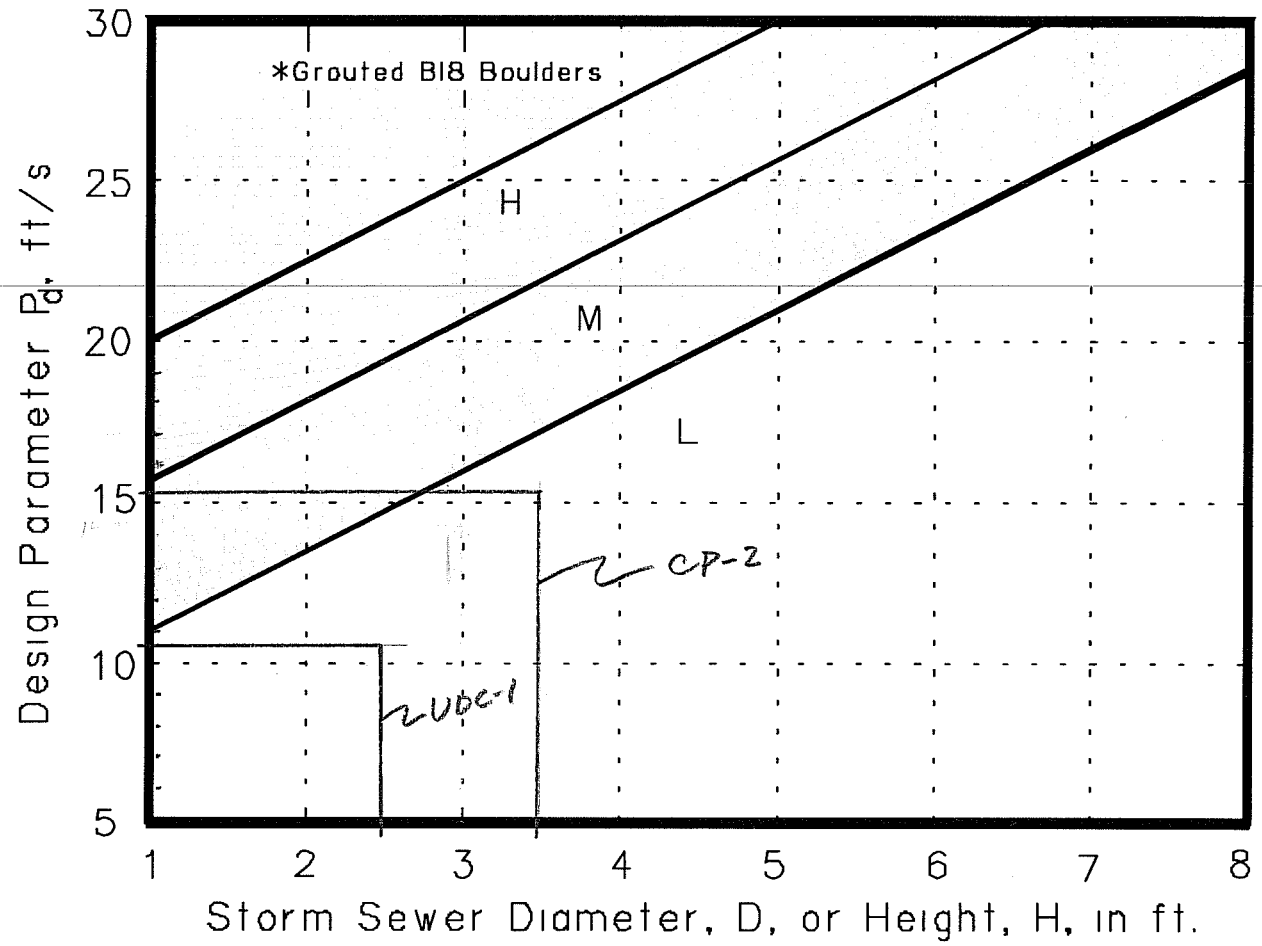
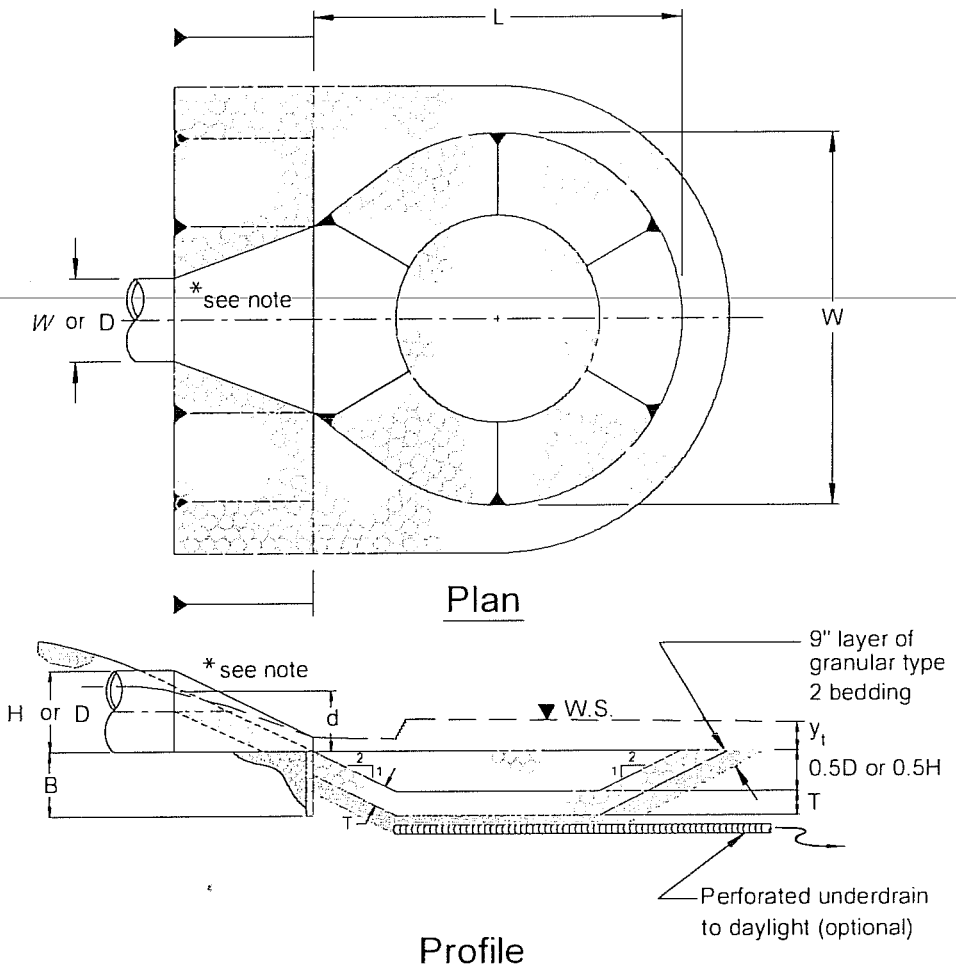


Figure HS-20—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Riprap Selection Chart for Low Tailwater Basin at Pipe Outlet

(Stevens and Urbonas 1996)



* Note: For rectangular conduits use a standard design for a headwall with wingwalls, paved bottom between the wingwalls, with an end cutoff wall extending to a minimum depth equal to B

Figure HS-18A—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Low Tailwater Basin at Pipe Outlets

(Stevens and Urbonas 1996)

Exhibit 17

The Cumulative Hydrologic Impact Assessment (CHIA) for the Kinney No. 2 Mine can be viewed on the UDOGM web site http://linux1.ogm.utah.gov/WebStuff/wwwroot/coal/chias.php.

Exhibit 18
Bonding and Insurance Information

Reclamation Bond Calculations

Reclamation Bond Documents

Insurance Information

Bond Amount

Bonding Calculations

Direct Costs		
Subtotal Demolition & Removal	$862,829	
Subtotal Earthwork - Backfill and Grading	$616,846	
Subtotal Revegetation	$143,239	
Subtotal Direct Costs	**$1,622,914**	
Indirect Costs		
Mobilization /Demobilization	$162,291	10%
Contingencies	$81,146	5.00%
Engineering Redesign	$40,573	2.50%
Main Office Expense	$110,358	6.80%
Project Management Fee	$40,573	2.50%
Subtotal Indirect Costs	**$434,941**	26.80%
Total Costs	**$2,057,855**	
Escalation		0.0178
No. of Years		5
Escalation	$189,786	
Reclamation Cost Escalated (2023)	$2,247,641	
Reclamation Cost Rounded to Nearest $1000	$2,248,000	
Bond Amount In 2011 Dollars + 15%	$2,585,200	
Difference Between Cost Estimate and Bond	$337,200	

11/19/2018

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
1	Shop Warehouse Steel Bldg.																			$187,445	1
2	Ventilation Fan																			$7,320	2
3	Electrical Substation																			$14,723	3
4	Power Poles																			$16,472	4
5	Portals																			$30,320	5
6	Mine Belt 11 (MB1)																			$12,711	6
7	Stacking Tubes 2 Ea																			$1,226	7
8	Conveyors SB-1, SB-2,SB-3 & SB-4																			$123,615	8
9	Fueling Facility																			$11,279	9
10	Truck Loadout																			$16,903	10
11	Storage Sheds - 5 EA																			$113,680	11
12	Transfer Tower Belt MB-1 to SB-1																			$14,551	12
13	Crushing & Screening Building																			$90,949	13
14	Office Bathhouse Building																			$91,281	14
15	Explosives Magazines																			$194	15
16	Inlets-Storm Drain & Cleanout Boxes																			$40	16
17	Culverts																			$6,760	17
18	Water Monitoring Wells																			$39,503	18
19	Reclaim Tunnel																			$22,419	19
20	Conveyor Supports																			$179	20
21	WaterTank Steel & PVC Water Line																			$6,453	21
22	Parking Lot and Access Road Pavement																			$54,806	22
	Total																			$862,829	

Ref.	Description	Materials	Means Line Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
01	Shop Warehouse Steel Bldg.																			
	Structure's Demolition Cost	Steel Bld. Large	024116130020	0.36	/CF	175	75	32										420000	CF	$151,200
	Structure's Vol. Demolished																0.35	5444	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel - ECDC	Building materials-sht rock & etc.	ECDC	11.40	ton	175	75	32					1			Ton	0.03	163		$1,862
	Steel's Weight																			
	Truck's Capacity																			
		2 Trips/Day, 79 mi. rnd. trip = 289 Trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck	5444 CY (7240 tons) 4 axle, 25 ton, 18 CY	015433205310	6.10	CY													5444	CY	$33,235
	Transportation Cost Steel Truck Drive																			
	Disposal at Salvage Yard																			
	Subtotal																			$186,297
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	175	25	0.5									1.3	105	CY	$459
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347																	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY	175	25	0.5									1.3	105	CY	$328
	Concrete foundation on site at toe of cuts	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													105	LCY	$360
		On site disposal at toe of cut																		
	Subtotal																			$1,148
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$187,445

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
02	Ventilation Fan																			
	Structure's Demolition Cost	Steel Bld. Large	024116130020	0.36	/CF	60	20	12										14400	CF	$5,184
	Structure's Vol. Demolished																0.35	187	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel ECDC																			
	Steel's Weight																			
	Truck's Capacity																			
		2 Trips/Day, 79 mi. rnd. trip = 11 Trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck	187 CY (291 tons) 4 axle, 25 ton, 18 CY	015433205310	6.76	CY													187	CY	$1,265
	Transportation Cost Steel Truck Drive																			
	Disposal at Salvage Yard																			
	Subtotal																			$6,449
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	60	20	2										89	CY	$389
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	116	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													116	CY	$363
	Conc foundation on site at toe of cuts	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													116	LCY	$119
	Disposal Costs																			
	Subtotal																			$871
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$7,320

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
05	Electrical Substation																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Steel Structure	Steel Removal	024116130020	0.36	/CF	25	25	12										7500	CF	$2,700
																	0.35	97	CY	
	Transformer	Electrical equipment heavy	260505101570	1704	Ea										2	EA				$3,408
	Wire and ducting	Wire and ducting removal	260505100700	35	/LF	200										LF		200	LF	$7,000
	Aerial Wire	Wire Removal	260505101990	86	/C.L.F.	150										LF		1.5	C.L.F.	$129
	Chain Link Fence	Chain link remove 8'-10'	024113601700	4.34	/LF	120										LF		120	LF	$521
		2 Trips/Day, 79 mi. rnd. trip = 7 trip	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck	97 CY (173 tons) 4 axle, 25 ton, 18 CY	015433205310	8.30	CY													97	CY	$805
	Transportation Cost Steel Truck Drive																			
	Disposal at Salvage Yard																			
	Subtotal																			$14,563
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	25	25	0.67										16	CY	$70
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	21	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													21	CY	$66
	Concrete foundation on site at toe of cuts	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													21	LCY	$24
	Subtotal																			$160
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$14,723

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
06	Power Poles																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Remove wire	Wire Removal	Soldier Creek	5.43	/LF	1800												1800	LF	$9,772
	Remove conduit (use wire)	Wire Removal	Soldier Creek	5.43	/LF	90												90	LF	$489
	Remove Fixtures (use poles)	Powerpole 3600'/300'= 12 poles		169.30	EA										12	EA		12	EA	$2,032
	Remove Poles	Powerpole		169.30	EA										12	EA		12	EA	$2,032
		2 Trips/Day, 79 mi. rnd. trip = 1 Trip	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck & Poles	12 EA (20 tons) 4 axle, 25 ton, 18 CY	015433205310	6.39	CY													18	CY	$115
	Disposal Costs Poles	ECDC	ECDC	169.30	EA										12	EA		12	EA	$2,032
	Disposal at Salvage Yard Wire & Hardware																			
	Subtotal																			$16,472
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$16,472

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
08	Portals	042210280650 & 042210281050																		
	Structure's Demolition Cost	Seal Portals - backfill incl. in earthwork	042210280650 & 042210281050	18.95	S.F.	2	20	8		320					5	Portals		1600	S.F.	$30,320
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			$30,320
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$30,320

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
11	Mine Belt 11 (MB1)	120' long										300LB/Ft								
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost	300LB/LF X 120'/2000LF/TON=18 tons		699.77	/ton	120						300	LB/LF			Ton		18	Ton	$12,596
	Equipment 's Vol. Demolished																			
		2 Trips/Day, 79 mi. rnd. Trip = 1 Trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck	13.5 CY (18 tons) 4 axle, 25 ton, 18 CY	015433205310	8.52	CY													13.5	CY	$115
	Disposal at Salvage Yard																			
	Subtotal																			$12,711
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$12,711

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Number	Unit	Swell Factor	Quantity	Unit	Cost
13	Stacking Tubes 2 Ea																		
	Structure's Demolition Cost	Steel Struc. 8' Dia X 55' high = 2765 CF x 2	024116130020	0.36	/CF			55	8	50.27	2,764.6						5,529.20	CF	$1,991
	Structure's Vol. Demolished															0.35	72	CY	
	Rubble's Weight (exclude steel)																		
	Truck's Capacity																		
	Haulage																		
	Transportation Cost Non Steel Truck																		
	Transportation Cost Non Steel Drive																		
	Disposal Cost Non Steel																		
	Steel's Weight																		
	Truck's Capacity																		
	Haulage																		
		2 Trips/Day, 79 mi. rnd. trip = 4 Trips	Monthly Rent @ 20 days/month																
	Transportation Cost Steel Truck	72 CY (96 tons) 4 axle, 25 ton, 18 CY	015433205310	6.39	CY												72	CY	460
	Transportation Cost Steel Truck Drive																		
	Disposal at Salvage Yard																		
	Equipment 's Disposal Cost																		
	Dismantling Cost																		
	Equipment 's Vol. Demolished																		
	Loading Costs																		
	Transport Costs																		
	Disposal Costs																		
	Subtotal																		
	Concrete Demolition																		
	Demolition Cost																		
	Concrete's Vol. Demolished																		
	Loading Cost																		
	Transportation Cost																		
	Disposal Costs																		
	Subtotal																		
	Concrete Demolition																		
	Demolition Cost																		
	Concrete's Vol. Demolished																		
	Loading Cost																		
	Transportation Cost																		
	Disposal Costs																		
	Subtotal																		
	Concrete Demolition																		
	Demolition Cost																		
	Concrete's Vol. Demolished																		
	Loading Cost																		
	Transportation Cost																		
	Disposal Costs																		
	Subtotal																		
	Total																		$1,226

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
14	Conveyors SB-1, SB-2,SB-3 & SB-4	1170' Long																		
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal at Salvage Yard																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost	300lb/LF X 1170'/2000LF/TON=176 tons		699.77	Ton	1170						300	LB/LF					175.5	Ton	$122,810
	Equipment 's Vol. Demolished																			
		2 Trips/Day, 79 mi. rnd. Trip = 7 Trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck	132 CY (175 tons) 4 axle, 25 ton, 18 CY	015433205310	6.12	CY													131.63	CY	$805
	Disposal at Salvage Yard																			
	Subtotal																			$123,615
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$123,615

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
15	Fueling Facility																			
	Structure's Demolition Cost	Concrete Containment Structure	024116130050	0.5	/CF	50	20	6										6000	CF	$3,000
	Structure's Vol. Demolished																0.35	78	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity		Monthly Rent @ 20 days/month																	
	Haulage	12 CY (16 Ton) Dump Truck 79 mi rnd trip	015433205310	1.47	/CY													78	CY	$115
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	11.29	/TON								1			Ton/CY		78	Ton	$880
	Subtotal																			$3,995
	Tank																			
	Dismantling Cost Including piping	5000 gal to 10000 gal tank	130505750530	1575	Ea.										3	Ea		3	EA	$4,725
	Loading Costs																			
	Transport Costs Including piping	5000 gal to 10000 gal tank	015433205250	245	Day										3			3	EA	$735
	Disposal Costs	5000 gal to 10000 gal tank	ECDC	366.81	Ea.										3			3	EA	$1,100
	Subtotal																			$6,560
	Slab Apron																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	50	20	0.5								FT		19	CY	$83
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	25	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													25	CY	$78
		12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													25	LCY	$86
	On site Disposal	On site disposal at toe of cut																		
	Subtotal																			$247
	Footings																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	50	20	1								FT		37	CY	$162
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	48	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													48	CY	$150
		12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													48	LCY	$165
	On site Disposal	On site disposal at toe of cut																		
	Subtotal																			$477
	Slab																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Walls																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$11,279

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
17	Truck Loadout	25' x 25' x 60'																		
	Structure's Demolition Cost	Steel Bld. Large	024116130020	0.36	/CF	25	25	60										37500	CF	$13,500
	Structure's Vol. Demolished																0.35	486	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
		2 Trips/Day, 79 mi rnd trip = 27 Trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck	486 CY (648 tons) 4 axle 25 Ton, 18 CY	015433205310	6.39	CY													486	CY	$3,105
	Transportation Cost Steel Truck Drive																			
	Disposal at Salvage Yard																			
	Subtotal																			$16,605
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	25	25	1								CF		23	CY	$101
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	30	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													30	CY	$94
	Transportation Cost - Conc. Foundation placed on site at toe of cuts	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													30	LCY	$103
	Subtotal																			$298
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$16,903

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
18	Storage Sheds - 5 EA																			
	Structure's Demolition Cost	Steel Bldg. Large - 3 sides/ open front	024116130020	0.36	/CF	120	30	14								FT		50400	CF	$18,144
	Structure's Vol. Demolished																0.35	653	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
		2 Trips/Day, 79 mi rnd trip = 35 Trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck Drive	653 CY (871 Tons), 4 axle, 25 Ton, 18 CY	015433205310	6.16	CY													653	CY	$4,025
	Transportation Cost Steel Truck Drive																			
	Disposal at Salvage Yard																			
	Subtotal																			$22,169
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	120	30	0.33								FT		44	CY	$193
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	57	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													57	CY	$178
	Transportation Cost - Conc Foundation placed on site at toe of cuts	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													57	LCY	$196
	Subtotal																			$567
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			$22,736
	5 Storage Sheds at same size & costs																	5	EA	
																				$113,680
	Total																			$113,680

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
19	Transfer Tower Belt MB-1 to SB-1																			
	Structure's Demolition Cost	Steel Bld. Lage	024116130020	0.36	/CF	25	25	50								FT		31250	CF	$11,250
	Structure's Vol. Demolished																0.35	405	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
		2 Trips/Day, 79 mi rnd trip = 23 trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck Drive	405 CY (540 Tons), 4 axle, 25 Ton, 18 CY	015433205310	6.53	CY													405	CY	$2,645
	Transportation Cost Steel Truck Drive																			
	Disposal at Salvage Yard																			
	Subtotal																			$13,895
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition					25	25	2								FT		1250	CF	
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY												1.3	60	CY	$263
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347																	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY	25	25	2										60	CY	$188
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													60	LCY	$206
	Disposal Costs	Disposal on site at toe of cuts																		
	Subtotal																			$656
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$14,551

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
21	Crushing & Screening Building	50' x 50' x 80'																		
	Structure's Demolition Cost	Steel Bld. Large	024116130020	0.36	/CF	50	50	80								FT		200000	CF	$72,000
	Structure's Vol. Demolished																0.35	2593	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
		2 Trips/Day, 79 mi rnd trip = 144 trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck	2593 CY (3457 Tons) 4 axle, 25 Ton, 18 CY	015433205310	6.39	CY													2593	CY	$16,560
	Transportation Cost Steel Truck Drive																			
	Disposal at Salvage Yard																			
	Subtotal																			$88,560
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	50	50	2								FT		185	CY	$809
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	241	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													241	CY	$753
	Transportation Cost - Conc Foundation placed on site at toe of cuts	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													241	LCY	$827
	Subtotal																			$2,389
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$90,949

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
23	Office Bathhouse Building	142' x 60' x 23																		
	Structure's Demolition Cost	Steel Bld. Large	024116130020	0.36	/CF	142	60	23								FT		195960	CF	$70,546
	Structure's Vol. Demolished																0.35	2540	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	Building materials sht rock & etc	ECDC	11.40	Ton	142	60	23								CY	0.03	218	CY	$2,485
	Steel's Weight																			
	Truck's Capacity																			
		2 Trips/Day, 79 mi rnd trip = 141 Trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck	2540 CY (3379 Tons) 4 axle, 25 Ton, 18 CY	015433205310	6.38	CY													2540	CY	$16,215
	Transportation Cost Steel Truck Drive																			
	Disposal at Salvage Yard																			
	Subtotal																			$89,246
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	142	60	0.5								CY		158	CY	$691
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	205	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													205	CY	$641
	Transportation Cost - Conc Foundation placed on site at toe of cuts	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													205	CY	$703
	Subtotal																			$2,035
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$91,281

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
25	Explosives Magazines																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost	Powder Magazine Small				6	6	6										8	CY	
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													8	CY	$25
	Transportation Cost - Conc Foundation	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													8	CY	$27
	placed on site at toe of cuts	Disposal at Salvage Yard																		
	Subtotal																			$52
	Equipment 's Disposal Cost	Cap Magazine Small				6	6	6										8	CY	
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													8	CY	$25
	Transportation Cost - Conc Foundation	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													8	CY	$27
	placed on site at toe of cuts	Salvage yard Price		11.29	CY													8	CY	$90
	Subtotal																			$142
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$194

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
30	Inlets-Storm Drain & Cleanout Boxes														6	EA				
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Concrete Demolition																			
	Removal Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			$0
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY	4	4	4							6	EA		6	CY	$19
	Transportation Cost - On site disposal at toe of cuts	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip On site disposal	312323201014	3.43	LCY										6	EA		6	CY	$21
	Subtotal																			$40
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$40

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
31	Culverts																			
	Aluminium CMP 18" & 30"	Excavation included in Site Earthwork	024113400180	1.95	LF	400	3	5								FT		400	LF	$ 780
	Structure's Vol. Demolished																0.5			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Aluminum's Weight	From Contech Construction Products	Contech									1.2				Ton				
	Truck's Capacity																			
	Transportation Cost Steel Truck Drive	2 Trips/Day, 79 mi rnd trip = 3 Trips	Monthly Rent @ 20 days/month																	
		52 CY (43 Tons), 4 axle, 25 Ton, 18 CY	015433205310	114.21	CY													52	CY	$ 5,980
	Transportation Cost Steel Truck Drive																			
	Disposal Salvage Yard																			
																				$ 6,760
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$ 6,760

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
33	Water Monitoring Wells																			
	Structure's Demolition Cost	Plug Well	AML3	$ 5,643.31	EA.										7	EA		7	EA	$39,503
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			$39,503
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$39,503

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
36	Reclaim Tunnel	Concrete x 350' Long																		
	Structure's Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	350	12	12								FT		1867	CY	$8,168
	Structure's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347																	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													1867	CY	$5,834
		12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													1867	CY	$6,404
	On site Disposal	On site disposal																		
	Subtotal																			$20,406
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Surface Slab																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	350	12	1								FT		156	CY	$683
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	203	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													203	CY	$634
		12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													203	CY	$696
	On site Disposal	On site disposal																		
	Subtotal																			$2,013
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$22,419

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
38	Conveyor Supports																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition - 2.5 CY Excavator	015433200320	4.38	/CY	4.5	4.5	1							2	FT		14	CY	$61
	Concrete's Vol. Demolished	w/ hydraulic hammer (@400 CY/shift)	015433200347														1.3	18	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													18	CY	$56
		12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	312323201014	3.43	LCY													18	CY	$62
	On site Disposal	On site disposal																		
	Subtotal																			$179
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$179

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
45	WaterTank Steel & PVC Water Line																			
	Structure's Demolition Cost	Steel Bld. Large	024116130020	0.36	/CF			35	20		6303	4			Ton	FT		10996	CF	$ 3,959
	Structure's Vol. Demolished																0.35	143	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage	12 CY (16 Ton) Dump Truck 6 mi. rnd. trip	312323201020	6.4	/CY													143	CY	$ 915
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
		2 Trips/Day, 79 mi. rnd. trip = 8 Trips	Monthly Rent @ 20 days/month																	
	Transportation Cost Steel Truck	143 CY (191 tons) 4 axle, 25 ton, 18 CY	015433205310	6.43	CY													143	CY	$ 920
	Transportation Cost Steel Truck Drive																			
	Disposal Salvage Yard																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			$ 5,794
	PVC Water Line reclaim	6" - 8" PVC schedule 40																		
		Included in earthwork - no salvage -	024113381700	1.28	LF	700												700	LF	$ 894
	Demolition Cost	assume .33 X Means for discard																9	CY	
	Loading Cost	2 Trips/Day, 79 mi. rnd. trip = 1 Trips	Monthly Rent @ 20 days/month																	
	Transportation Cost	3.3 CY (4.4 tons) 4 axle, 25 ton, 18 CY	015433205310	34.85	CY													3.3	CY	$ 29
	Disposal Costs		ECDC	39.50	CY													10	CY	$ 395
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$ 6,453

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
46	Parking Lot and Access Road Pavement																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Asphalt Removal Rotomill/Reuse																			
	Demolition Cost	Pavement removal (asphalt) 3 inch	024113175010	5.77	SY					8400						SY		8400	SY	$48,468
	Concrete's Vol. Demolished							0.25								FT	1.3	910	CY	
	Loading Cost	Front end loader 3 1/4 CY	015433204530	3.13	/CY													910	CY	$2,844
		12 CY (16 Ton) Dump Truck 1 mi. rnd. trip	312323201016	3.84	LCY													910	CY	$3,494
	Haul to Scofiled Town for Reuse																			
	Subtotal																			$54,806
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			$54,806

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Kinney No. 2 Mine Earthwork Costs & Revegetation Costs Summary															
Backfilling and Grading															$292,766
Topsoil Distribution															$202,895
Support Equipment and Labor															$121,185
Vegetation															$143,239
TOTAL															$760,085

	Monthly Rent Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Kinney No. 2 Mine Backfilling and Grading															
Ripping Fill Area (D9 Dozer)															
D9R Semi-U EROPS Means #015433204360	21200	109.35	0.1	53.75	285.00	1	285	$/HR	24,780	CY	184	CY/HR	134.7	HR	$38,390
Multi-Shank Ripper 410 HP Means #015433500580	1300	5.7	0.1		13.17	1	13.17	$/HR					134.7	HR	$1,774
Subtotal															$40,164
Backfill On Site Load-Haul-Place															
Loading															
988G EROPS Means #015433204810	15800	90.6	0.1	53.75	235.20	1	235.2	$/HR	30,759	CY	498	CY/HR	61.8	HR	$14,535
Hauling															
769D End Dump Truck 25 Ton Means #015433205550	12700	61.8	0.1	53.75	188.57	2	377.15	$/HR	30,759	CY	498	CY/HR	61.8	HR	$23,308
Place with Excavator															
CAT 345BL 3 1/2 CY Means #015433200340	28100	175.2	0.1	53.75	390.52	1	470.77	$/HR	12,304	CY	180	CY/HR	68.4	HR	$32,201
Place with Dozer															
D9R Semi-U EROPS Means #015433204360	21200	109.35	0.1	53.75	285.00	1	285	$/HR	15,380	CY	184	CY/HR	83.6	HR	$23,826
Subtotal															$93,870
Backfill On Site Slope <30%															
CAT 345BL 3 1/2 CY Means #015433200340	28100	175.2	0.1	53.75	390.52	1	390.52	$/HR	43,062	CY	180	CY/HR	239.2	HR	$93,412
Spread															
D9R Semi-U EROPS Means #015433204360	21200	109.35	0.1	53.75	285.00	1	285	$/HR	21,531	CY	184	CY/HR	117	HR	$33,345
Pock Marking															
CAT 345BL 3 1/2 CY Means #015433200340	28100	175.2	0.1	53.75	390.52	1	390.52	$/HR	21,531	CY	180	CY/HR	119.6	HR	$46,706
Subtotal															
Backfill On Flatter Slpoes W/Scraper															
CAT 631G 24 CY Means #015433203600	31500	184.55	0.1	53.75	419.42	1	419.42	$/HR	49,214	CY	393	CY/HR	125.2	HR	$52,511
D9R Semi-U EROPS Means #015433204360	21200	109.35	0.1	53.75	285.00	1	285	$/HR	24,607	CY	184	CY/HR	133.7	HR	$38,105
Pock Marking															
CAT 345BL 3 1/2 CY Means #015433200340	28100	175.2	0.1	53.75	390.52	1	390.52	$/HR	24,607	CY	180	CY/HR	136.7	HR	$53,384
Total Backfilling and Grading															$292,766

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Kinney No. 2 Mine Topsoil Distribution															
Load From Topsoil Stockpile															
Load															
988G EROPS Means #015433204810	15800	90.6	0.1	53.75	235.20	1	235.2	$/HR	54966	CY	498	CY/HR	110.4	HR	$25,966
Haul															
769D End Dump Truck 25 Ton Means #015433205550	12700	61.8	0.1	53.75	188.57	2	377.15	$/HR	54966	CY	498	CY/HR	110.4	HR	$41,637
Subtotal															$67,603
Place Topsoil															
Place with Wheel Loader															
988G EROPS Means #015433204810	15800	90.6	0.1	53.75	235.20	1	235.2	$/HR	18138.78	CY	498	CY/HR	36.4	HR	$8,561
Grading															
D7R Series II 240 HP Means #015433204260	11700	61.65	0.1	53.75	182.67	1	182.67	$/HR	54966	CY	145	CY/HR	379.1	HR	$69,250
Excavator															
CAT 345BL 3 1/2 CY Means #015433200340	28100	175.2	0.1	53.75	390.52	1	470.77	$/HR	21986.4	CY	180	CY/HR	122.1	HR	$57,481
Subtotal															$135,292
Total															$202,895

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Kinney No. 2 Mine Support Equipment and Labor															
Backfilling & Topsoil Placement															
6000 gal H2O Truck Means #015433406950	7250	70.16	0.1	51.3	163.15	1	163.15	HR	60	DAYS			480	HR	$78,312
Pickup Truck 4x4 3/4 ton Means #015433407200	675	10.2	0.1	0	14.08	1	14.08	$/HR					480	HR	$6,758
Foreman - Means Outside Crew			0.1	75.24	75.24	1	75.24	$/HR					480	HR	$36,115
Subtotal															$121,185
Total															$121,185

Ref.	Description	Materials	Means Line Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Kinney No. 2 Mine																		
	Soil Prep Included in Earthwork																		
	Seed Mix Permanent	Data from Paul Baker UDOGM																	
	Hydroseed Equip & Labor	Hydro Spreader W/Labor - 27.6 AC = 133584 SQYD	329219131000	0.44	SQYD					133584					SQYD		133584	SQYD	$58,109
	Seed Mix Permanent	PLS Seed Mix Permanent Reclamation	DOGM	14353.18	EA												1	EA	$14,353
	Hay Mulch	Hay 1" DEEP = 8.3 TONS/ACRE	CURRENT PRICE	139.95	TON					27.6					AC		229	TONS	$32,061
	Hay Mulch Chopper/Spreader	Power Mulcher Large - INCLUDES LABOR	329113160350	7.88	MSF					1203					MSF		1203	MSF	$9,480
	Silt Fencing	Silt Fencing with posts Includes labot	312514161000	1.88	LF												2853	LF	$5,364
	Subtotal																		$119,366
	RESEEDING - ASSUME 25% RATE																		$23,873
	Subtotal																		$23,873
	Subtotal																		
	Subtotal																		
	Subtotal																		
	Total																		$143,239

Exhibit 19

Geological Information
Roof & Floor Analyses, SGS Lab Sheets
Rock Strength Data, Agapito Reports

Roof & Floor Analyses, SGS Lab Sheets

Sample recd 7/28/06 Instructions 8/2/06

CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER **CR-06-01**
SEAM NAME Hiawatha
DATE SAMPLED 2/14/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

Samples Analysed for
ACID FORMING &
Toxic Metals

BOX # SAMPLE #	FROM	TO	Interval	SHORT PROXIMATE	LONG PROXIMATE	UNTIMATE	8 POINT ASH FUSION	APPARENT SPECIFIC GRAVITY	HARDGROVE GRIND.	SULFUR FORMS	FREE SWELLING INDEX	MINERAL ASH	WATER SOL. ALKALIES	Na (SINGLE ELEMENT)	FLOURINE (SINGLE ELEMENT)	CHLORINE (SINGLE ELEMENT)	TRACE ELEMENTS (Coal Suite)	TRACE ELEMENTS (Rock Suite)	TOXIC METALS	ACID FORMING POTENTIAL	RESIN	SAVE SAMPLE FOR ARCHIVE	SPECIAL INSTRUCTIONS
5B/5	75.60	76.40	Hia Roof		X			X				X							X	X		X	1 foot upper roof rock
5C/5	76.40	76.90	Hia Roof		X			X				X							X	X		X	6" immediate roof rock
6/5	76.90	77.40	Hia Top		X			X				X										X	6" top coal
7/5	77.40	78.20	Hia Upper		X			X				X										X	upper section of coal seam
1/6	78.20	78.80	Hia Part		X			X				X							X	X		X	rock parting
2&3/6	78.80	81.70	Hia Middle		X			X				X										X	middle section of coal seam
4&5/6	81.70	84.00	Hia Lower		X			X				X										X	lower section of coal seam
6/6	84.00	85.00	Hia Bottom		X			X				X										X	1 foot of floor coal
7/6	85.00	85.50	Hia Floor		X			X				X										X	6" of floor rock
COMP-1	76.90	85.00	Hia Seam		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	Composite of all six coal samples (6/5, 7/5, 1/6, 2&3/6, 4&5/6, and 6/6)

1/7 Added 9-2010

NOTE: Sample 5B/5 from 75.6' to 76.4' is currently being tested for rock mechanics properties and will be forwarded to SGS at a future time

072-21001-001
5B/5
Carbon Resources LLC
Due: **08/17/2006**
085488
Rec: 07/28/2006

CHANGE IN POSSESSION

Relinquished by	Signed		Time
Representing		Date	
Received By	Signed		Time
Representing		Date	

August 23, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	5B/5	**Footage Begin :**	75.60
Date Received:	07/28/2006	**Footage End :**	76.40
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	2210.20		
Core Hole ID :	CR-06-01		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-21001-001

	As Received	Dry	MAF
% Moisture, Total	2.35		
% Ash	86.32	88.40	
% Volatile Matter	3.57	3.66	31.51
% Fixed Carbon	7.76	7.94	68.49
Gross Calorific Value (Btu/lb)	971	995	8574
% Sulfur	0.16	0.16	

Analyte	Result
Acid Potential	4.91 TCaCO3/1000T
Pounds of Ash/mm Btu	888.62 lb
Pounds of Sulfur/mm Btu	1.60 lb
Pounds of SO2/mm Btu	3.21 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

SGS North America Inc. | Minerals Services Division
4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

Member of the SGS Group

F-465

GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

August 23, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	5B/5	**Footage Begin :**	75.60
Date Received:	07/28/2006	**Footage End :**	76.40
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	2210.20		
Core Hole ID :	CR-06-01		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-21001-001

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	85.48	%
Aluminum Oxide Al2O3	6.73	%
Titanium Dioxide TiO2	0.43	%
Iron Oxide Fe2O3	1.12	%
Calcium Oxide CaO	2.72	%
Magnesium Oxide MgO	0.97	%
Potassium Oxide K2O	1.88	%
Sodium Oxide Na2O	0.06	%
Sulfur Trioxide SO3	0.33	%
Phosphorus Pentoxide P2O5	0.23	%
Strontium Oxide SrO	0.01	%
Barium Oxide BaO	0.03	%
Manganese Oxide, Mn3O4	0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	1.30	%
Silica Value	94.67	%
Base:Acid Ratio	0.07	%
T250 Temperature	>2900	°F
Type of Ash	Lignitic	

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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GENERAL CONDITIONS OF SERVICE ON REVERSE

August 23, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	5B/5	**Footage Begin :**	75.60
Date Received:	07/28/2006	**Footage End :**	76.40
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	2210.20		
Core Hole ID :	CR-06-01		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-21001-001

Analyte	Result
Arsenic - TCLP	<0.01 mg/L
Barium - TCLP	0.12 mg/L
Cadmium - TCLP	<0.005 mg/L
Chromium - TCLP	<0.005 mg/L
Lead - TCLP	<0.05 mg/L
Selenium - TCLP	<0.01 mg/L
Silver - TCLP	<0.005 mg/L
Mercury - TCLP	<0.0002 mg/L
Specific Gravity, Apparent	2.36 g/cc

Respectfully submitted,
SGS NORTH AMERICA INC.

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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	5C/5	**Footage Begin :**	76.40
Date Received:	04/21/2006	**Footage End :**	76.90
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	1810.50		
Core Hole ID :	CR-06-01		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-19142-002

	As Received	Dry	MAF
% Moisture, Total	3.60		
% Ash	90.26	93.63	
% Volatile Matter	5.12	5.31	83.49
% Fixed Carbon	1.02	1.06	16.51
Gross Calorific Value (Btu/lb)	348	361	5670
% Sulfur	0.23	0.24	

Analyte	Result
Acid Potential	7.50 TCaCO3/1000T
Pounds of Ash/mm Btu	2594.42 lb
Pounds of Sulfur/mm Btu	6.64 lb
Pounds of SO2/mm Btu	13.26 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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SGS

May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	5C/5	**Footage Begin :**	76.40
Date Received:	04/21/2006	**Footage End :**	76.90
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	1810.50		
Core Hole ID :	CR-06-01		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-19142-002

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	83.48	%
Aluminum Oxide Al2O3	8.48	%
Titanium Dioxide TiO2	0.51	%
Iron Oxide Fe2O3	1.29	%
Calcium Oxide CaO	1.86	%
Magnesium Oxide MgO	1.41	%
Potassium Oxide K2O	2.19	%
Sodium Oxide Na2O	0.07	%
Sulfur Trioxide SO3	0.42	%
Phosphorus Pentoxide P2O5	0.25	%
Strontium Oxide SrO	0.00	%
Barium Oxide BaO	0.03	%
Manganese Oxide, Mn3O4	0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	1.51	%
Silica Value	94.82	%
Base:Acid Ratio	0.07	%
T250 Temperature	>2900	°F
Type of Ash	Lignitic	
Specific Gravity, Apparent	2.46	g/cc
Arsenic - TCLP	<0.01	mg/L
Mercury - TCLP	<0.0002	mg/L
Barium - TCLP	<0.01	mg/L
Cadmium - TCLP	<0.005	mg/L
Chromium - TCLP	<0.005	mg/L
Lead - TCLP	<0.05	mg/L
Selenium - TCLP	<0.01	mg/L
Silver - TCLP	<0.005	mg/L

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	1/6	**Footage Begin :**	78.20
Date Received:	04/21/2006	**Footage End :**	78.80
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	943.30		
Core Hole ID :	CR-06-01		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-19142-005

	As Received	Dry	MAF
% Moisture, Total	7.58		
% Ash	56.80	61.45	
% Volatile Matter	17.99	19.47	50.51
% Fixed Carbon	17.63	19.08	49.49
Gross Calorific Value (Btu/lb)	4577	4952	12847
% Sulfur	0.28	0.30	

Analyte	Result
Acid Potential	9.38 TCaCO3/1000T
Pounds of Ash/mm Btu	124.10 lb
Pounds of Sulfur/mm Btu	0.62 lb
Pounds of SO2/mm Btu	1.23 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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Member of the SGS Group
GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	1/6	**Footage Begin :**	78.20
Date Received:	04/21/2006	**Footage End :**	78.80
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	943.30		
Core Hole ID :	CR-06-01		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-19142-005

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	72.21	%
Aluminum Oxide Al2O3	19.85	%
Titanium Dioxide TiO2	0.93	%
Iron Oxide Fe2O3	1.97	%
Calcium Oxide CaO	0.51	%
Magnesium Oxide MgO	1.38	%
Potassium Oxide K2O	2.92	%
Sodium Oxide Na2O	0.10	%
Sulfur Trioxide SO3	0.04	%
Phosphorus Pentoxide P2O5	0.05	%
Strontium Oxide SrO	0.01	%
Barium Oxide BaO	0.03	%
Manganese Oxide, Mn3O4	<0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	2.02	%
Silica Value	94.93	%
Base:Acid Ratio	0.07	%
T250 Temperature	>2900	°F
Type of Ash	Bituminous	
Specific Gravity, Apparent	1.80	g/cc
Arsenic - TCLP	<0.01	mg/L
Mercury - TCLP	<0.0002	mg/L
Barium - TCLP	<0.01	mg/L
Cadmium - TCLP	<0.005	mg/L
Chromium - TCLP	<0.005	mg/L
Lead - TCLP	<0.05	mg/L
Selenium - TCLP	0.01	mg/L
Silver - TCLP	<0.005	mg/L

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

Analysis Report

August 20, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: CR-06-01 1/7 Floor
Date Received: 08/06/2010
Matrix: Unknown

Kind of Sample : Overburden

Rock

SGS Minerals Sample ID: 072-47377-001

Tests	Result	Unit
Specific Gravity	2.67	
pH	6.10	s.u.
pH Temperature	19.20	°C
Acid Potential	19.1	
Neutralization Potential	4.0	
Conductivity	2500	umhos/cm
Carbon, Total Organic	0.54	%
Calcium Carbonate	<0.10	%
Selenium, Hot Water	0.07	ppm
Calcium, Soluble	490	ppm
Magnesium, Soluble	100	ppm
Potassium, Soluble	130	ppm
Sodium, Soluble	59	ppm
Sodium Absorption Ratio	3.4	
Boron Available	1	ppm

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

Somer Rodriguez, Denver Laboratory

SGS North America Inc. | Minerals Services Division
4665 Paris St Suite B-200 Denver CO 80239
1 (303) 373-4772 1 (303) 373-4791 www.sgs.com/minerals

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CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER **CR-06-02**
SEAM NAME Hiawatha
DATE SAMPLED 2/25/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

Samples Analyzed for Acid Potential & Toxic Metals

BOX # SAMPLE #	FROM	TO	Interval	SHORT PROXIMATE	LONG PROXIMATE	UNTIMATE	8 POINT ASH FUSION	APPARENT SPECIFIC GRAVITY	HARDGROVE GRIND.	SULFUR FORMS	FREE SWELLING INDEX	MINERAL ASH	WATER SOL. ALKALIES	Na (SINGLE ELEMENT)	FLOURINE (SINGLE ELEMENT)	CHLORINE (SINGLE ELEMENT)	TRACE ELEMENTS (Coal Suite)	TRACE ELEMENTS (Rock Suite)	TOXIC METALS	ACID FORMING POTENTIAL	RESIN	SAVE SAMPLE FOR ARCHIVE	SPECIAL INSTRUCTIONS
1B/17	426.60	427.50	Hia Roof		X			X				X							X	X		X	1 foot upper roof rock
2/17	427.50	428.00	Hia Roof		X			X				X							X	X		X	6" immediate roof rock
3/17	428.00	428.50	Hia Top		X			X				X										X	6" top coal
4/17	428.50	430.00	Hia Upper		X			X				X										X	upper section of coal seam
5/17	430.00	431.20	Hia Part		X			X				X							X	X		X	rock parting
6&7/17	431.20	434.00	Hia Middle		X			X				X										X	middle section of coal seam
1/18	434.00	436.00	Hia Lower		X			X				X										X	lower section of coal seam
2/18	436.00	437.00	Hia Bottom		X			X				X										X	1 foot of floor coal
3/18	437.00	437.50	Hia Floor		X			X				X										X	6" of floor rock
COMP-2	428.00	437.00	Hia Seam		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	Composite of all six coal samples (3/17, 4/17, 5/17, 6&7/17, 1/18, and 2/18)

CHANGE IN POSSESSION

Relinquished by	Signed	Time
Received By	Signed	Time
Relinquished by	Signed	Time

SGS

May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	1B-17	**Footage Begin :**	426.60
Date Received:	04/21/2006	**Footage End :**	427.50
Matrix:	~~Coal~~ Coal		
Net Sample Weight:	3352.40		
Core Hole ID :	CR-06-02		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-19143-001

	As Received	Dry	MAF
% Moisture, Total	2.45		
% Ash	93.23	95.57	
% Volatile Matter	4.01	4.11	92.83
% Fixed Carbon	0.31	0.32	7.17
Gross Calorific Value (Btu/lb)	230	236	5335
% Sulfur	0.07	0.07	

Analyte	Result
Acid Potential	2.19 TCaCO3/1000T
Pounds of Ash/mm Btu	4045.71 lb
Pounds of Sulfur/mm Btu	2.89 lb
Pounds of SO2/mm Btu	5.78 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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SGS

May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	1B-17	**Footage Begin :**	426.60
Date Received:	04/21/2006	**Footage End :**	427.50
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	3352.40		
Core Hole ID :	CR-06-02		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-19143-001

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	90.11	%
Aluminum Oxide Al2O3	2.76	%
Titanium Dioxide TiO2	0.20	%
Iron Oxide Fe2O3	1.88	%
Calcium Oxide CaO	2.80	%
Magnesium Oxide MgO	0.47	%
Potassium Oxide K2O	0.98	%
Sodium Oxide Na2O	0.02	%
Sulfur Trioxide SO3	0.62	%
Phosphorus Pentoxide P2O5	0.12	%
Strontium Oxide SrO	0.00	%
Barium Oxide BaO	0.01	%
Manganese Oxide, Mn3O4	0.03	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	0.67	%
Silica Value	94.59	%
Base:Acid Ratio	0.07	%
T250 Temperature	>2900	°F
Type of Ash	Lignitic	
Specific Gravity, Apparent	2.52	g/cc
Arsenic - TCLP	<0.01	mg/L
Mercury - TCLP	<0.0002	mg/L
Barium - TCLP	<0.01	mg/L
Cadmium - TCLP	<0.005	mg/L
Chromium - TCLP	<0.005	mg/L
Lead - TCLP	<0.05	mg/L
Selenium - TCLP	<0.01	mg/L
Silver - TCLP	<0.005	mg/L

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	2/17	**Footage Begin :**	427.50
Date Received:	04/21/2006	**Footage End :**	428.00
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	1891.50		
Core Hole ID :	CR-06-02		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-19143-002

	As Received	Dry	MAF
% Moisture, Total	3.97		
% Ash	91.75	95.54	
% Volatile Matter	3.63	3.78	84.77
% Fixed Carbon	0.65	0.68	15.23
Gross Calorific Value (Btu/lb)	254	265	5943
% Sulfur	0.17	0.18	

Analyte	Result
Acid Potential	5.36 TCaCO3/1000T
Pounds of Ash/mm Btu	3607.13 lb
Pounds of Sulfur/mm Btu	6.66 lb
Pounds of SO2/mm Btu	13.30 lb

Respectfully submitted,
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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	2/17	**Footage Begin :**	427.50
Date Received:	04/21/2006	**Footage End :**	428.00
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	1891.50		
Core Hole ID :	CR-06-02		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-19143-002

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	91.01	%
Aluminum Oxide Al2O3	3.98	%
Titanium Dioxide TiO2	0.25	%
Iron Oxide Fe2O3	0.76	%
Calcium Oxide CaO	1.36	%
Magnesium Oxide MgO	0.67	%
Potassium Oxide K2O	1.34	%
Sodium Oxide Na2O	0.03	%
Sulfur Trioxide SO3	0.42	%
Phosphorus Pentoxide P2O5	0.16	%
Strontium Oxide SrO	0.00	%
Barium Oxide BaO	0.01	%
Manganese Oxide, Mn3O4	0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	0.91	%
Silica Value	97.03	%
Base:Acid Ratio	0.04	%
T250 Temperature	>2900	°F
Type of Ash	Lignitic	
Specific Gravity, Apparent	2.44	g/cc
Arsenic - TCLP	<0.01	mg/L
Mercury - TCLP	<0.0002	mg/L
Barium - TCLP	<0.01	mg/L
Cadmium - TCLP	<0.005	mg/L
Chromium - TCLP	<0.005	mg/L
Lead - TCLP	<0.05	mg/L
Selenium - TCLP	<0.01	mg/L
Silver - TCLP	<0.005	mg/L

Respectfully submitted,
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Albuquerque, NM 87192
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Client Sample ID:	5/17	**Footage Begin :**	430.00
Date Received:	04/21/2006	**Footage End :**	431.20
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	2125.30		
Core Hole ID :	CR-06-02		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha PARTING		

SGS Sample ID: 072-19143-005

	As Received	Dry	MAF
% Moisture, Total	5.87		
% Ash	5.92	6.29	
% Volatile Matter	40.90	43.45	46.36
% Fixed Carbon	47.31	50.26	53.64
Gross Calorific Value (Btu/lb)	12582	13367	14264
% Sulfur	0.58	0.62	

Analyte	Result
Acid Potential	19.38 TCaCO3/1000T
Pounds of Ash/mm Btu	4.70 lb
Pounds of Sulfur/mm Btu	0.46 lb
Pounds of SO2/mm Btu	0.93 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

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May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	5/17	**Footage Begin :**	430.00
Date Received:	04/21/2006	**Footage End :**	431.20
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	2125.30		
Core Hole ID :	CR-06-02		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha PARTING		

SGS Sample ID: 072-19143-005

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	56.03	%
Aluminum Oxide Al2O3	7.79	%
Titanium Dioxide TiO2	0.68	%
Iron Oxide Fe2O3	8.90	%
Calcium Oxide CaO	14.48	%
Magnesium Oxide MgO	1.43	%
Potassium Oxide K2O	0.18	%
Sodium Oxide Na2O	0.47	%
Sulfur Trioxide SO3	9.87	%
Phosphorus Pentoxide P2O5	0.01	%
Strontium Oxide SrO	0.09	%
Barium Oxide BaO	0.01	%
Manganese Oxide, Mn3O4	0.06	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	0.59	%
Silica Value	69.31	%
Base:Acid Ratio	0.39	%
T250 Temperature	2417	°F
Type of Ash	Lignitic	
Specific Gravity, Apparent	1.30	g/cc
Arsenic - TCLP	<0.01	mg/L
Mercury - TCLP	<0.0002	mg/L
Barium - TCLP	<0.01	mg/L
Cadmium - TCLP	<0.005	mg/L
Chromium - TCLP	<0.005	mg/L
Lead - TCLP	<0.05	mg/L
Selenium - TCLP	<0.01	mg/L
Silver - TCLP	<0.005	mg/L

Respectfully submitted,
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RECEIVED OCT – 5 2006

CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER **CR-06-05**
SEAM NAME Hiawatha
DATE SAMPLED 9/7/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

Samples Analyzed for Acid Potential & Toxic Metals

SAMPLE #	FROM	TO	Interval	SHORT PROXIMATE	LONG PROXIMATE	UNTIMATE	8 POINT ASH FUSION	APPARENT SPECIFIC GRAVITY	HARDGROVE GRIND.	SULFUR FORMS	FREE SWELLING INDEX	MINERAL ASH	WATER SOL. ALKALIES	Na (SINGLE ELEMENT)	FLOURINE (SINGLE ELEMENT)	CHLORINE (SINGLE ELEMENT)	TRACE ELEMENTS (Coal Suite)	TRACE ELEMENTS (Rock Suite)	TOXIC METALS	ACID FORMING POTENTIAL	RESIN	SAVE SAMPLE FOR ARCHIVE	SPECIAL INSTRUCTIONS
1/1	1042.00	1043.05	Hia Bottom		X			X				X										X	1 foot of floor coal
2/1	1043.05	1043.50	Hia Floor		X			X				X							X	X		X	6" of floor rock

072-22212-001
Sample # 1/1
Carbon Resources LLC
Due: **10/20/2006**
091723
Rec: 10/05/2006

072-22212-002
Sample # 2/1
Carbon Resources LLC
Due: **10/20/2006**
091724
Rec: 10/05/2006

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SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 2/1	**Footage Begin :**	1043.05
Date Received:	10/05/2006	**Footage End :**	1043.50
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	1201.70		
Core Hole ID :	CR-06-05		
Date Sampled :	9/7/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha FLOOR		

SGS Sample ID: 072-22212-002

	As Received	Dry	MAF
% Moisture, Total	5.21		
% Ash	76.12	80.30	
% Volatile Matter	5.63	5.93	30.12
% Fixed Carbon	13.04	13.77	69.88
Gross Calorific Value (Btu/lb)	2008	2118	10754
% Sulfur	0.41	0.43	

Analyte	Result
Acid Potential	13.44 TCaCO3/1000T
Pounds of Ash/mm Btu	379.07 lb
Pounds of Sulfur/mm Btu	2.02 lb
Pounds of SO2/mm Btu	4.03 lb

Respectfully submitted,
SGS NORTH AMERICA INC.
Denver Laboratory

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4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 2/1	**Footage Begin :**	1043.05
Date Received:	10/05/2006	**Footage End :**	1043.50
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	1201.70		
Core Hole ID :	CR-06-05		
Date Sampled :	9/7/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha FLOOR		

SGS Sample ID: 072-22212-002

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	73.94	%
Aluminum Oxide Al2O3	17.57	%
Titanium Dioxide TiO2	0.87	%
Iron Oxide Fe2O3	2.10	%
Calcium Oxide CaO	0.81	%
Magnesium Oxide MgO	1.15	%
Potassium Oxide K2O	3.00	%
Sodium Oxide Na2O	0.07	%
Sulfur Trioxide SO3	0.13	%
Phosphorus Pentoxide P2O5	0.32	%
Strontium Oxide SrO	0.01	%
Barium Oxide BaO	0.03	%
Manganese Oxide, Mn3O4	<0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	2.05	%
Silica Value	94.79	%
Base:Acid Ratio	0.08	%
T250 Temperature	>2900	°F
Type of Ash	Bituminous	

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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GENERAL CONDITIONS OF SERVICE ON REVERSE

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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 2/1	**Footage Begin :**	1043.05
Date Received:	10/05/2006	**Footage End :**	1043.50
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	1201.70		
Core Hole ID :	CR-06-05		
Date Sampled :	9/7/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha FLOOR		

SGS Sample ID: 072-22212-002

Analyte	Result
Arsenic - TCLP	<0.01 mg/L
Barium - TCLP	1.77 mg/L
Cadmium - TCLP	<0.005 mg/L
Chromium - TCLP	<0.005 mg/L
Lead - TCLP	<0.02 mg/L
Selenium - TCLP	<0.01 mg/L
Silver - TCLP	<0.005 mg/L
Mercury - TCLP	<0.0002 mg/L
Specific Gravity, Apparent	2.17 g/cc

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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072-22213-001
Sample # 8/1
Carbon Resources LLC
Due: **10/20/2006**
091733 Rec: 10/05/200€

072-22213-002
Sample # 1/2
Carbon Resources LLC
Due: **10/20/2006**
091734 Rec: 10/05/200€

072-22213-003
Sample # 2/2
Carbon Resources LLC
Due: **10/20/2006**
091735 Rec: 10/05/200€

RECEIVED OCT - 5 2006

072-22213-004
Sample # 4/2
Carbon Resources LLC
Due: **10/20/2006**
091736 Rec: 10/05/200€

CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER CR-06-05-A
SEAM NAME Hiawatha
DATE SAMPLED 9/19/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

072-22213-005
Sample # 5/2
Carbon Resources LLC
Due: **10/20/2006**
091737 Rec: 10/05/200€

Samples Analyzed for Acid Potential and Toxic Metals

091738 Rec: 10/05/200€

6/1 Added 9-2010

SAMPLE #	FROM	TO	Interval	SHORT PROXIMATE	LONG PROXIMATE	UNTIMATE	8 POINT ASH FUSION	APPARENT SPECIFIC GRAVITY	HARDGROVE GRIND.	SULFUR FORMS	FREE SWELLING INDEX	MINERAL ASH	WATER SOL. ALKALIES	Na (SINGLE ELEMENT)	FLOURINE (SINGLE ELEMENT)	CHLORINE (SINGLE ELEMENT)	TRACE ELEMENTS (Coal Suite)	TRACE ELEMENTS (Rock Suite)	TOXIC METALS	ACID FORMING POTENTIAL	RESIN	SAVE SAMPLE FOR ARCHIVE	SPECIAL INSTRUCTIONS
8/1	1034.30	1035.30	Hia Roof	X			X				X								X	X		X	1 foot upper roof rock
1/2	1036.00	1036.30	Hia Roof	X			X				X								X	X		X	6" immediate roof rock
2/2	1036.30	1036.80	Hia Top	X			X				X											X	6" top coal
3/2	1036.80	1037.20	Hia Upper	X			X				X											X	upper section of coal seam
4/2	1037.20	1037.80	Hia Part	X			X				X								X	X		X	rock parting
5/2	1037.80	1039.50	Hia Middle	X			X				X											X	middle section of coal seam
6/2	1039.50	1041.00	Hia Middle	X			X				X											X	middle section of coal seam
7/2	1041.00	1042.00	Hia Middle	X			X				X											X	middle section of coal seam
8/2	1042.00	1043.00	Hia Lower	X			X				X											X	lower section of coal seam
9/2	1043.00	1044.25	Hia Lower	X			X				X											X	lower section of coal seam
10/2	1044.25	1045.25	Hia Bottom	X			X				X											X	1 foot of floor coal
11/2	1045.25	1045.75	Hia Floor	X			X				X								X	X		X	6" of floor rock
COMP-5	1036.30	1045.25	Hia Seam	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	Composite of all nine coal samples (2/2, 3/2, 4/2, 5/2, 6/2, 7/2, 8/2, 9/2, and 10/2)

12/2 Added 9-2010

8,2

NOTE: Samples 3/2, 8/3, [redacted] are currently being tested for rock mechanics properties and will be forwarded to SGS at a future time

CHANGE IN POSSESSION

Relinquished by | Received By | Representing | Representing

072-22213-007
Sample # 7/2
Carbon Resources LLC
Due: **10/20/2006**
091739 Rec: 10/05/200€

072-22213-008
Sample # 9/2
Carbon Resources LLC
Due: **10/20/2006**
091740 Rec: 10/05/200€

072-22213-009
Sample # 10/2
Carbon Resources LLC
Due: **10/20/2006**
091741 Rec: 10/05/200€

072-22213-010
Sample # 11/2
Carbon Resources LLC
Due: **10/20/2006**
091742 Rec: 10/05/200€

SGS

Analysis Report

August 20, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: CR-06-05A 6/1 Roof
Date Received: 08/06/2010
Matrix: Unknown
Kind of Sample : Overburden

SGS Minerals Sample ID: 072-47377-003

Tests	Result	Unit
Specific Gravity	2.55	
pH	8.11	s.u.
pH Temperature	19.60	℃
Acid Potential	2.5	
Neutralization Potential	43.0	
Conductivity	1500	umhos/cm
Carbon, Total Organic	1.00	%
Calcium Carbonate	14.85	%
Selenium, Hot Water	0.04	ppm
Calcium, Soluble	200	ppm
Magnesium, Soluble	120	ppm
Potassium, Soluble	30	ppm
Sodium, Soluble	22	ppm
Sodium Absorption Ratio	1.8	
Boron Available	3	ppm

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

Somer Rodriguez, Denver Laboratory

SGS North America Inc. | Minerals Services Division
4665 Paris St Suite B-200 Denver CO 80239
t (303) 373-4772 f (303) 373-4791 www.sgs.com/minerals

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SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 8/1	**Footage Begin :**	1034.30
Date Received:	10/05/2006	**Footage End :**	1035.30
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	3254.70		
Core Hole ID :	CR-06-05-A		
Date Sampled :	9/19/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22213-001

	As Received	Dry	MAF
% Moisture, Total	2.59		
% Ash	88.68	91.04	
% Volatile Matter	2.18	2.23	24.93
% Fixed Carbon	6.55	6.73	75.07
Gross Calorific Value (Btu/lb)	18	18	202
% Sulfur	0.46	0.47	

Analyte	Result
Acid Potential	14.69 TCaCO3/1000T
Pounds of Ash/mm Btu	50419.62 lb
Pounds of Sulfur/mm Btu	258.72 lb
Pounds of SO2/mm Btu	516.94 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

SGS North America Inc. | Minerals Services Division
4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 8/1	**Footage Begin :**	1034.30
Date Received:	10/05/2006	**Footage End :**	1035.30
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	3254.70		
Core Hole ID :	CR-06-05-A		
Date Sampled :	9/19/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22213-001

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	77.15	%
Aluminum Oxide Al2O3	8.36	%
Titanium Dioxide TiO2	0.52	%
Iron Oxide Fe2O3	1.88	%
Calcium Oxide CaO	7.19	%
Magnesium Oxide MgO	1.79	%
Potassium Oxide K2O	2.15	%
Sodium Oxide Na2O	0.04	%
Sulfur Trioxide SO3	0.58	%
Phosphorus Pentoxide P2O5	0.28	%
Strontium Oxide SrO	0.01	%
Barium Oxide BaO	0.02	%
Manganese Oxide, Mn3O4	0.03	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	1.46	%
Silica Value	87.66	%
Base:Acid Ratio	0.15	%
T250 Temperature	>2900	°F
Type of Ash	Lignitic	

Respectfully submitted,
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October 30, 2006

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PO Box 11789
Albuquerque, NM 87192
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Client Sample ID:	Sample # 8/1	**Footage Begin :**	1034.30
Date Received:	10/05/2006	**Footage End :**	1035.30
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	3254.70		
Core Hole ID :	CR-06-05-A		
Date Sampled :	9/19/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22213-001

Analyte	Result	
Arsenic - TCLP	<0.01	mg/L
Barium - TCLP	1.11	mg/L
Cadmium - TCLP	<0.005	mg/L
Chromium - TCLP	<0.005	mg/L
Lead - TCLP	<0.02	mg/L
Selenium - TCLP	<0.01	mg/L
Silver - TCLP	<0.005	mg/L
Mercury - TCLP	<0.0002	mg/L
Specific Gravity, Apparent	2.58	g/cc

Respectfully submitted,
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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 1/2	**Footage Begin :**	1036.00
Date Received:	10/05/2006	**Footage End :**	1036.30
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	609.70		
Core Hole ID :	CR-06-05-A		
Date Sampled :	9/19/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22213-002

	As Received	Dry	MAF
% Moisture, Total	4.69		
% Ash	56.13	58.90	
% Volatile Matter	20.88	21.91	53.30
% Fixed Carbon	18.30	19.19	46.70
Gross Calorific Value (Btu/lb)	5106	5358	13035
% Sulfur	0.65	0.68	

Analyte	Result
Acid Potential	21.25 TCaCO3/1000T
Pounds of Ash/mm Btu	109.93 lb
Pounds of Sulfur/mm Btu	1.27 lb
Pounds of SO2/mm Btu	2.53 lb

Respectfully submitted,
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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 1/2	**Footage Begin :**	1036.00
Date Received:	10/05/2006	**Footage End :**	1036.30
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	609.70		
Core Hole ID :	CR-06-05-A		
Date Sampled :	9/19/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22213-002

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	71.49	%
Aluminum Oxide Al2O3	19.39	%
Titanium Dioxide TiO2	0.84	%
Iron Oxide Fe2O3	2.72	%
Calcium Oxide CaO	0.74	%
Magnesium Oxide MgO	1.40	%
Potassium Oxide K2O	3.03	%
Sodium Oxide Na2O	0.07	%
Sulfur Trioxide SO3	0.18	%
Phosphorus Pentoxide P2O5	0.10	%
Strontium Oxide SrO	0.01	%
Barium Oxide BaO	0.03	%
Manganese Oxide, Mn3O4	<0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	2.07	%
Silica Value	93.63	%
Base:Acid Ratio	0.09	%
T250 Temperature	>2900	°F
Type of Ash	Bituminous	

Respectfully submitted,
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Client Sample ID:	Sample # 1/2	**Footage Begin :**	1036.00
Date Received:	10/05/2006	**Footage End :**	1036.30
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	609.70		
Core Hole ID :	CR-06-05-A		
Date Sampled :	9/19/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22213-002

Analyte	Result
Arsenic - TCLP	<0.01 mg/L
Barium - TCLP	1.54 mg/L
Cadmium - TCLP	<0.005 mg/L
Chromium - TCLP	<0.005 mg/L
Lead - TCLP	<0.02 mg/L
Selenium - TCLP	<0.01 mg/L
Silver - TCLP	<0.005 mg/L
Mercury - TCLP	<0.0002 mg/L
Specific Gravity, Apparent	1.83 g/cc

Respectfully submitted,
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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 11/2	**Footage Begin :**	1045.25
Date Received:	10/05/2006	**Footage End :**	1045.75
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	1666.40		
Core Hole ID :	CR-06-05-A		
Date Sampled :	9/19/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha FLOOR		

SGS Sample ID: 072-22213-010

	As Received	Dry	MAF
% Moisture, Total	5.46		
% Ash	87.24	92.27	
% Volatile Matter	5.72	6.05	78.33
% Fixed Carbon	1.58	1.68	21.67
Gross Calorific Value (Btu/lb)	112	118	1527
% Sulfur	0.47	0.50	

Analyte	Result
Acid Potential	15.63 TCaCO3/1000T
Pounds of Ash/mm Btu	7819.64 lb
Pounds of Sulfur/mm Btu	42.46 lb
Pounds of SO2/mm Btu	84.84 lb

Respectfully submitted,
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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 11/2	**Footage Begin :**	1045.25
Date Received:	10/05/2006	**Footage End :**	1045.75
Matrix:	Coal		
Net Sample Weight:	1666.40		
Core Hole ID :	CR-06-05-A		
Date Sampled :	9/19/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha		

SGS Sample ID: 072-22213-010

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	73.00	%
Aluminum Oxide Al2O3	18.11	%
Titanium Dioxide TiO2	0.87	%
Iron Oxide Fe2O3	2.31	%
Calcium Oxide CaO	0.74	%
Magnesium Oxide MgO	1.22	%
Potassium Oxide K2O	3.23	%
Sodium Oxide Na2O	0.07	%
Sulfur Trioxide SO3	0.21	%
Phosphorus Pentoxide P2O5	0.22	%
Strontium Oxide SrO	0.00	%
Barium Oxide BaO	0.02	%
Manganese Oxide, Mn3O4	<0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	2.20	%
Silica Value	94.47	%
Base:Acid Ratio	0.08	%
T250 Temperature	>2900	°F
Type of Ash	Bituminous	

Respectfully submitted,
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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

Analysis Report

August 20, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: CR-06-05A 12/2 Floor
Date Received: 08/06/2010
Matrix: Unknown
Kind of Sample : Overburden

SGS Minerals Sample ID: 072-47377-002

Tests	Result	Unit
Specific Gravity	2.55	
pH	4.08	s.u.
pH Temperature	19.10	°C
Acid Potential	11.1	
Neutralization Potential	0.5	
Conductivity	4400	umhos/cm
Carbon, Total Organic	2.61	%
Calcium Carbonate	<0.10	%
Selenium, Hot Water	0.11	ppm
Calcium, Soluble	720	ppm
Magnesium, Soluble	410	ppm
Potassium, Soluble	230	ppm
Sodium, Soluble	69	ppm
Sodium Absorption Ratio	3.4	
Boron Available	3	ppm

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

Somer Rodriguez, Denver Laboratory

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Carbon Resources LLC

CORE LOG

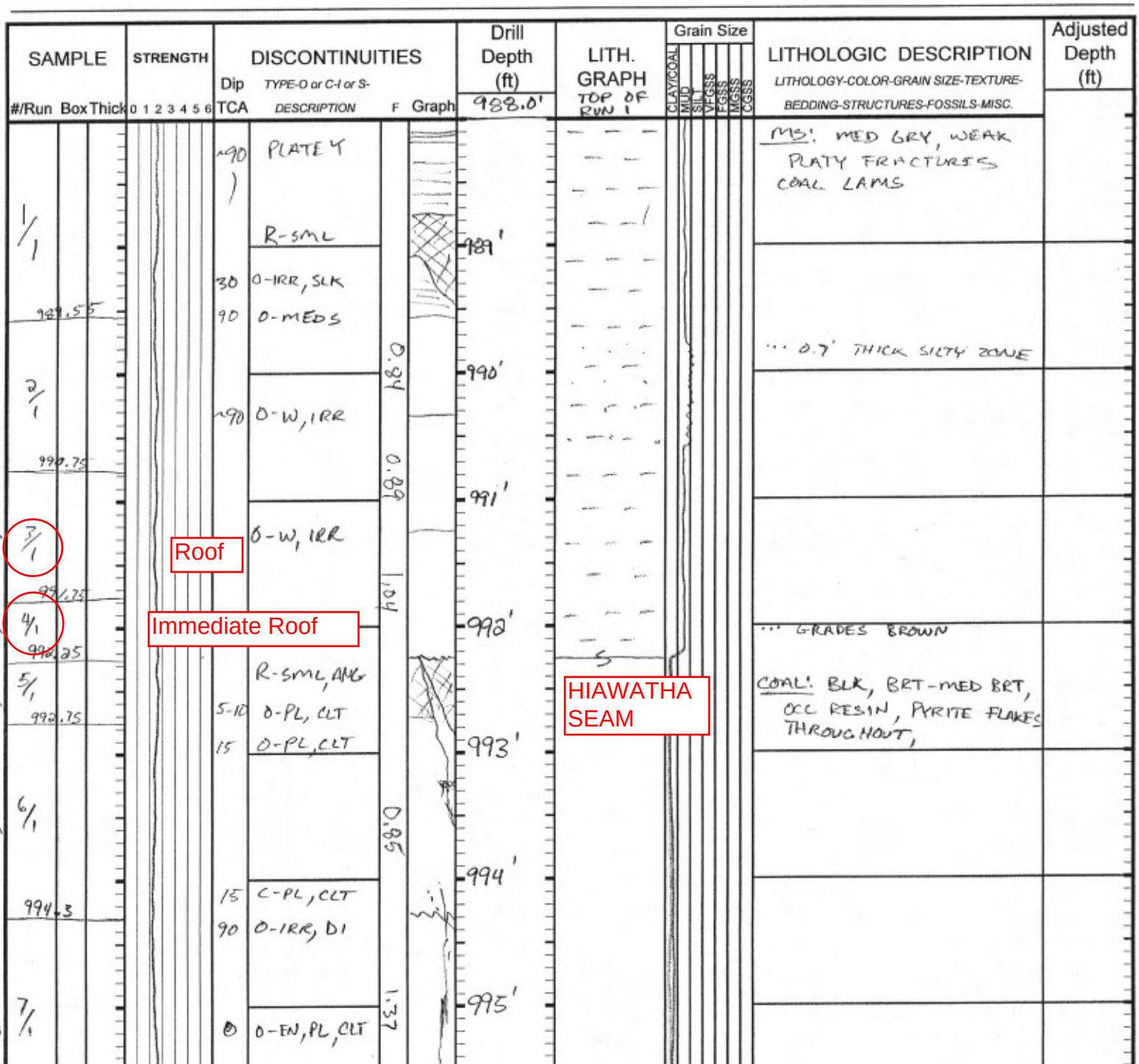
HOLE CR-06-09

PROJECT SCOFIELD SUMMER 06 Page 1 of 2

LOGGED BY BRAD LINDSAY DATE 1 SEPT 06 RUN 1 INTERVAL 988.0' – 999.5'

Length Recovered 10.6' Length Cored 10.5' % Recovery _____ Collar Elevation _____ RQD _____

Observations/comments EXTRA 0.1' IN THE SHOE



Analysis Report

August 20, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: CR-06-09 3/1 ~~Floor~~ Roof **Kind of Sample :** Overburden
Date Received: 08/06/2010
Matrix: Unknown

SGS Minerals Sample ID: 072-47377-004

Tests	Result	Unit
Specific Gravity	2.62	
pH	6.34	s.u.
pH Temperature	19.10	℃
Acid Potential	23.7	
Neutralization Potential	38.9	
Conductivity	3600	umhos/cm
Carbon, Total Organic	1.49	%
Calcium Carbonate	3.64	%
Selenium, Hot Water	0.22	ppm
Calcium, Soluble	630	ppm
Magnesium, Soluble	460	ppm
Potassium, Soluble	100	ppm
Sodium, Soluble	46	ppm
Sodium Absorption Ratio	2.0	
Boron Available	2	ppm

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

Somer Rodriguez, Denver Laboratory

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Analysis Report

August 20, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Immediate Roof

Client Sample ID: CR-06-09 4/1 ~~Floor~~ **Kind of Sample :** Overburden
Date Received: 08/06/2010
Matrix: Unknown

SGS Minerals Sample ID: 072-47377-005

Tests	Result	Unit
Specific Gravity	2.56	
pH	4.39	s.u.
pH Temperature	19.30	℃
Acid Potential	40.1	
Neutralization Potential	21.1	
Conductivity	5400	umhos/cm
Carbon, Total Organic	8.63	%
Calcium Carbonate	0.27	%
Selenium, Hot Water	0.09	ppm
Calcium, Soluble	560	ppm
Magnesium, Soluble	1100	ppm
Potassium, Soluble	99	ppm
Sodium, Soluble	51	ppm
Sodium Absorption Ratio	1.7	
Boron Available	<1	ppm

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

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072-22214-001
Sample # 8/2
Carbon Resources LLC
Due: **10/20/2006**
091743 Rec: 10/05/2006

072-22214-002
Sample # 10/2
Carbon Resources LLC
Due: **10/20/2006**
091744 Rec: 10/05/2006

072-22214-003
Sample # 11/2
Carbon Resources LLC
Due: **10/20/2006**
091745 Rec: 10/05/2006

RECEIVED OCT - 5 2006

072-22214-004
Sample # 12/2
Carbon Resources LLC
Due: **10/20/2006**
091746 Rec: 10/05/2006

072-22214-005
Sample # 2/3
Carbon Resources LLC
Due: **10/20/2006**
091747 Rec: 10/05/2006

072-22214-006
Sample # 4/3
Carbon Resources LLC
Due: **10/20/2006**
091748 Rec: 10/05/2006

072-22214-007
Sample # 5/3
Carbon Resources LLC
Due: **10/20/2006**
091749 Rec: 10/05/2006

072-22214-008
Sample # 6/3
Carbon Resources LLC
Due: **10/20/2006**
091750 Rec: 10/05/2006

CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER **CR-06-09-BLW**
SEAM NAME Hiawatha
DATE SAMPLED 8/6/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

Samples Analyzed for Acid/Base & Toxic Metals

SAMPLE #	FROM	TO	Interval	SHORT PROXIMATE	LONG PROXIMATE	ULTIMATE	8 POINT ASH FUSION	APPARENT SPECIFIC GRAVITY	HARDGROVE GRIND.	SULFUR FORMS	FREE SWELLING INDEX	MINERAL ASH	WATER SOL. ALKALIES	Na (SINGLE ELEMENT)	FLOURINE (SINGLE ELEMENT)	CHLORINE (SINGLE ELEMENT)	TRACE ELEMENTS (Coal Suite)	TRACE ELEMENTS (Rock Suite)	TOXIC METALS	ACID FORMING POTENTIAL	RESIN	SAVE SAMPLE FOR ARCHIVE	SPECIAL INSTRUCTIONS
8/2	987.85	988.75	Hia Roof	X			X				X								X	X		X	1 foot upper roof rock
9/2	988.75	989.40	Hia Roof	X			X				X								X	X		X	6" immediate roof rock
10/2	989.40	989.90	Hia Top	X			X				X											X	6" top coal
11/2	989.90	990.90	Hia Upper	X			X				X											X	upper section of coal seam
12/2	990.90	992.40	Hia Upper	X			X				X											X	upper section of coal seam
1/3	996.60	997.50	Hia Middle	X			X				X											X	middle section of coal seam
2/3	997.50	998.30	Hia Middle	X			X				X											X	middle section of coal seam
3/3	998.30	999.45	Hia Middle	X			X				X											X	middle section of coal seam
4/3	999.45	1000.30	Hia Bottom	X			X				X											X	lower section of coal seam
5/3	1000.30	1001.30	Hia Bottom	X			X				X											X	1 foot of floor coal
6/3	1001.30	1001.80	Hia Floor	X			X				X								X	X		X	6" of floor rock
COMP-4	989.40	1001.30	Hia Seam	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	Composite of all eight coal samples (10/2, 11/2, 12/2, 1/3, 2/3, 3/3, 4/3, and 5/3)

NOTE: Samples 9/2, 1/3, & 3/3 are currently being tested for rock mechanics properties and will be forwarded to SGS at a future time

CHANGE IN POSSESSION

Representing

Received By

Relinquished by

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 8/2	**Footage Begin :**	987.85
Date Received:	10/05/2006	**Footage End :**	988.75
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	3012.40		
Core Hole ID :	CR-06-09-BLW		
Date Sampled :	8/6/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22214-001

	As Received	Dry	MAF
% Moisture, Total	3.31		
% Ash	88.32	91.35	
% Volatile Matter	7.41	7.67	88.60
% Fixed Carbon	0.96	0.98	11.40
Gross Calorific Value (Btu/lb)	356	368	4253
% Sulfur	0.78	0.81	

Analyte	Result
Acid Potential	25.31 TCaCO3/1000T
Pounds of Ash/mm Btu	2481.80 lb
Pounds of Sulfur/mm Btu	21.93 lb
Pounds of SO2/mm Btu	43.83 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 8/2	**Footage Begin :**	987.85
Date Received:	10/05/2006	**Footage End :**	988.75
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	3012.40		
Core Hole ID :	CR-06-09-BLW		
Date Sampled :	8/6/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22214-001

Analyte	Result
Ash Analysis Basis	Ignited
Silicon Dioxide SiO2	70.81 %
Aluminum Oxide Al2O3	16.42 %
Titanium Dioxide TiO2	0.74 %
Iron Oxide Fe2O3	3.28 %
Calcium Oxide CaO	2.20 %
Magnesium Oxide MgO	2.15 %
Potassium Oxide K2O	3.18 %
Sodium Oxide Na2O	0.08 %
Sulfur Trioxide SO3	0.70 %
Phosphorus Pentoxide P2O5	0.35 %
Strontium Oxide SrO	0.01 %
Barium Oxide BaO	0.06 %
Manganese Oxide, Mn3O4	0.02 %
Undetermined	0.00 %
Sum	100.00 %
Alkalies	2.18 %
Silica Value	90.27 %
Base:Acid Ratio	0.12 %
T250 Temperature	>2900 °F
Type of Ash	Lignitic

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

SGS North America Inc. | Minerals Services Division
4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 8/2	**Footage Begin :**	987.85
Date Received:	10/05/2006	**Footage End :**	988.75
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	3012.40		
Core Hole ID :	CR-06-09-BLW		
Date Sampled :	8/6/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22214-001

Analyte	Result	
Arsenic - TCLP	<0.01	mg/L
Barium - TCLP	0.16	mg/L
Cadmium - TCLP	<0.005	mg/L
Chromium - TCLP	<0.005	mg/L
Lead - TCLP	<0.02	mg/L
Selenium - TCLP	0.01	mg/L
Silver - TCLP	<0.005	mg/L
Mercury - TCLP	<0.0002	mg/L
Specific Gravity, Apparent	2.48	g/cc

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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GENERAL CONDITIONS OF SERVICE ON REVERSE

January 21, 2007

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	9/2	**Footage Begin :**	988.75
Date Received:	12/12/2006	**Footage End :**	989.40
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	2088.60		
Core Hole ID :	CR-06-09-BLW		
Date Sampled :	8/6/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-23528-001

	As Received	Dry	MAF
% Moisture, Total	3.83		
% Ash	83.75	87.08	
% Volatile Matter	12.40	12.89	99.82
% Fixed Carbon	0.02	0.03	0.18
Gross Calorific Value (Btu/lb)	657	683	5289
% Sulfur	0.57	0.60	

Analyte	Result
Acid Potential	16.56 TCaCO3/1000T
Pounds of Ash/mm Btu	1274.71 lb
Pounds of Sulfur/mm Btu	8.74 lb
Pounds of SO2/mm Btu	17.47 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

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Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	9/2	**Footage Begin :**	988.75
Date Received:	12/12/2006	**Footage End :**	989.40
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	2088.60		
Core Hole ID :	CR-06-09-BLW		
Date Sampled :	8/6/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-23528-001

Analyte	Result
Ash Analysis Basis	Ignited
Silicon Dioxide SiO2	67.94 %
Aluminum Oxide Al2O3	19.54 %
Titanium Dioxide TiO2	0.82 %
Iron Oxide Fe2O3	3.36 %
Calcium Oxide CaO	1.53 %
Magnesium Oxide MgO	2.21 %
Potassium Oxide K2O	3.43 %
Sodium Oxide Na2O	0.12 %
Sulfur Trioxide SO3	0.76 %
Phosphorus Pentoxide P2O5	0.22 %
Strontium Oxide SrO	0.01 %
Barium Oxide BaO	0.05 %
Manganese Oxide, Mn3O4	0.01 %
Undetermined	0.00 %
Sum	100.00 %
Alkalies	2.38 %
Silica Value	90.54 %
Base:Acid Ratio	0.12 %
T250 Temperature	>2900 °F
Type of Ash	Lignitic

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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January 21, 2007

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	9/2	**Footage Begin :**	988.75
Date Received:	12/12/2006	**Footage End :**	989.40
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	2088.60		
Core Hole ID :	CR-06-09-BLW		
Date Sampled :	8/6/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-23528-001

Analyte	Result
Arsenic - TCLP	<0.01 mg/L
Barium - TCLP	<0.05 mg/L
Cadmium - TCLP	0.005 mg/L
Chromium - TCLP	<0.005 mg/L
Lead - TCLP	<0.02 mg/L
Selenium - TCLP	0.03 mg/L
Silver - TCLP	<0.005 mg/L
Mercury - TCLP	<0.0002 mg/L
Specific Gravity, Apparent	2.34 g/cc

Respectfully submitted,
SGS NORTH AMERICA INC.

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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 6/3	**Footage Begin :**	1001.30
Date Received:	10/05/2006	**Footage End :**	1001.80
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	1563.70		
Core Hole ID :	CR-06-09-BLW		
Date Sampled :	8/6/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha FLOOR		

SGS Sample ID: 072-22214-008

	As Received	Dry	MAF
% Moisture, Total	3.80		
% Ash	85.57	88.94	
% Volatile Matter	7.12	7.40	66.90
% Fixed Carbon	3.51	3.66	33.10
Gross Calorific Value (Btu/lb)	281	292	2642
% Sulfur	0.92	0.96	

Analyte	Result
Acid Potential	30.00 TCaCO3/1000T
Pounds of Ash/mm Btu	3044.77 lb
Pounds of Sulfur/mm Btu	32.90 lb
Pounds of SO2/mm Btu	65.74 lb

Respectfully submitted,
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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 6/3	**Footage Begin :**	1001.30
Date Received:	10/05/2006	**Footage End :**	1001.80
Matrix:	Coal ROCK		
Net Sample Weight:	1563.70		
Core Hole ID :	CR-06-09-BLW		
Date Sampled :	8/6/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha FLOOR		

SGS Sample ID: 072-22214-008

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	73.18	%
Aluminum Oxide Al2O3	17.61	%
Titanium Dioxide TiO2	0.86	%
Iron Oxide Fe2O3	3.24	%
Calcium Oxide CaO	0.54	%
Magnesium Oxide MgO	1.22	%
Potassium Oxide K2O	2.95	%
Sodium Oxide Na2O	0.07	%
Sulfur Trioxide SO3	0.23	%
Phosphorus Pentoxide P2O5	0.08	%
Strontium Oxide SrO	0.00	%
Barium Oxide BaO	0.02	%
Manganese Oxide, Mn3O4	<0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	2.01	%
Silica Value	93.60	%
Base:Acid Ratio	0.09	%
T250 Temperature	>2900	°F
Type of Ash	Bituminous	

Respectfully submitted,
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GENERAL CONDITIONS OF SERVICE ON REVERSE

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 6/3	**Footage Begin :**	1001.30
Date Received:	10/05/2006	**Footage End :**	1001.80
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	1563.70		
Core Hole ID :	CR-06-09-BLW		
Date Sampled :	8/6/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha FLOOR		

SGS Sample ID: 072-22214-008

Analyte	Result
Arsenic - TCLP	<0.01 mg/L
Barium - TCLP	<0.05 mg/L
Cadmium - TCLP	0.010 mg/L
Chromium - TCLP	<0.005 mg/L
Lead - TCLP	0.04 mg/L
Selenium - TCLP	<0.01 mg/L
Silver - TCLP	<0.005 mg/L
Mercury - TCLP	<0.0002 mg/L
Specific Gravity, Apparent	2.42 g/cc

Respectfully submitted,
SGS NORTH AMERICA INC.

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072-22215-001
Sample # 9A/3
Carbon Resources LLC
Due: 10/20/2006
091753 Rec: 10/05/2006

072-22215-002
Sample # 10/3
Carbon Resources LLC
Due: 10/20/2006
091754 Rec: 10/05/2006

072-22215-003
Sample # 11/3
Carbon Resources LLC
Due: 10/20/2006
091755 Rec: 10/05/2006

RECEIVED OCT 5 2006

072-22215-004
Sample A# 12A/3
Carbon Resources LLC
Due: 10/20/2006
091756 Rec: 10/05/2006

CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER CR-06-10
SEAM NAME Hiawatha
DATE SAMPLED 7/23/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

072-22215-005
Sample # 12C/3
Carbon Resources LLC
Due: 10/20/2006
091757 Rec: 10/05/2006

Samples Analyzed for Acid/Base & Toxic Metals

072-22215-006
Sample # 13B/3
Carbon Resources LLC
Due: 10/20/2006
091758 Rec: 10/05/2006

SAMPLE #	FROM	TO	Interval	SHORT PROXIMATE	LONG PROXIMATE	UNTIMATE	8 POINT ASH FUSION	APPARENT SPECIFIC GRAVITY	HARDGROVE GRIND.	SULFUR FORMS	FREE SWELLING INDEX	MINERAL ASH	WATER SOL. ALKALIES	Na (SINGLE ELEMENT)	FLOURINE (SINGLE ELEMENT)	CHLORINE (SINGLE ELEMENT)	TRACE ELEMENTS (Coal Suite)	TRACE ELEMENTS (Rock Suite)	TOXIC METALS	ACID FORMING POTENTIAL	RESIN	SAVE SAMPLE FOR ARCHIVE	SPECIAL INSTRUCTIONS
9A/3	1210.25	1210.70	Hia Roof	X			X				X								X	X		X	1 foot upper roof rock
9B/3	1210.70	1211.25	Hia Roof	X			X				X								X	X		X	1 foot upper roof rock
10/3	1211.25	1211.75	Hia Roof	X			X				X								X	X		X	6" immediate roof rock
11/3	1211.75	1212.25	Hia Top	X			X				X											X	6" top coal
12A/3	1212.25	1213.55	Hia Upper	X			X				X											X	upper section of coal seam
12B/3	1213.55	1214.25	Hia Upper	X			X				X											X	upper section of coal seam
12C/3	1214.25	1216.00	Hia Upper	X			X				X											X	upper section of coal seam
13A/3	1216.00	1216.60	Hia Middle	X			X				X											X	middle section of coal seam
13B/3	1216.60	1217.65	Hia Middle	X			X				X											X	middle section of coal seam
13C/3	1217.65	1219.00	Hia Middle	X			X				X											X	middle section of coal seam
13D/3	1219.00	1220.90	Hia Middle	X			X				X											X	middle section of coal seam
1/4	1220.90	1222.00	Hia Lower	X			X				X											X	lower section of coal seam
2/4	1222.00	1222.50	Hia Bottom	X			X				X											X	1 foot of floor coal
3/4	1222.50	1223.00	Hia Floor	X			X				X								X	X		X	6" of floor rock
COMP-3			Hia Seam	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	Composite of all coal samples (11/3, 12A/3, 12B/3, 12C/3, 13A/3, 13B/3, 13C/3, 13D/3, 1/4, and 2/4)

NOTE: Samples 9B/3, 12B/3, & 13A/3 are currently being tested for rock mechanics properties and will be forwarded to SGS at a future time

CHANGE IN POSSESSION
Relinquished by
Representing
Received By
Representing

072-22215-007
Sample # 13C/3
Carbon Resources LLC
Due: 10/20/2006
091759 Rec: 10/05/2006

072-22215-008
Sample # 13D/3
Carbon Resources LLC
Due: 10/20/2006
091760 Rec: 10/05/2006

072-22215-009
Sample # 1/4
Carbon Resources LLC
Due: 10/20/2006
091761 Rec: 10/05/2006

072-22215-010
Sample # 2/4
Carbon Resources LLC
Due: 10/20/2006
091762 Rec: 10/05/2006

072-22215-011
Sample # 3/4
Carbon Resources LLC
Due: 10/20/2006
091763 Rec: 10/05/2006

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 9A/3	**Footage Begin :**	1210.25
Date Received:	10/05/2006	**Footage End :**	1210.70
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	1406.50		
Core Hole ID :	CR-06-10		
Date Sampled :	7/23/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22215-001

	As Received	Dry	MAF
% Moisture, Total	3.77		
% Ash	91.47	95.06	
% Volatile Matter	4.70	4.88	98.75
% Fixed Carbon	0.06	0.06	1.25
Gross Calorific Value (Btu/lb)	58	60	1217
% Sulfur	0.35	0.37	

Analyte	Result
Acid Potential	11.56 TCaCO3/1000T
Pounds of Ash/mm Btu	15805.53 lb
Pounds of Sulfur/mm Btu	61.27 lb
Pounds of SO2/mm Btu	122.42 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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GENERAL CONDITIONS OF SERVICE ON REVERSE

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 9A/3	**Footage Begin :**	1210.25
Date Received:	10/05/2006	**Footage End :**	1210.70
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	1406.50		
Core Hole ID :	CR-06-10		
Date Sampled :	7/23/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22215-001

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO_2	77.01	%
Aluminum Oxide Al_2O_3	15.19	%
Titanium Dioxide TiO_2	0.74	%
Iron Oxide Fe_2O_3	1.96	%
Calcium Oxide CaO	0.66	%
Magnesium Oxide MgO	1.01	%
Potassium Oxide K_2O	2.91	%
Sodium Oxide Na_2O	0.07	%
Sulfur Trioxide SO_3	0.18	%
Phosphorus Pentoxide P_2O_5	0.24	%
Strontium Oxide SrO	0.01	%
Barium Oxide BaO	0.02	%
Manganese Oxide, Mn_3O_4	<0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	1.99	%
Silica Value	95.50	%
Base:Acid Ratio	0.07	%
T250 Temperature	>2900	°F
Type of Ash	Bituminous	

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: Sample # 9A/3
Date Received: 10/05/2006
Matrix: ~~Coal~~ ROCK
Net Sample Weight: 1406.50
Core Hole ID : CR-06-10
Date Sampled : 7/23/2006
Project Name/# : Carbon Resources Drilling
Seam : Hiawatha ROOF

Footage Begin : 1210.25
Footage End : 1210.70

SGS Sample ID: 072-22215-001

Analyte	Result
Arsenic - TCLP	<0.01 mg/L
Barium - TCLP	0.72 mg/L
Cadmium - TCLP	<0.005 mg/L
Chromium - TCLP	<0.005 mg/L
Lead - TCLP	0.04 mg/L
Selenium - TCLP	<0.01 mg/L
Silver - TCLP	<0.005 mg/L
Mercury - TCLP	<0.0002 mg/L
Specific Gravity, Apparent	2.50 g/cc

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

January 21, 2007

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	9B/3	**Footage Begin :**	1210.70
Date Received:	12/12/2006	**Footage End :**	1211.25
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	1707.20		
Core Hole ID :	CR-06-10		
Date Sampled :	7/23/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-23527-001

	As Received	Dry	MAF
% Moisture, Total	1.13		
% Ash	92.80	93.86	
% Volatile Matter	6.05	6.12	99.68
% Fixed Carbon	0.02	0.02	0.32
Gross Calorific Value (Btu/lb)	1	1	16
% Sulfur	0.04	0.04	

Analyte	Result
Acid Potential	1.25 TCaCO3/1000T
Pounds of Ash/mm Btu	936501.14 lb
Pounds of Sulfur/mm Btu	438.89 lb
Pounds of SO2/mm Btu	876.95 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

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January 21, 2007

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: 9B/3
Date Received: 12/12/2006
Matrix: Coal ROCK
Net Sample Weight: 1707.20
Core Hole ID : CR-06-10
Date Sampled : 7/23/2006
Project Name/# : Carbon Resources Drilling
Seam : Hiawatha ROOF

Footage Begin : 1210.70
Footage End : 1211.25

SGS Sample ID: 072-23527-001

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	86.49	%
Aluminum Oxide Al2O3	4.11	%
Titanium Dioxide TiO2	0.28	%
Iron Oxide Fe2O3	2.51	%
Calcium Oxide CaO	3.77	%
Magnesium Oxide MgO	1.35	%
Potassium Oxide K2O	1.10	%
Sodium Oxide Na2O	0.02	%
Sulfur Trioxide SO3	0.21	%
Phosphorus Pentoxide P2O5	0.13	%
Strontium Oxide SrO	0.00	%
Barium Oxide BaO	0.01	%
Manganese Oxide, Mn3O4	0.02	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	0.74	%
Silica Value	91.89	%
Base:Acid Ratio	0.10	%
T250 Temperature	>2900	°F
Type of Ash	Lignitic	

Respectfully submitted,
SGS NORTH AMERICA INC.

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January 21, 2007

Carbon Resources LLC
PO Box 11789
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USA

Client Sample ID:	9B/3	**Footage Begin :**	1210.70
Date Received:	12/12/2006	**Footage End :**	1211.25
Matrix:	Coal		
Net Sample Weight:	1707.20		
Core Hole ID :	CR-06-10		
Date Sampled :	7/23/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha		

SGS Sample ID: 072-23527-001

Analyte	Result
Arsenic - TCLP	<0.01 mg/L
Barium - TCLP	<0.05 mg/L
Cadmium - TCLP	<0.005 mg/L
Chromium - TCLP	<0.005 mg/L
Lead - TCLP	<0.02 mg/L
Selenium - TCLP	<0.01 mg/L
Silver - TCLP	<0.005 mg/L
Mercury - TCLP	<0.0002 mg/L
Specific Gravity, Apparent	2.59 g/cc

Respectfully submitted,
SGS NORTH AMERICA INC.

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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: Sample # 10/3
Date Received: 10/05/2006
Matrix: ~~Coal~~ Rock
Net Sample Weight: 1732.00
Core Hole ID : CR-06-10
Date Sampled : 7/23/2006
Project Name/# : Carbon Resources Drilling
Seam : Hiawatha ROOF

Footage Begin : 1211.25
Footage End : 1211.75

SGS Sample ID: 072-22215-002

	As Received	Dry	MAF
% Moisture, Total	4.48		
% Ash	83.23	87.14	
% Volatile Matter	0.91	0.95	7.40
% Fixed Carbon	11.38	11.91	92.60
Gross Calorific Value (Btu/lb)	1029	1077	8380
% Sulfur	0.42	0.44	

Analyte	Result
Acid Potential	13.75 TCaCO3/1000T
Pounds of Ash/mm Btu	808.76 lb
Pounds of Sulfur/mm Btu	4.07 lb
Pounds of SO2/mm Btu	8.14 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory

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GENERAL CONDITIONS OF SERVICE ON REVERSE

F-465

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 10/3	**Footage Begin :**	1211.25
Date Received:	10/05/2006	**Footage End :**	1211.75
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	1732.00		
Core Hole ID :	CR-06-10		
Date Sampled :	7/23/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22215-002

Analyte	Result	
Ash Analysis Basis	Ignited	
Silicon Dioxide SiO2	73.07	%
Aluminum Oxide Al2O3	17.68	%
Titanium Dioxide TiO2	0.88	%
Iron Oxide Fe2O3	2.31	%
Calcium Oxide CaO	0.65	%
Magnesium Oxide MgO	1.27	%
Potassium Oxide K2O	3.24	%
Sodium Oxide Na2O	0.08	%
Sulfur Trioxide SO3	0.32	%
Phosphorus Pentoxide P2O5	0.21	%
Strontium Oxide SrO	0.01	%
Barium Oxide BaO	0.28	%
Manganese Oxide, Mn3O4	<0.01	%
Undetermined	0.00	%
Sum	100.00	%
Alkalies	2.21	%
Silica Value	94.53	%
Base:Acid Ratio	0.08	%
T250 Temperature	>2900	°F
Type of Ash	Bituminous	

Respectfully submitted,
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GENERAL CONDITIONS OF SERVICE ON REVERSE

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SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 10/3	**Footage Begin :**	1211.25
Date Received:	10/05/2006	**Footage End :**	1211.75
Matrix:	~~Coal~~ ROCK		
Net Sample Weight:	1732.00		
Core Hole ID :	CR-06-10		
Date Sampled :	7/23/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha ROOF		

SGS Sample ID: 072-22215-002

Analyte	Result
Arsenic - TCLP	0.01 mg/L
Barium - TCLP	0.38 mg/L
Cadmium - TCLP	<0.005 mg/L
Chromium - TCLP	<0.005 mg/L
Lead - TCLP	0.03 mg/L
Selenium - TCLP	<0.01 mg/L
Silver - TCLP	<0.005 mg/L
Mercury - TCLP	<0.0002 mg/L
Specific Gravity, Apparent	2.30 g/cc

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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 3/4	**Footage Begin :**	1222.50
Date Received:	10/05/2006	**Footage End :**	1223.00
Matrix:	~~Coal~~ Rock		
Net Sample Weight:	1124.10		
Core Hole ID :	CR-06-10		
Date Sampled :	7/23/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha		

SGS Sample ID: 072-22215-011

	As Received	Dry	MAF
% Moisture, Total	3.54		
% Ash	69.75	72.31	
% Volatile Matter	9.72	10.07	36.38
% Fixed Carbon	16.99	17.62	63.62
Gross Calorific Value (Btu/lb)	3332	3454	12473
% Sulfur	1.47	1.52	

Analyte	Result
Acid Potential	47.50 TCaCO3/1000T
Pounds of Ash/mm Btu	209.32 lb
Pounds of Sulfur/mm Btu	4.40 lb
Pounds of SO2/mm Btu	8.80 lb

Respectfully submitted,
SGS NORTH AMERICA INC.

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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID: Sample # 3/4
Date Received: 10/05/2006
Matrix: Coal ROCK
Net Sample Weight: 1124.10
Core Hole ID : CR-06-10
Date Sampled : 7/23/2006
Project Name/# : Carbon Resources Drilling
Seam : Hiawatha FLOOR

Footage Begin : 1222.50
Footage End : 1223.00

SGS Sample ID: 072-22215-011

Analyte	Result
Ash Analysis Basis	Ignited
Silicon Dioxide SiO2	92.55 %
Aluminum Oxide Al2O3	2.76 %
Titanium Dioxide TiO2	0.96 %
Iron Oxide Fe2O3	3.06 %
Calcium Oxide CaO	0.27 %
Magnesium Oxide MgO	0.04 %
Potassium Oxide K2O	0.12 %
Sodium Oxide Na2O	0.00 %
Sulfur Trioxide SO3	0.17 %
Phosphorus Pentoxide P2O5	0.05 %
Strontium Oxide SrO	0.01 %
Barium Oxide BaO	0.00 %
Manganese Oxide, Mn3O4	0.01 %
Undetermined	0.00 %
Sum	100.00 %
Alkalies	0.08 %
Silica Value	96.49 %
Base:Acid Ratio	0.04 %
T250 Temperature	>2900 °F
Type of Ash	Bituminous

Respectfully submitted,
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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	Sample # 3/4	**Footage Begin :**	1222.50
Date Received:	10/05/2006	**Footage End :**	1223.00
Matrix:	Coal ROCK		
Net Sample Weight:	1124.10		
Core Hole ID :	CR-06-10		
Date Sampled :	7/23/2006		
Project Name/# :	Carbon Resources Drilling		
Seam :	Hiawatha FLOOR		

SGS Sample ID: 072-22215-011

Analyte	Result
Arsenic - TCLP	0.01 mg/L
Barium - TCLP	0.20 mg/L
Cadmium - TCLP	<0.005 mg/L
Chromium - TCLP	0.019 mg/L
Lead - TCLP	<0.02 mg/L
Selenium - TCLP	<0.01 mg/L
Silver - TCLP	<0.005 mg/L
Mercury - TCLP	<0.0002 mg/L
Specific Gravity, Apparent	2.00 g/cc

Respectfully submitted,
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Analysis Report

September 27, 2010

Carbon Resources LLC
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Albuquerque, NM 87192
USA

Client Sample ID:	5C/5	**Core Hole ID :**	CR-06-01
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-19142-002

SGS Minerals Sample ID: 072-30789-001

Tests	Result	Unit	Method
pH	6.91	s.u.	USDA Handbook 60
Conductivity	6.62	mmhos/cm	USDA Handbook 60
Saturation %	42.3	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
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Client Sample ID:	6/5	**Core Hole ID :**	CR-06-01
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-19142-003

SGS Minerals Sample ID: 072-30789-002

Tests	Result	Unit	Method
pH	3.74	s.u.	USDA Handbook 60
Conductivity	9.37	mmhos/cm	USDA Handbook 60
Saturation %	56.5	%	USDA Handbook 60

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Analysis Report

September 27, 2010

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Client Sample ID:	Comp-1	**Core Hole ID :**	CR-06-01
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-19142-010

SGS Minerals Sample ID: 072-30789-004

Tests	Result	Unit	Method
pH	5.31	s.u.	USDA Handbook 60
Conductivity	3.17	mmhos/cm	USDA Handbook 60
Saturation %	76.4	%	USDA Handbook 60

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Analysis Report

September 27, 2010

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USA

Client Sample ID:	2/17	**Core Hole ID :**	CR-06-02
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-19143-002

SGS Minerals Sample ID: 072-30789-005

Tests	Result	Unit	Method
pH	7.59	s.u.	USDA Handbook 60
Conductivity	7.51	mmhos/cm	USDA Handbook 60
Saturation %	35.9	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
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USA

Client Sample ID:	3/17	**Core Hole ID :**	CR-06-02
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-19143-003

SGS Minerals Sample ID: 072-30789-006

Tests	Result	Unit	Method
pH	6.14	s.u.	USDA Handbook 60
Conductivity	3.47	mmhos/cm	USDA Handbook 60
Saturation %	60.8	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	4/17	**Core Hole ID :**	CR-06-02
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-19143-004

SGS Minerals Sample ID: 072-30789-007

Tests	Result	Unit	Method
pH	6.75	s.u.	USDA Handbook 60
Conductivity	6.50	mmhos/cm	USDA Handbook 60
Saturation %	67.5	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
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Client Sample ID:	3/18	**Core Hole ID :**	CR-06-02
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-19143-009

SGS Minerals Sample ID: 072-30789-008

Tests	Result	Unit	Method
pH	4.08	s.u.	USDA Handbook 60
Conductivity	11.6	mmhos/cm	USDA Handbook 60
Saturation %	57.7	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
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USA

Client Sample ID:	Comp-2	**Core Hole ID :**	CR-06-02
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-19143-010

SGS Minerals Sample ID: 072-30789-009

Tests	Result	Unit	Method
pH	6.56	s.u.	USDA Handbook 60
Conductivity	5.39	mmhos/cm	USDA Handbook 60
Saturation %	69.4	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
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Client Sample ID:	1/1	**Core Hole ID :**	CR-06-05
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22212-001

SGS Minerals Sample ID: 072-30789-010

Tests	Result	Unit	Method
pH	7.09	s.u.	USDA Handbook 60
Conductivity	0.42	mmhos/cm	USDA Handbook 60
Saturation %	78.5	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
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Client Sample ID:	2/1	**Core Hole ID :**	CR-06-05
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22212-002

SGS Minerals Sample ID: 072-30789-011

Tests	Result	Unit	Method
pH	7.24	s.u.	USDA Handbook 60
Conductivity	1.00	mmhos/cm	USDA Handbook 60
Saturation %	54.1	%	USDA Handbook 60

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Analysis Report

September 27, 2010

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USA

Client Sample ID:	7/2	**Core Hole ID :**	CR-06-05
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22213-007

SGS Minerals Sample ID: 072-30789-012

Tests	Result	Unit	Method
pH	7.08	s.u.	USDA Handbook 60
Conductivity	0.51	mmhos/cm	USDA Handbook 60
Saturation %	80.9	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
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USA

Client Sample ID:	8/1	**Core Hole ID :**	CR-06-05
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22213-001

SGS Minerals Sample ID: 072-30789-013

Tests	Result	Unit	Method
pH	7.17	s.u.	USDA Handbook 60
Conductivity	8.23	mmhos/cm	USDA Handbook 60
Saturation %	42.4	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	1/2	**Core Hole ID :**	CR-06-05
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22213-002

SGS Minerals Sample ID: 072-30789-014

Tests	Result	Unit	Method
pH	7.13	s.u.	USDA Handbook 60
Conductivity	0.80	mmhos/cm	USDA Handbook 60
Saturation %	55.4	%	USDA Handbook 60

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Analysis Report

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USA

Client Sample ID:	8/2	**Core Hole ID :**	CR-06-09-BLW
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22214-001

SGS Minerals Sample ID: 072-30789-015

Tests	Result	Unit	Method
pH	6.67	s.u.	USDA Handbook 60
Conductivity	4.68	mmhos/cm	USDA Handbook 60
Saturation %	50.7	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	2/3	**Core Hole ID :**	CR-06-09-BLW
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22214-005

SGS Minerals Sample ID: 072-30789-016

Tests	Result	Unit	Method
pH	6.77	s.u.	USDA Handbook 60
Conductivity	0.65	mmhos/cm	USDA Handbook 60
Saturation %	84.7	%	USDA Handbook 60

Somer Rodriguez, Denver Laboratory

SGS North America Inc. | Minerals Services Division
4665 Paris St Suite B-200 Denver CO 80239
t (303) 373-4772 f (303) 373-4791 www.sgs.com/minerals

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	5/3	**Core Hole ID :**	CR-06-09-BLW
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22214-007

SGS Minerals Sample ID: 072-30789-017

Tests	Result	Unit	Method
pH	6.44	s.u.	USDA Handbook 60
Conductivity	7.80	mmhos/cm	USDA Handbook 60
Saturation %	74.3	%	USDA Handbook 60

Somer Rodriguez, Denver Laboratory

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	6/3	**Core Hole ID :**	CR-06-09-BLW
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22214-008

SGS Minerals Sample ID: 072-30789-018

Tests	Result	Unit	Method
pH	5.03	s.u.	USDA Handbook 60
Conductivity	6.62	mmhos/cm	USDA Handbook 60
Saturation %	51.9	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	9/A3	**Core Hole ID :**	CR-06-10
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22215-001

SGS Minerals Sample ID: 072-30789-019

Tests	Result	Unit	Method
pH	7.07	s.u.	USDA Handbook 60
Conductivity	2.60	mmhos/cm	USDA Handbook 60
Saturation %	51.8	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
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Albuquerque, NM 87192
USA

Client Sample ID:	10/3	**Core Hole ID :**	CR-06-10
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22215-002

SGS Minerals Sample ID: 072-30789-020

Tests	Result	Unit	Method
pH	6.64	s.u.	USDA Handbook 60
Conductivity	2.45	mmhos/cm	USDA Handbook 60
Saturation %	53.1	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	11/3	**Core Hole ID :**	CR-06-10
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22215-003

SGS Minerals Sample ID: 072-30789-021

Tests	Result	Unit	Method
pH	6.72	s.u.	USDA Handbook 60
Conductivity	0.60	mmhos/cm	USDA Handbook 60
Saturation %	67.0	%	USDA Handbook 60

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	12A/3	**Core Hole ID :**	CR-06-10
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22215-004

SGS Minerals Sample ID: 072-30789-022

Tests	Result	Unit	Method
pH	6.87	s.u.	USDA Handbook 60
Conductivity	0.60	mmhos/cm	USDA Handbook 60
Saturation %	74.5	%	USDA Handbook 60

Somer Rodriguez, Denver Laboratory

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Analysis Report

September 27, 2010

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Client Sample ID:	3/4	**Core Hole ID :**	CR-06-10
Date Received:	01/11/2008	**Project Name/# :**	Kinney #2 Mine
Matrix:	Soil	**Sample ID :**	072-22215-011

SGS Minerals Sample ID: 072-30789-023

Tests	Result	Unit	Method
pH	5.86	s.u.	USDA Handbook 60
Conductivity	5.48	mmhos/cm	USDA Handbook 60
Saturation %	42.8	%	USDA Handbook 60

Somer Rodriguez, Denver Laboratory

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Rock Strength Data, Agapito Reports

AGAPITO ASSOCIATES, INC.
CONSULTING ENGINEERS

715 HORIZON DRIVE
SUITE 340
GRAND JUNCTION, CO 81506
USA
VOICE 970.242.4220
www.agapito.com

CHICAGO OFFICE
630.792.1520

GOLDEN OFFICE
303.273.1511

June 19, 2006

597-01

Mr. Brad Lindsay
Rock Logic Consulting, LLC
P. O. Box 544
Cedaredge, CO 81413

RE: **Carbon Resources, LLC—Rock Mechanics Core Testing Results**

Dear Mr. Lindsay:

This letter provides a summary of the recent rock mechanics core testing performed by Agapito Associates, Inc. (AAI), on behalf of Rock Logic Consulting, LLC (Rock Logic). Rock Logic provided 3.2-inch-diameter core samples with lithologic descriptions for laboratory testing. The samples were selected by Rock Logic, and the cores were from holes numbered CR-06-01 and CR-06-02.

Uniaxial compressive strength tests were performed by AAI at ambient temperature according to the American Society for Testing and Materials (ASTM) specifications:

- Uniaxial compressive strength (UCS) test with and without elastic properties: D2938-95[1]/D3148-93[2]

Test results are summarized in Table 1.

The attached CD contains an electronic version of the Microsoft Excel test sheets, as well as UCS-with-elastic properties laboratory data sheets in Adobe Portable Document Format (PDF). Also attached is a chain of custody.

[1]American Society for Testing and Materials (ASTM), "Standard Test Method for Unconfined Compressive Strength of Intact Rock Core Specimens," Designation D2938-95 (Re-approved in 1992).

[2]American Society for Testing and Materials (ASTM), "Standard Test Method for Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression," Designation D3148-93.

Please contact me if you have any questions.

Sincerely,

Albert Adu-Acheampong
Project Engineer

AAA/smvf

Attachments (3): Table 1
Chain of Custody
CD containing complete testing data

Table 1. Summary of UCS Test Results for Holes CR-06-01 and CR-06-02

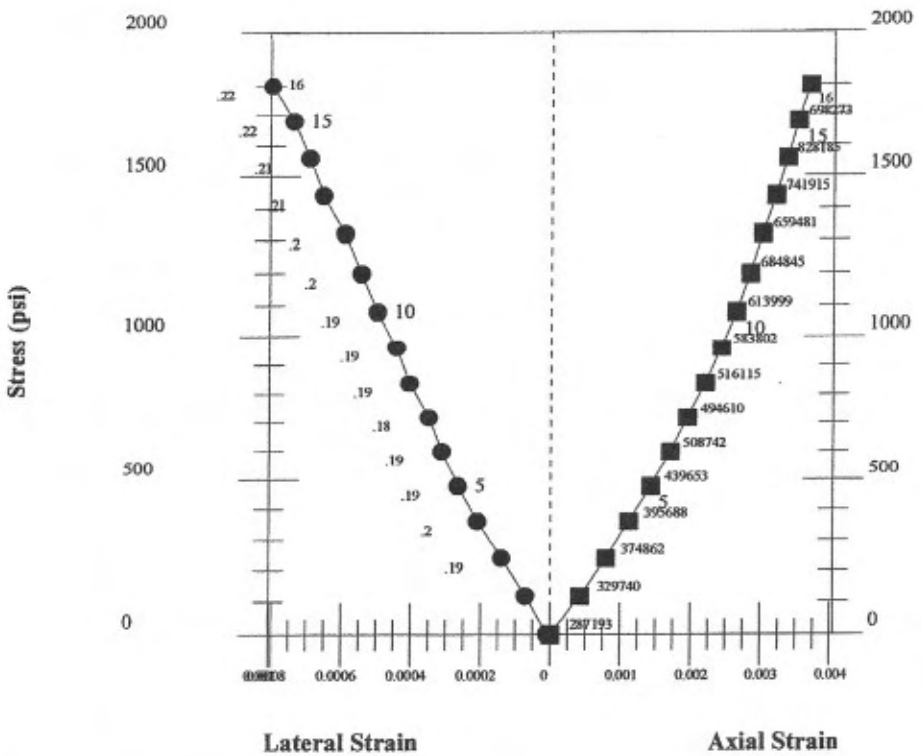
Specimen No.	Hole ID	Depth (ft)		Lithology	Weight	Average Diameter	Axial Length	Density	Failure Load	UCS	Young's Modulus	Poisson's Ratio
		From	To		(oz)	(in)	(in)	(pcf)	(lb)	(psi)	(× 10^6 psi)	
5B/4-U-01	CR-06-1	66.7	67.15	Sandstone	52.16	3.25	4.59	147.8	27,700	3,180		
5B/5-U-02	CR-06-1	75.60	76.40	Sandstone	83.20	3.25	7.36	147.6	49,220	5,951	0.59	0.19
2A/14-U-03	CR-06-2	415.00	415.81	Sandstone	88.80	3.25	7.47	154.8	72,900	8,785		
1A/15-U-04	CR-06-2	419.00	420.20	Silty Sandstone	80.80	3.25	6.95	151.4	41,660	5,023		
2/16-U-05	CR-06-2	425.20	426.00	Sandy Siltstone	84.00	3.24	6.87	159.9	142,800	17,299		
1A/17-U-06	CR-06-2	426.00	426.60	Sandstone	70.40	3.24	6.49	142.5	59,040	7,179	1.55	0.18
5A/18-U-07	CR-06-2	438.15	438.80	Sandstone	73.92	3.25	6.72	143.5	57,930	6,998	2.17	0.48

UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

Client:	Carbon Resources		
Job #:	597-01	**Sample Date:**	na
Hole #:	CR-06-01	**Testing Date:**	06/15/2006
Sample #:	06-CR0601-5B/5-U-02	**Sample Depth:**	76 ft
Length:	7.363 in	**Diameter:**	3.245 in
Area:	8.27 sq in	**Volume:**	60.894 cu in
Weight:	83.2 ounces	**Density:**	147.6 lb/cubic ft
Moisture Condition:	As Received		
Material:	Sandstone		
Failure Load:	49,220 lb		
Compressive Strength:	5,951.44 psi		

Elastic Properties:
Secant Modulus (Points 5 and 16 at 30.5% of UCS) = 5.94E+05 psi
Tangent Modulus (Mean of the slopes betweeen points 12 - 16) = 7.32E+05 psi
Poisson's Ratio (Secant between points 2 and 10) = 0.19

Sample #: 06-CR0601-5B/5-U-02 **Number of Points:** 16



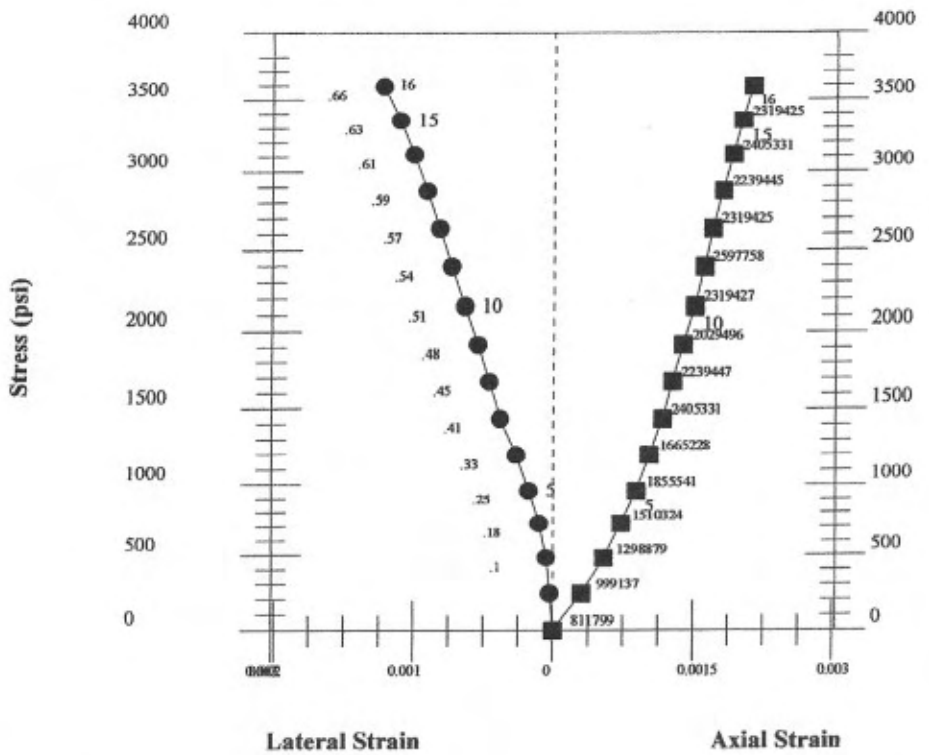
AGAPITO ASSOCIATES, INC.
715 Horizon Dr., Ste. 340, Grand Junction, CO 81506
970/242-4220 • FAX 970/245-9234 • www.agapito.com

UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

Client:	Carbon Resources		
Job #:	555-55	**Sample Date:**	na
Hole #:	CR-06-02	**Testing Date:**	06/15/2006
Sample #:	06-CR0602-5A/18-U-07	**Sample Depth:**	438.475 ft
Length:	6.72 in	**Diameter:**	3.247 in
Area:	8.278 sq in	**Volume:**	55.628 cu in
Weight:	73.92 ounces	**Density:**	143.5 lb/cubic ft
Moisture Condition:	As Received		
Material:	Sandstone		
Failure Load:	57,930 lb		
Compressive Strength:	6,998.14 psi		

Elastic Properties:
Secant Modulus (Points 5 and 15 at 48.3% of UCS) = 2.17E+06 psi
Tangent Modulus (Mean of the slopes betweeen points 12 - 16) = 2.32E+06 psi
Poisson's Ratio (Secant between points 2 and 9) = 0.48

Sample #: 06-CR0602-5A/18-U-07 **Number of Points:** 16



AGAPITO ASSOCIATES, INC.
715 Horizon Dr., Ste. 340, Grand Junction, CO 81506
970/242-4220 • FAX 970/245-9234 • www.agapito.com

ANALYSES REQUESTED AND CHAIN OF CUSTODY-ROCK MECHANICS

Sample provided by:
Rock Logic Consulting, LLC
PO Box 544
Cedaredge, CO 81413
Attn-Brad Lindsay 435 851-9044

Sample sent to:
Agapito Associates, Inc.
715 Horizon Drive Suite 340
Grand Junction, CO 81506
Attn-Albert Adu-Acheampong 970 242-4220

Please Invoice:
Carbon Resources, LLC
PO Box 11789
Albuquerque, NM 87192
Attn-Clay Wisdom 505 286-1253

Drill Hole Number
CR-06-01

Sample ID	Sample Depth Interval From	Sample Depth Interval To	Lithology	Stratigraphic Unit	Sample Date	Length of Core (FT)	Core Diameter	Analyses Requested
5B/4	66.7'	67.15'	ss	10' abv HIA	2/14/2006	0.46	0.27	UCS
5B/5	75.6'	76.4'	ss	roof of HIA	2/14/2006	0.78	0.27	UCS + Elastic

Drill Hole Number
CR-06-02

Sample ID	Sample Depth Interval From	Sample Depth Interval To	Lithology	Stratigraphic Unit	Sample Date	Length of Core (FT)	Core Diameter	Analyses Requested
2A/14	415.0'	415.81'	ss	13' abv HIA	2/14/2006	0.83	0.27	UCS
1A/15	419.0'	420.2'	slty ss	9' abv HIA	2/14/2006	1.1	0.27	UCS
2/16	425.2'	426.0'	sndy slts	2' abv HIA	2/14/2006	0.8	0.27	UCS
1A/17	426.0'	426.6'	ss	roof of HIA	2/14/2006	0.8	0.27	UCS + Elastic
5A/18	438.15'	438.8'	ss	floor of HIA	2/14/2006	0.61	0.27	UCS + Elastic

Relinquished by BRAD LINDSAY Representing ROCK LOGIC CONSULTING
Signed Brad Lindsay Date 2 MAY 06 Time ~~2015~~ 17:00
Recieved By Signed Representing Agapito Assoc.
Date 5/2/06 Time 5:00 pm

Relinquished by _____ Representing _____
Signed _____ Date _____ Time _____
Recieved By _____ Representing _____
Signed _____ Date _____ Time _____

Instructions

1- Do not allow the samples to dry more than needed to perform the analyses.
2- Some samples will be chemically analyzed following these tests. Thus, it is imperative that the samples are not contaminated by other samples or other materials. Please ensure that the testing apparatus and the area that will contain the debris from testing are clean.
3- It is imperative that none of the sample is lost during testing. After analysis is complete, gather the remaining sample and sample debris and place the material in a durable sealed heavy plastic bag or container for storage. Retain the sample until picked up by Rock Logic.
4- Place the drill hole number, sample ID, and sample depth interval on the analysis sheet.
5- Be sure to use the correct confining liquid for triaxial tests stated in the analyses requested.
6- Contact Brad Lindsay when the samples are ready for pick-up.

AGAPITO ASSOCIATES, INC.
CONSULTING ENGINEERS

715 HORIZON DRIVE
SUITE 340
GRAND JUNCTION, CO 81506
USA
VOICE 970.242.4220
www.agapito.com

CHICAGO OFFICE
630.792.1520

GOLDEN OFFICE
303.273.1511

October 10, 2006 597-02

Mr. Brad Lindsay
Rock Logic Consulting, LLC
P. O. Box 544
Cedaredge, CO 81413

RE: **Carbon Resources, LLC—September 2006 Rock Mechanics Core Testing Results**

Dear Mr. Lindsay:

This letter provides a summary of the recent rock mechanics core testing performed by Agapito Associates, Inc. (AAI), on behalf of Rock Logic Consulting, LLC (RLC). RLC provided 3.0-inch-diameter core samples with lithologic descriptions for laboratory testing. The samples were selected by RLC, and the cores were from holes numbered CR-06-10, CR-06-09-BLW, CR-06-05, and CR-06-05-A.

Uniaxial compressive strength (UCS) tests were performed by AAI at ambient temperature according to the American Society for Testing and Materials (ASTM) specifications:

- Uniaxial compressive strength test with and without elastic properties: D2938-95[1]/ D3148-93[2]

Test results are summarized in Table 1. Per Mr. Lindsay's request, samples with length-to-diameter ratio less than 2 were tested.

The attached CD contains an electronic version of the Microsoft Excel test sheets, as well as UCS-with-elastic properties laboratory data sheets in Adobe Portable Document Format (PDF). Also attached is a chain of custody.

[1]American Society for Testing and Materials (ASTM), "Standard Test Method for Unconfined Compressive Strength of Intact Rock Core Specimens," Designation D2938-95 (Re-approved in 1992).
[2]American Society for Testing and Materials (ASTM), "Standard Test Method for Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression," Designation D3148-93.

Please contact me if you have any questions.

Sincerely,

Albert Adu-Acheampong
Project Engineer

AAA/smvf

Attachments (3): Table 1
Chain of Custody
CD containing complete testing data

Table 1. Summary of UCS Test Results

Specimen No.	Hole ID	Depth (ft)		Lithology	Weight	Average Diameter	Axial Length	Density	Failure Load	UCS	Young's Modulus	Poisson's Ratio
		From	To		(oz)	(in)	(in)	(pcf)	(lb)	(psi)	(× 10^6 psi)	
06-CR06-09-4/2-U-0	R-06-09-BL	981.7	982.25	Siltstone	31.77	3.00	6.05	80.5	90,160	12,793		
6-CR06-10-12B/3-U-	CR-06-10	1213.65	1214.20	Coal	31.45	3.00	6.07	79.2	13,530	1,915		
6-CR06-05A-8/2-U-0	CR-06-05-A	1042.30	1042.85	Coal	29.98	3.00	6.14	74.8	8,200	1,162		
6-CR06-10-13A/3-U-	CR-06-10	1216.00	1216.60	Coal	31.57	2.99	6.14	78.9	8,640	1,228		
6E-CR06-10-2/5-U-0	CR-06-10	1229.45	1230.00	Sandstone	56.65	2.99	6.16	141.8	28,790	4,108	0.76	0.39
6-CR06-10-3/3-U-06	CR-06-10	1204.05	1204.60	Siltstone	63.53	2.99	5.82	168.4	122,700	17,459		
06-CR06-09-3/3-U-0	R-06-09-BL	998.75	999.35	Coal	30.71	2.99	6.12	77.0	8,090	1,150		
6E-CR06-05-5/1-U-0	CR-06-05	1047.50	1048.00	Sandstone	51.36	2.98	6.03	131.5	16,530	2,363	0.39	0.41
06-CR06-09-1/3-U-0	R-06-09-BL	996.90	997.45	Coal	30.60	3.00	5.96	78.6	10,410	1,474		
6-CR06-10-9B/3-U-1	CR-06-10	1210.70	1211.25	Sandstone	61.30	2.99	5.89	160.0	95,800	13,625	2.73	0.08
06-CR06-10-7/3-U-1	CR-06-10	1207.70	1208.25	Sandstone	61.34	2.99	6.12	153.8	28,550	4,058		
6-CR06-09-10/1-U-1	R-06-09-BL	975.45	976.00	Sandstone	63.08	2.98	6.06	160.7	103,130	14,742		
6-CR06-05A-5/1-U-1	CR-06-05-A	1031.50	1031.90	Mudstone	43.28	2.98	4.21	158.6	40,850	5,561		
6-CR06-05A-6/1-U-1	CR-06-05-A	1031.90	1032.40	Sandstone	48.97	2.99	4.77	157.8	79,850	11,033		

* UCS values for samples with L/D<2.0 are corrected as per ASTM D2938-86.

ANALYSES REQUESTED AND CHAIN OF CUSTODY-ROCK MECHANICS

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Rock Logic Consulting, LLC
PO Box 544
Cedaredge, CO 81413
Attn-Brad Lindsay 435 851-9044

Sample sent to:
Agapito Associates, Inc.
715 Horizon Drive Suite 340
Grand Junction, CO 81506
Attn-Albert Adu-Acheampong 970 242-4220

Please Invoice:
Carbon Resources, LLC
PO Box 11789
Albuquerque, NM 87192
Attn-Clay Wisdom 505 286-1253

Drill Hole Number
CR-06-10

Sample ID	Sample Depth Interval		Lithology	Stratigraphic Unit	Sample Date	Length of Core (FT)	Diameter Core (FT)	Analyses Requested
	From	To						
3/3	1204.05	1204.60	slts	7' abv HIA	7/23/2006	0.55	0.25	UCS
4/3	1204.60	1205.25	ms	7' abv HIA	7/23/2006	0.65	0.25	UCS
7/3	1207.50	1208.30	ss	4' abv HIA	7/23/2006	0.80	0.25	UCS
9B/3	1210.70	1211.25	ss	roof of HIA	7/23/2006	0.55	0.25	UCS + Elastic
12B/3	1213.55	1214.25	coal	top of HIA	7/23/2006	0.70	0.25	UCS
13A/3	1216.00	1216.60	coal	middle of HIA	7/23/2006	0.60	0.25	UCS
2/5	1229.00	1230.00	ss	floor of HIA	7/23/2006	1.00	0.25	UCS + Elastic

Drill Hole Number
CR-06-09-BLW

Sample ID	Sample Depth Interval		Lithology	Stratigraphic Unit	Sample Date	Length of Core (FT)	Diameter Core (FT)	Analyses Requested
	From	To						
10/1	975.40	976.10	ss	13' abv HIA	8/6/2006	0.70	0.25	UCS
4/2	981.60	982.35	slts	7' abv HIA	8/6/2006	0.75	0.25	UCS
9/2	988.75	989.40	ms	roof of HIA	8/6/2006	0.65	0.25	USC +Elastic
1/3	996.60	997.50	coal	bottom of HIA	8/6/2006	0.90	0.25	UCS
3/3	998.30	999.45	coal	bottom of HIA	8/6/2006	1.15	0.25	UCS

Drill Hole Number
CR-06-05

Sample ID	Sample Depth Interval		Lithology	Stratigraphic Unit	Sample Date	Length of Core (FT)	Diameter Core (FT)	Analyses Requested
	From	To						
5/1	1046.5	1048.2	ss	spring canyon	9/7/2006	1.7	0.25	USC + Elastic

Drill Hole Number
CR-06-05-A

Sample ID	Sample Depth Interval		Lithology	Stratigraphic Unit	Sample Date	Length of Core (FT)	Diameter Core (FT)	Analyses Requested
	From	To						
5/1	1030.5	1031.9	ms	4' abv HIA	9/19/2006	1.4	0.25	UCS
6/1	1031.9	1033.7	ss	3' abv HIA	9/19/2006	1.8	0.25	UCS
3/2	1036.8	1037.2	coal	upper HIA	9/19/2006	0.4	0.25	UCS
8/2	1042	1043	coal	lower HIA	9/19/2006	1	0.25	UCS
12/2	1045.75	1046.75	ms	floor of HIA	9/19/2006	1	0.25	UCS + Elastic

Relinquished by BRAD LINDSAY Representing CARBON RESOURCES
Signed _____ Date 26 SEPT 06 Time _____

Recieved By Jim Representing _____
Signed _____ Date 9/26/06 Time 1420

Instructions

1- Do not allow the samples to dry more than needed to perform the analyses.
2- Some samples will be chemically analyzed following these tests. Thus, it is imperative that the samples are not contaminated by other samples or other materials. Please ensure that the testing apparatus and the area that will contain the debris from testing are clean.
3- It is imperative that none of the sample is lost during testing. After analysis is complete, gather the remaining sample and sample debris and place the material in a durable sealed heavy plastic bag or container for storage. Retain the sample until picked up by Rock Logic.
4- Place the drill hole number, sample ID, and sample depth interval on the analysis sheet.
5- Be sure to use the correct confining liquid for triaxial tests stated in the analyses requested.
6- Contact Brad Lindsay when the samples are ready for pick-up.

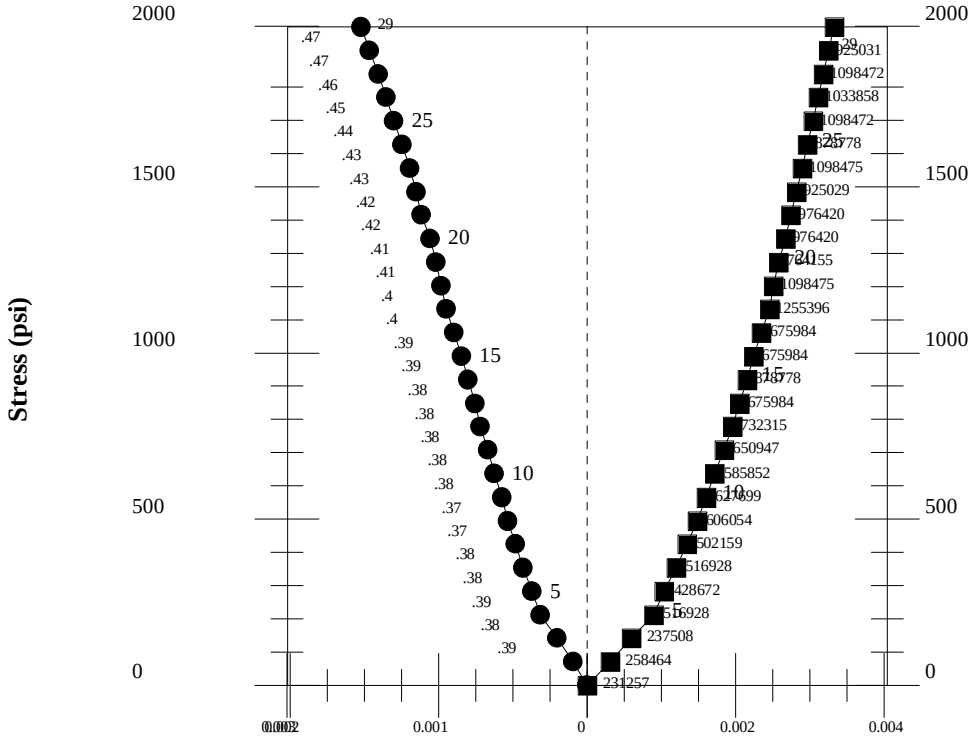
UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

Client: Carbon Resources

Job #:	597-01	**Sample Date:**	na
Hole #:	CR-06-10	**Testing Date:**	10/05/2006
Sample #:	06-CR0610-2/5-U-05	**Sample Depth:**	1229.725 ft
Length:	6.158 in	**Diameter:**	2.987 in
Area:	7.007 sq in	**Volume:**	43.152 cu in
Weight:	56.65 ounces	**Density:**	141.8 lb/cubic ft
Moisture Condition:	As Received		
Material:	Sandstone		
Failure Load:	28,790 lb		
Compressive Strength:	4,108.48 psi		

Elastic Properties:
Secant Modulus (Points 5 and 29 at 48.6% of UCS) = 7.56E+05 psi
Tangent Modulus (Mean of the slopes betweeen points 25 - 29) = 1.04E+06 psi
Poisson's Ratio (Secant between points 2 and 15) = 0.39

Sample #: 06-CR0610-2/5-U-05 **Number of Points:** 29



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970/242-4220 • FAX 970/245-9234 • www.agapito.com

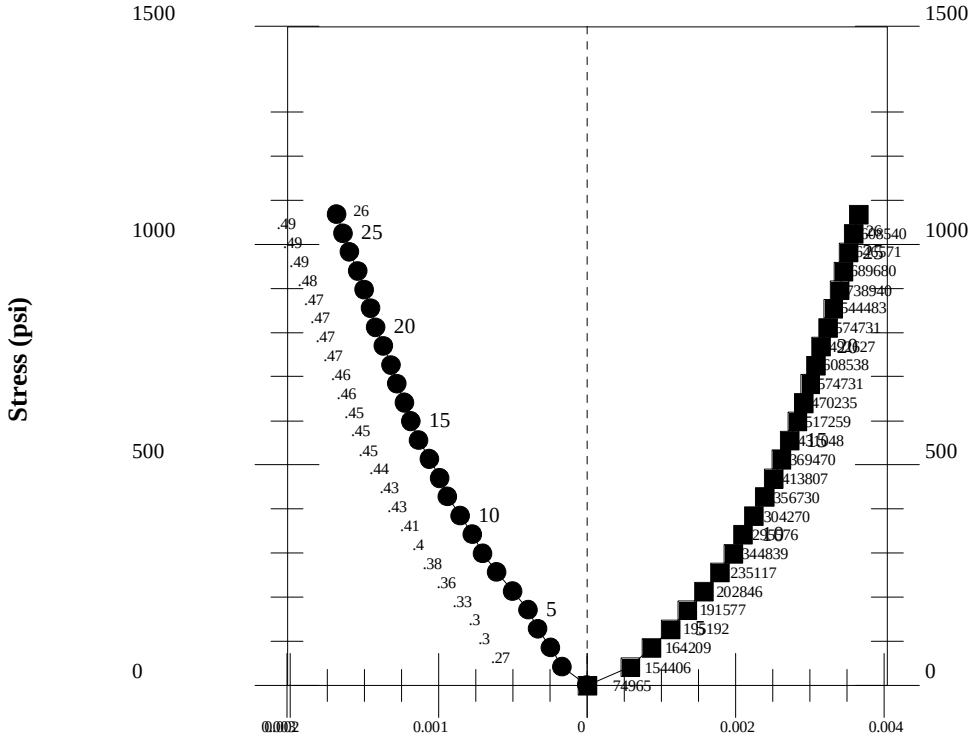
UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

Client: Carbon Resources

Job #:	597-01	**Sample Date:**	na
Hole #:	CR-06-05	**Testing Date:**	10/05/2006
Sample #:	06-CR0605-5/1-U-08	**Sample Depth:**	1047.75 ft
Length:	6.031 in	**Diameter:**	2.984 in
Area:	6.996 sq in	**Volume:**	42.191 cu in
Weight:	51.36 ounces	**Density:**	131.5 lb/cubic ft
Moisture Condition:	As Received		
Material:	Sandstone		
Failure Load:	16,530 lb		
Compressive Strength:	2,362.87 psi		

Elastic Properties:
Secant Modulus (Points 5 and 26 at 45.4% of UCS) = 3.94E+05 psi
Tangent Modulus (Mean of the slopes betweeen points 22 - 26) = 6.71E+05 psi
Poisson's Ratio (Secant between points 2 and 10) = 0.41

Sample #: 06-CR0605-5/1-U-08 **Number of Points:** 26



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UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

Client: Carbon Resources

Job #:	597-01	**Sample Date:**	na
Hole #:	CR-06-10	**Testing Date:**	10/05/2006
Sample #:	06-CR0610-9B/3-U-10	**Sample Depth:**	1210.975 ft
Length:	5.894 in	**Diameter:**	2.99 in
Area:	7.019 sq in	**Volume:**	41.371 cu in
Weight:	61.29 ounces	**Density:**	160 lb/cubic ft
Moisture Condition:	As Received		
Material:	Sandstone		
Failure Load:	95,800 lb		
Compressive Strength:	13,648.30 psi		
Length/(2 X Diameter):	0.986	**Corrected UCS:**	13624.72 psi

Elastic Properties:
Secant Modulus (Points 5 and 13 at 50.1% of UCS) = 2.73E+06 psi
Tangent Modulus (Mean of the slopes betweeen points 10 - 14) = 3.18E+06 psi
Poisson's Ratio (Secant between points 2 and 13) = 0.08

Sample #: 06-CR0610-9B/3-U-10 **Number of Points:** 14

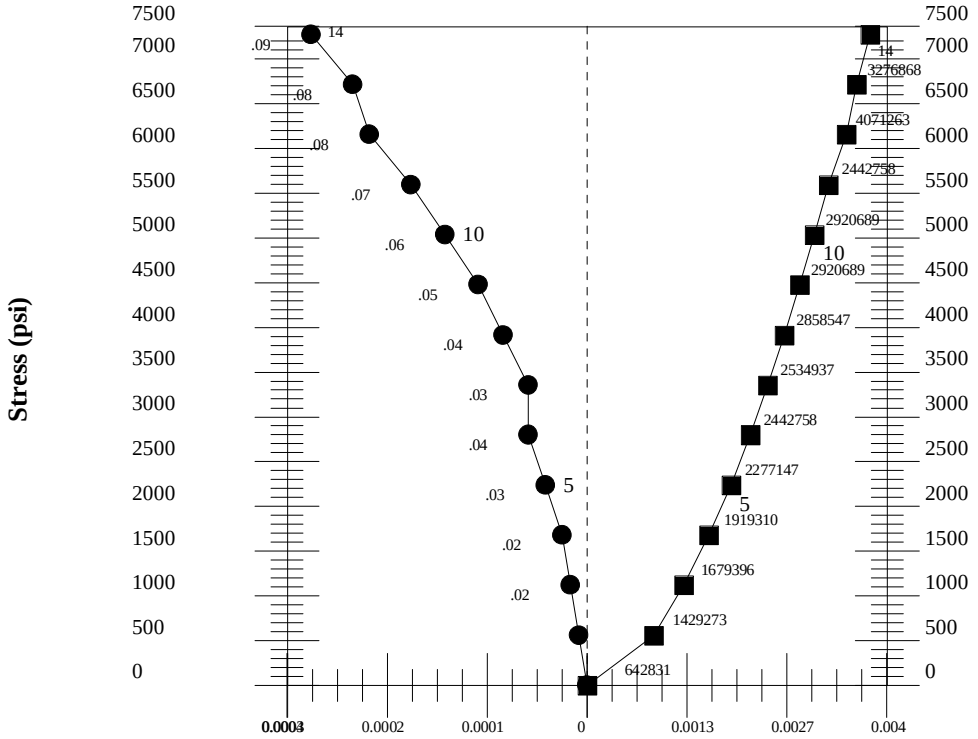

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Exhibit 20

Ephemeral Drainage Determination

EPHEMERAL DRAINIAGE DETERMINATION

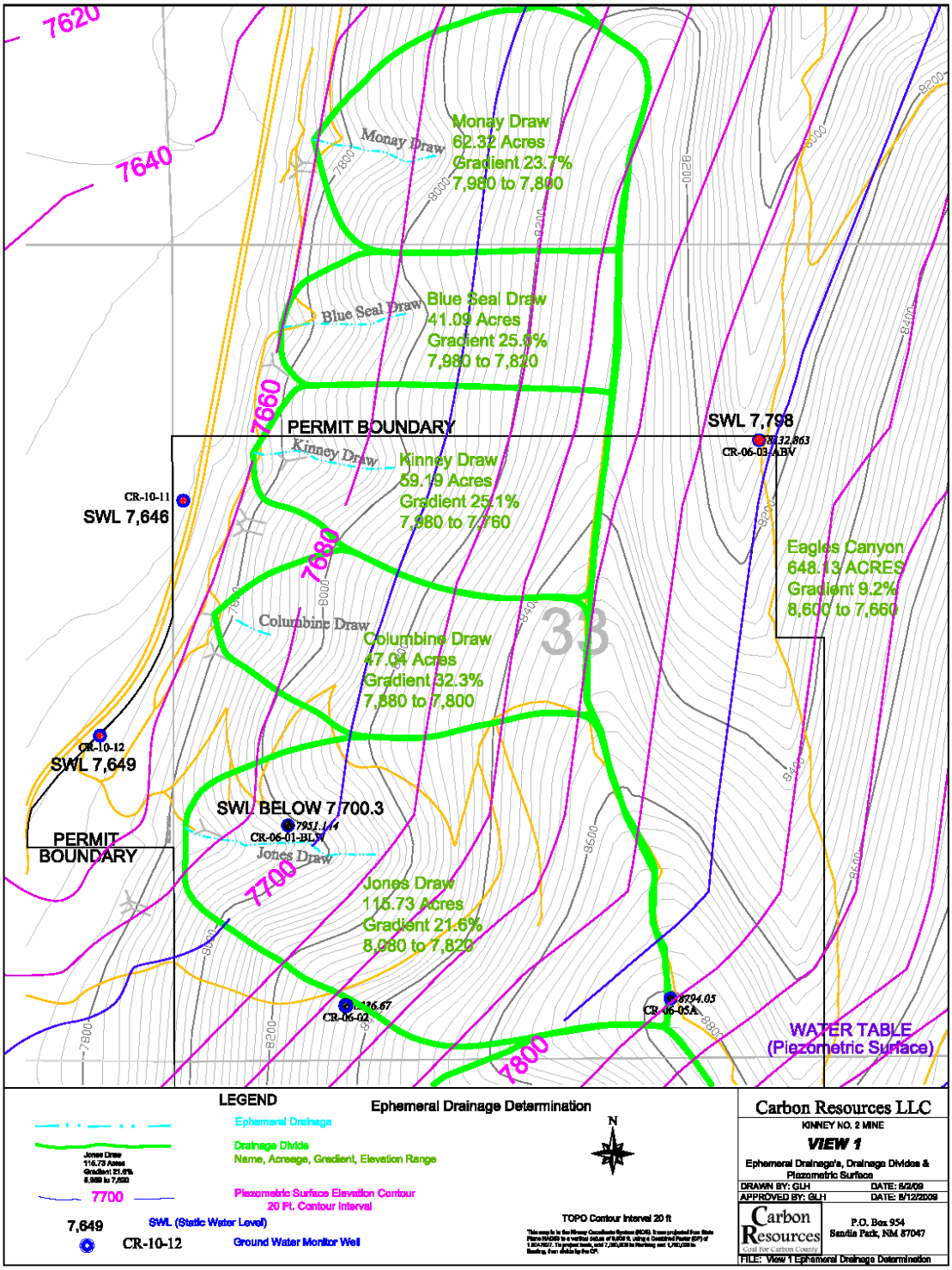
(Updated May 2011)

The USGS 7.5 minute Scofield Quadrangle Map depicts perennial, and intermittent, streams with a dark blue drainage line while ephemeral drainages are shown with a light blue dashed-line, or simply as a topographic v-notch without a drainage marking line altogether. There are five short, straight, E-W drainages within and or immediately north of the permit boundary shown on the Scofield USGS 7.5 Minute Quad as ephemeral drainages because they are represented by a v-notch in the topo contours only and lack any kind of drainage marking line. For purposes of this work, those five drainages have been named, from North to South, Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, and Jones Draw, and are marked with a dash-dot light blue line marking the likely course of each drainage, View 1, (Ephemeral Drainages, Drainage Divides, and Piezometric Surface). A light blue ephemeral drainage dashed line has been added to the map for consistency in designation. Two additional drainages, Eagles Canyon and UP Canyon, are both shown as ephemeral drainages on the USGS 7.5 minute Scofield Quadrangle with the light blue dashed line. Mud Creek and the lower reach of Miller Creek are the only Perennial Streams near the Permit Boundary and are shown with a dark blue solid line on the Scofield Quadrangle. Baseline data have been collected from these two Perennial Streams, View 2(Ephemeral Drainage Determination).

The seven ephemeral drainages described above together with the groundwater table are the subjects of this discussion due to concern that baseline data were not collected from them those seven drainages. The argument is “absent baseline water samples from the seven drainages how can we be certain they are ephemeral?”

Baseline data were collected on the ephemeral drainages beginning with Photographs taken of the four drainages that are actually located within the Permit Boundary (Eagles Canyon, Kinney Draw, Columbine Draw, and Jones Draw) during the baseline monitoring period that demonstrate the absence of water (Appendix 1, Drainage Photos). Not only do these photographs document the absence of water, when they were taken, but also document the lack of alluvium and the lack of vegetative differences across the drainage bottom. Additional baseline data were collected during 21 field visits documented below.

The documented lack of running water alone, at any point in the year, disqualifies all four of these drainages from being classified as Perennial; a stream that flows year round. Therefore the only question is, are these four drainages ephemeral or intermittent? The same question is directed to the other three E-W drainages, Monay Draw and Blue Seal Draw, and Up Canyon. Photo aspects are shown on View 3, Appendix 1.


Monay Draw
62.32 Acres
Gradient 23.7%
7,980 to 7,800
Blue Seal Draw
41.09 Acres
Gradient 25.8%
7,980 to 7,820
PERMIT BOUNDARY
Kinney Draw
59.19 Acres
Gradient 25.1%
7,980 to 7,760
CR-10-11
SWL 7,646
SWL 7,798
CR-06-03-ABV
Eagles Canyon
648.13 ACRES
Gradient 9.2%
8,600 to 7,660
Columbine Draw
47.04 Acres
Gradient 32.3%
7,880 to 7,800
33
CR-10-12
SWL 7,649
SWL BELOW 7,700.3
CR-06-01-BLW
PERMIT BOUNDARY
Jones Draw
115.73 Acres
Gradient 21.6%
8,080 to 7,820
CR-06-05A
WATER TABLE
(Piezometric Surface)
7620
7640
7660
7680
7700
7800
LEGEND
Ephemeral Drainage Determination
Ephemeral Drainage
Drainage Divide
Name, Acreage, Gradient, Elevation Range
Piezometric Surface Elevation Contour
20 Ft. Contour Interval
SWL (Static Water Level)
Ground Water Monitor Well
TOPO Contour Interval 20 ft
Carbon Resources LLC
KINNEY NO. 2 MINE
VIEW 1
Ephemeral Drainage's, Drainage Divides & Piezometric Surface
DRAWN BY: GLH
DATE: 8/2/09
APPROVED BY: GLH
DATE: 8/12/2009
Carbon Resources
Coal for Carbon County
P.O. Box 954
Sandia Park, NM 87047
FILE: View 1 Ephemeral Drainage Determination

DEFINITIONS

A search of the literature on the internet was conducted to establish a working definition of ephemeral and intermittent streams. There appears to be a legal definition held by most government agencies, including UDOGM, and then a more robust but not settled academic definition(s). Below are a few of the many definitions of ephemeral and intermittent streams (drainages) and below them is a summary of the salient aspects of all the definitions.

Ephemeral Stream Definitions:

OXFORD UNIVERSITY PRESS Ephemeral stream

A Dictionary of Earth Sciences; AILSA ALLABY and MICHAEL ALLABY; 22 words... **ephemeral stream** A stream which flows only after rain or snow-melt and has no **baseflow component**. A desert wadi may form an **ephemeral stream**.

DETROIT DISTRICT
United States Army Corps of Engineers REGULATORY OFFICE

GLOSSARY OF TERMS

The following glossary of terms where taken verbatim from the *Federal Register, Vol.65, No.47,* dated March 9, 2000, pages 12897 - 12899.

EPHEMERAL STREAM: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Run-off from rainfall is the primary source of water for stream flow.

INTERMITTENT STREAM: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

The South Carolina General Assembly 116th Session, 2005-2006 officially adopted the Corps of Engineers Definition of Ephemeral Stream for use in wetlands cases. (See Reference)

Types of Water Resources Common to Forestry

It is important to understand what kind of stream or other surface water is on-site whenever forestry activities are planned or conducted. Applying the wrong stream classification may result in compliance issues related to FPGs, stream/ditch obstruction laws and/or DWQ Riparian Buffer Rules.

Protection of Streams and Waterbodies
Intermittent and perennial waterbodies, such as ponds or lakes, must be treated with the same protection as streams when complying with the FPGs and DWQ Riparian Buffer Rules. In the FPGs, a "waterbody" is a natural or man-made basin that stores water, but does not include jurisdictional wetlands or beaver ponds.

Stream Classifications for FPG Compliance
The FPGs define a stream as "a body of concentrated flowing water in a natural low area of the land surface" (15A NCAC .01I .0101-.0209). The FPGs further define three types of streams as follows.

Ephemeral Stream
An ephemeral stream is defined as "a stream that flows only during and for short periods following precipitation and flows in low areas that may or may not have a well-defined channel." Some common names for ephemeral streams include: drain, swale, gully, slough (pronounced 'slew') or hollow. Ephemeral streams do not require a SMZ. However, it is strongly encouraged that skid trails, roads, site-prep and other soil-disturbing activities be minimized in the ephemeral streams to avoid erosion and sedimentation of runoff that can flow from the ephemeral into other streams or waterbodies.

Intermittent Stream
An intermittent stream is defined as "a stream that flows only during wet periods of the year (30% - 90% of the time) and flows in a continuous well-defined channel." During dry periods, especially in spring and summer months, intermittent streams may appear as only a trickle of water or may seem to be totally dry, when in fact there is water retained within the stream bottom or "stream substrate". This water retention below the soil surface is usually caused by seasonal changes of the local water table.

American Geophysical Union, Fall Meeting 2006, abstract #H13A-1368

“In order to classify recharge potential (RCP) in ephemeral-stream channels, a method was developed that incorporates information about channel geometry, vegetation characteristics, and bed-sediment apparent electrical conductivity ('a)….”

This work includes channel geometry, vegetation and bed-sediment apparent conductivity in the definition. Some of the concepts apply to the Scofield Drainages.

Glossary of Water Terms

EPHEMERAL STREAM

A stream or reach of a stream that flows briefly only in direct response to precipitation in the immediate locality and whose channel is at all times higher than the water table.

INTERMITTENT STREAM

A stream that ceases to flow occasionally or seasonally because evaporation and leakage to ground water exceed the available water supply.

A rather exhaustive list of ephemeral stream references can be found in Appendix(__)

Intermittent Stream Definitions:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

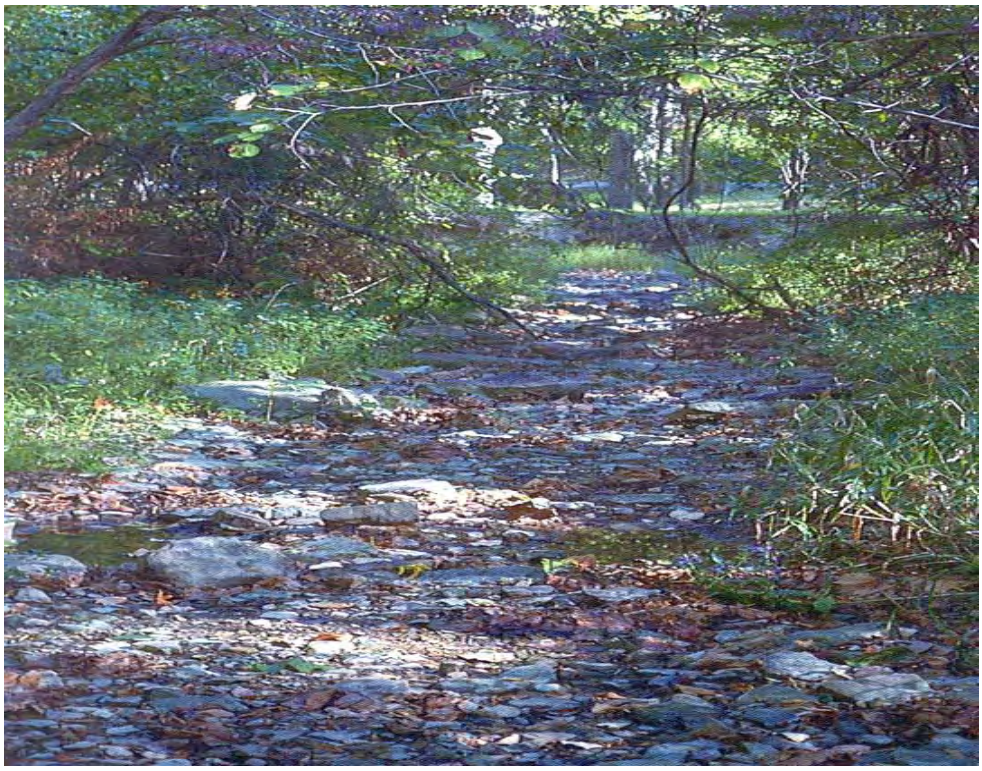
Home Browse Terms Help

First Edition Preface Second Edition Preface Acknowledgments

Intermittent stream—A stream that carries water a considerable portion of the time, but that ceases to flow occasionally or seasonally because bed seepage and evapotranspiration exceed the available water supply.
Compare ephemeral stream, perennial stream.

INTERMITTENT STREAM

*R4SBF, R4SBC



In this wetland type, the channel contains flowing water for only a portion of the year. When not flowing, the water may remain in isolated pools, or surface water may be absent.

The substrate consists of organic deposits, sand, gravel, cobble, rubble, bedrock, or pioneering plants. There are generally no named soils in this community, although some areas may be listed as mixed alluvial land.

Vegetation is dependent on the length of inundation, as well as the substrate type. In many cases, streambeds are not vegetated because of the scouring effect of the moving water, but occasionally" pioneering" annuals or perennials may colonize the area during low flow. Many small drainage ditches are included with this type.

*dnr.state.il.us/Wetlands/**intermittent**.htm - 3k*

*Used throughout the community descriptions to indicate the most commonly occurring code in Illinois

Intermittent Stream Definition:

A stream that goes dry at certain times of the year. Intermittent streams flow during seasons of the year when runoff and/or ground water contributions sustain the flow of the stream. They stop flowing during dry seasons when precipitation is low and the water table drops below the bed of the stream.

UDOGM's own revised definition of Intermittent Stream.

Utah Division of Oil, Gas & Mining
Informal Rulemaking Process
UMA Topic #5: Intermittent Stream
Proposed Coal Draft Rule from UMA, DOGM Received 11/7/07
Including DOGM Nonsubstantive Edits 11/21/07

Proposed Rule Change in part of R645-100-200.:

"Intermittent Stream" means ~~(a) a stream, or reach of a stream, that drains a watershed of at least one square mile, or (b)~~ a stream, or reach of a stream, that is below the local water table for at least some part of the year and obtains its flow from both surface runoff and groundwater discharge.

Legal "consensus definitions" for stream classifications are:

Ephemeral Streams flow water only in response to precipitation and the water table is always below the stream base. Intermittent Streams flow water much of the year and the water table is above the base of the stream much of the year contributing to their flow. This definition includes the revised UDOGM definitions (above).

Characterization of Drainages

Using the criteria in the Legal Consensus definition alone it is easy to demonstrate that the seven drainages within and adjacent to the permit boundary are clearly ephemeral. First, however, a discussion of the local water table is required.

Baseline static water level data from monitor wells CR-10-11, CR-10-12, CR-06-03, and CR-06-09 were integrated with elevation intercepts from the perennial Mud Creek and the perennial lower reach of Miller Canyon/Long Canyon, and Scofield Reservoir to construct a peizometric surface model using SURV-CAD and is presented on View 1. These data provide consist support for the presence of a regional, or semi-regional, water table (piezometric surface) beneath the permit area (Maps 7A and 7B, X-Section A-A' and C-C', Chapter 7, Hydrology).

Topographic contours shown in gray with semi-regional water table (piezometric surface) contours shown in light blue, beneath the topography, clearly demonstrate that

all of the seven drainages shown as ephemeral (Eagles Canyon, Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, Jones Draw, UP Canyon) are above the water table throughout their entire length. Bold letters “A” through “G” on View 2 post the differences in elevation between the bottom of each drainage and the peizometric surface (depth to the water table) at the westernmost location within each respective drainage basin where the elevation difference is the smallest. That is, the difference between the bottom of each drainage and the peizometric surface is smallest down-gradient, closer to base level represented by Scofield Reservoir and increases significantly eastward or upstream on each drainage.

Constraints on the elevation and gradient of the water table also explain the observed intermittent nature of the Long Canyon portion (upper reach) of the Miller Canyon Stream.

Geometric properties (area, length, elevation and average slope) of the seven ephemeral drainages together with those of the two perennial streams are summarized below in TABLE 1.

TABLE 1

Drainages Arranged North to South

Kinney Drainage Basin Areas			Kinney Drainage Average Gradient (Slope)				
Drainage	SQ FT.	Acres	Top Elev	Base Elev	Elev Drop	Length	Avg Slope
Miller Canyon	224,900,115.77	5,163.00	9,100.0	7,660.0	1,440.0	33,275.8	4.3%
Eagles Canyon	28,232,397.56	648.13	8,600.0	7,660.0	940.0	10,182.1	9.2%
Monay Draw	2,714,510.69	62.32	7,980.0	7,800.0	180.0	760.0	23.7%
Blue Seal Draw	1,789,775.88	41.09	7,980.0	7,820.0	160.0	641.0	25.0%
Kinney Draw	2,578,528.62	59.19	7,980.0	7,760.0	220.0	875.4	25.1%
Columbine Draw	2,049,214.37	47.04	7,880.0	7,800.0	80.0	248.0	32.3%
Jones Draw	5,041,158.90	115.73	8,080.0	7,820.0	260.0	1,202.1	21.6%
UP Canyon	36,746,615.67	843.59	8,500.0	7,800.0	700.0	6,279.0	11.1%

Groundwater Monitoring Data for Monitor Wells CR-06-01-BLW, CR-06-02, CR-06-05A, CR-10-11, and CR-10-12 are shown on Exhibit 10 (Surface and Ground Water Field Measurements) and graphically depicted on Maps 7, 7A,7B. Data in Exhibit 10 document, for a duration of four years (2006-20010), the upper limit of the static water level beneath Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, Jones Draw, UP Canyon, as positioned a minimum of fifty two (52) feet below the lowest point in the bottom of the lowest of these drainages.CR-06-01-BLW is actually located in Jones Draw providing absolute site specific data. The groundwater surface (piezometric) clearly is lower near the Scofield Reservoir where the lowest portions of the drainages terminate.

In addition to the four year data set documenting the position of the groundwater table in the local area, the following twenty two (21) visits to Scofield by Ben Grimes, over the course of roughly the same four years (5-26-06 through 10-20-10), where he was surveying in the area and can testify it was not raining and observed no water running in any of the eight drainages listed above, except Miller Canyon which is perennial, as he passed by them: (5-26-06,10-16-06,10-27-06,5-8-07,9-20-07,9-21-07,10-27-07,9-22-09,9-23-09,9-28-09,9-29-09,9-30-09,10-1-09,4-26-10,4-27-10,7-3-10,8-19-10,9-7-10,9-14-10,9-16-10,9-30-09,10-20-10).

The data presented above clearly demonstrate several things:

1. There **is** a semi-regional peizometric surface in the permit area.
    a. Evidence for this surface includes the consistency of data which is taken to be the elevation of the two perennial streams (Mud Creek, & Miller Creek/Long Canyon), along their apparent effluent reaches, and the intercepts of the five monitor wells.
    b. Even though the faults are not shown on the maps Views 1 & 2), the existing data suggest that the faults **do not significantly partition the water flow along the peizometric surface in the saturated zone**. The peizometric surface shown on the maps above is very smooth due to the paucity of data, however, it is fully expected that the surface has some ridges and valleys, very likely caused by the local down-gradient retarding or damming effect (instead of the partitioning effect) of the larger faults. This is likely represented by the apparent anomaly of Monitor Well CR-06-05A that has never shown a static water level.
2. The local recharge area is obviously Jump Creek, Long Canyon and to a lesser extent Eagles Canyon.
3. The seven drainages (Eagles Canyon, Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, Jones Draw, Up Canyon) adjacent to or passing over the permit area are;
    a. a single straight reach (lacking meanders, low sinuosity) except for Eagles and UP Canyons, whose courses are controlled by faulting.
    b. steeply inclined to the west (also note elevations in Table 1)
    c. small catchment (drainage basin) areas
        i. average rainfall collected over the small catchment areas does not, on its own, support perennial flow Table 2.
    d. above the water table (peizometric surface) along their entire length (View 2).

TABLE 2

Water Calculations	**Basin**	**Annual Precipitation**		**Annual Flow**		
Drainage	Acres	Inches	Gallons	AVG gpm	Gallons	as % of Annual Precipitation
Miller Canyon	5,163.0	17.2	2,414,200,360	175.0	99,713,250	4.13028%
Eagles Canyon	648.1	17.2	303,061,935	22.0	12,535,380	4.13624%
Monay Draw	62.3	17.2	29,139,037	2.1	1,196,559	4.10638%
Blue Seal Draw	41.1	17.2	19,212,429	1.4	797,706	4.15203%
Kinney Draw	59.2	17.2	27,679,331	2.0	1,139,580	4.11708%
Columbine Draw	47.0	17.2	21,997,383	1.6	911,664	4.14442%
Jones Draw	115.7	17.2	54,114,546	3.9	2,222,181	4.10644%
UP Canyon	843.6	17.2	394,458,191	28.5	16,239,015	4.11679%
				Hypothetical Flow		

Miller Canyon is the only perennial stream on Table 2 and is used as an example of average flow as a percentage of annual precipitation. That is, Miller Canyon averages 175 gpm annually which is approximately 4.1 percent of precipitation in its catchment basin. The similarities in geology, vegetative ground cover, and elevations are expected to yield a roughly similar ratio of flow as a percentage of precipitation. Hypothetical flows that would result in the approximate same ratio were inserted into the calculations and are shown to be extremely low.

Data presented above, taken in its entirety, make it impossible to characterize the seven subject drainages as perennial or as intermittent. **The inescapable conclusion is that these seven drainages are ephemeral.**

In addition to the legal definition of ephemeral and intermittent streams cited above, the quoted definitions also include more in-depth academic definitions summarized below that provide additional parameters by which to judge the seven subject drainages.

Ephemeral Stream (Drainage):

- Flow water only after rain fall or snow melt. (In direct response to precipitation)
    - Carries water less then 30% of year
- Above water table year round
    - Ground water is not a source of water for the stream
- No base-flow component
    - No or minimal bank and bed-storage capacity
    - Minimal or no springs in drainage basin
        - Perched aquifer springs only
- May not have a well defined channel
- Very Low Sinuosity
- May or man not have water flow generated alluvium in stream bed
- A high roughness coefficient (Manning's Equation)
    - Suggests steeper vertical profiles
- Relatively low bed sediment conductivity
- Very-low to low aquatic taxa

Intermittent Stream (Drainage):

- Carries water a considerable portion of the time
    - Flows water 30 to 90% of year
    - Ceases to flow occasionally or seasonally because bed seepage and evapotranspiration exceed available water supply
- Below water table for at least some part of the year
    - Obtains flow from both surface runoff and groundwater
    - Has a base flow component
        - Typically has bank and bed-storage capacity
- May have springs in drainage basin
- Has a well defined channel
- Has flow generated alluvium in stream bed

- Low Sinuosity
- A lower roughness coefficient than ephemeral (Manning's Equation)
    - Generally less steep vertical profiles than ephemeral
- Relatively low bed sediment conductivity
- Moderate to high aquatic taxa

These "academic definitions" might not be exhaustive but are useful anyway. Major common threads between the definitions are:

1. Use of a water table to differentiate between ephemeral and intermittent streams. As with the Legal Definition.
2. The presence of **bank and or bed storage capacity** as a part of the "base flow component" as defining intermittent streams but are lacking in ephemeral Streams.
    a. Bank and bed storage requires, among other things, presence of alluvium**,** highly fractured bedrock, or abandoned meanders or abandoned channel segments leaving permeable stream level terraces.

The general correlation between higher sinuosity and a higher likelihood of bank and bed storage capacity forwards the idea that streams with higher sinuosity are more likely to have a component of "base flow" issuing from bank and bed storage and are therefore not likely to be ephemeral.

The discussion of bank and bed storage also has relevance to the discussion of vados zone springs addressed in Chapter 6, Geological Information.

3. **Intermittent streams always have alluvium**; ephemeral streams may or may not have alluvium.
4. **Ephemeral streams tend to have steeper gradients than do intermittent streams** as expressed as a component of the Manning Equations roughness coefficient. Ephemeral streams have a higher roughness coefficient than intermittent streams. This is also reflected in sinuosity; steeper gradient streams display less sinuosity than lower gradient streams.
5. **Intermittent streams always have a well defined channel. Ephemeral streams may or may not have a well defined channel.**

Applying the "academic definition common threads" to the four streams that pass through the permit boundary provides further weight to the argument that they are in fact ephemeral.

The commonalities of the four drainages that support an ephemeral classification are:

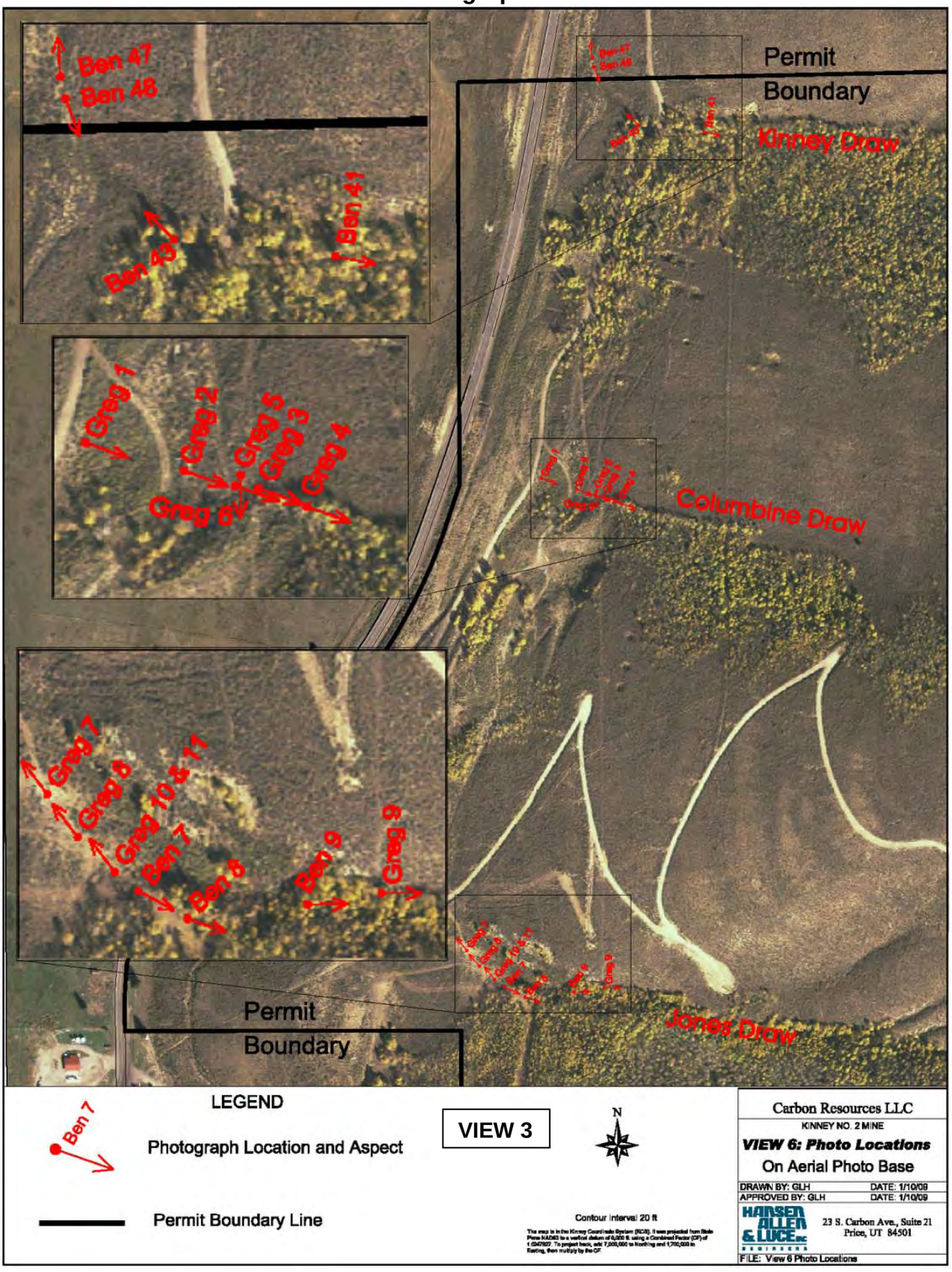
- Small Drainage Basin
- Elevated and steeply inclined
- Low sinuosity
- Absent or poorly defined channel
- Virtual absence of alluvium in the channel
- No noticeable difference in vegetation between channel and drainage basin

- Virtual absence of bank and bed storage material. Together these features describe drainages that are small, steeply inclined basins, high and dry above the regional water table, completely lacking the ability to catch and retain sufficient water to create sufficient bank or bed storage to support a flow that persists for more than hours following a rain storm or for days after the snow pack has melted. **This describes ephemeral streams**.

The key legal issue that disqualifies all seven of the streams described above from being classified as intermittent streams is the absence of flow from the water table for any portion of the year. A stream that is physically located tens to hundreds of feet above the well documented local water table cannot receive any water from the ground water table and therefore cannot be classified as an intermittent stream.

There is no question that the seven drainages in an adjacent to the permit area (Eagles Canyon, Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, Jones Draw, and UP Canyon) **are in fact Ephemeral.**

APPENDIX 1: Drainage Photographs



Ben 41: View East in Kinney Draw, Oct. 2007. Note no defined channel

Ben 43: View NW bottom of Kinney Draw, Oct. 2007. Note remnant of snow in bottom of drainage.

Ben 47: View N N-W @ old diversion North of Kinney Draw, Oct. 2007

Ben 48: View S-E @ old diversion North of Kinney Draw, Oct. 2007

Greg 1: Columbine Draw 10-29-08 View East up draw from road

Greg 2: Columbine Draw 10-29-08: @ East easement fence view E @ drainage bottom

Greg 3: Columbine Draw 10-29-08: View E @ drainage bottom from immediately E of E fence

Greg 4: Columbine Draw 10-29-08: View E @ drainage bottom from ~ 50 ft. E of E fence

Greg 5: Columbine Draw 10-29-08: Close up of drainage bottom immediately W of East fence. Note lack of rounded alluvium.

Greg 6: Columbine Draw 10-29-08: Bottom of drainage immediately W of East Fence, View E

Greg 7: Jones Draw 10-29-08: Jones Draw View NW from ~ mid drainage

Greg 8: Jones Draw 10-29-08: View W from ~ mid drainage

Greg 9: Jones Draw 10-29-08: View E from ~ E easement boundary

Greg 10: Jones Draw 10-29-08: View W N-W @ down mouth

Greg 11: Jones Draw 10-29-08: View W N-W @ drainage bottom from ~ mid drainage

Ben 7: View East in Jones Draw, Oct. 2007

Ben 8: View East in Jones Draw, Oct. 2007

Ben 9: View East in Jones Draw, Oct. 2007

Greg 25: View West across drainage bottom of Eagles Canyon at livestock watering tank fed by Angle Spring , 4 September 2007. Note the absence of well defined drainage and absence of running water even out of the spring fed stock tank overflow.

Greg 26: Close-up, View South at the same stock tank shown in the above photo, 4 September 2007. Note the very small drizzle of water entering the trough through the white PVC pipe that brings water from Angle Spring. The flow is so small cows were barley able to get a drink. As can be seen, there was no water overflowing the tank. Rancher indicated this drizzle completely dried up on or about 20 September 2007.

NOTE: THE LOCATION OF THESE TWO PHOTOS IN EAGLES CANYON ARE IS NOT SHOWN ON VIEW 3: REFERR TO VIEW 2 AND MAP 7 FOR LOCATION OF EAGLES CANYON AND ANGLE SPRING.

Exhibit 21

Permit Documentation

SHPO Decision of No Adverse Effect

UDOGM Decision of No Adverse Effect

Montgomery Archaeological Consultants Informational Letter

C/007/047 Incoming

#3646 cc: Joe

State of Utah

GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

Department of Community and Culture

PALMER DePAULIS
Executive Director

State History

PHILIP F. NOTARIANNI
Division Director

October 13, 2010

Daron R. Haddock
Permit Supervisor
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City Utah 841148-5801

RE: Kinney #2 Mine, C/007/0047, Carbon County, Utah

In Reply Please Refer to Case No. 05-1843

Dear Mr. Haddock:

The Utah State Historic Preservation Office received your request for our comment on the above-referenced project on September 30, 2010.

USHPO recommends a determination of No Adverse Effect for the undertaking.

This letter serves as our comment on the determinations you have made, within the consultation process specified in §36CFR800.4. If you have questions, please contact me at 801-533-3555 or Lhunsaker@utah.gov or contact Jim Dykmann at 801-533-3523 or Jdykman@utah.gov

Sincerely,

Lori Hunsaker
Deputy State Historic Preservation Officer
Archaeology

UTAH STATE HISTORY

UTAH STATE HISTORICAL SOCIETY
ANTIQUITIES
HISTORIC PRESERVATION
RESEARCH CENTER & COLLECTIONS

300 S. RIO GRANDE STREET, SALT LAKE CITY, UT 84101-1182 · TELEPHONE 801 533-3500 · FACSIMILE 801 533-3503 · HISTORY.UTAH.GOV

OCT 13 2010

Outgoing
C0070047

JON M. HUNTSMAN, JR.
Governor
GARY R. HERBERT
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Oil, Gas & Mining

MICHAEL R. STYLER
Executive Director
JOHN R. BAZA
Division Director

September 23, 2010

Ms. Lori Hunsaker
Deputy State Historic Preservation Officer
Division of State History
300 S. Rio Grande Street
Salt Lake City, Utah 84101

Subject: Decision on No Adverse Effect to Historic Properties, Carbon Resources, Kinney #2 Mine, C/007/0047, Carbon County, Utah, Outgoing File

Dear Ms. Hunsaker:

After the telephone conference held on September 14, 2010, the Division has revised it's determination of Archeological clearance for the above-referenced mine. Please find enclosed a letter and map from Montgomery Archaeological Consultants, (MOAC), prepared by Jody Patterson.

The letter and map provide additional information and clarification about the three eligible sites, (42cb477, 42cb479 and 42cb1032), at the proposed Kinney #2 mine location. Previously a file search was conducted on May 15, 2007 and a class three pedestrian survey identifying these eligible sites was conducted by MOAC between May 16 and 25, 2007.

According to the additional information, **Site 42cb477** will be avoided although fencing is recommended. **Site 42cb479**, the original Kinney mine opened in 1920, contains 12 features. All but one of these features will be avoided. Only feature 12, thought to be a tipple area, may be potentially affected by the footprint of the disturbed area. The feature is 7 to 10 feet away from the disturbance area and only 4% of the site may be encroached upon by the proposed mine. **Site 42cb1032** is a minor spur of the Utah and Pleasant Valley Railway. In as much as the adjoining rail system has been continually upgraded and maintained into the 1970's, two minor impacts to the spur would not have an adverse impact on the railroad grade.

MOAC has recommended a "no historic properties adversely affected" determination for the three sites as discussed in the additional information and site map provided.

The Division agrees with MOAC's recommendation and makes a determination of no adverse effect to historic properties. We seek your concurrence with this determination. Please provide your concurrence at your earliest convenience.

Thank you for your comments on this case. Should you have any further questions, please contact me at (801) 538-5325 or Joe Helfrich at (801) 538-5290.

Sincerely,

Daron R. Haddock
Permit Supervisor

DRH/JCH/sqs
Enclosures:
O:\007047.KN2\SHPO concurrence ltr.doc

MONTGOMERY
ARCHAEOLOGICAL
CONSULTANTS
Box 219, 322 East 100 South, Moab, Utah 84532 (435) 259-5764 Fax (435) 259-5608

Greg Hunt
Carbon Resources, LLC.
16577 Columbine Lane
Cedaredge, Co. 81413

20 September 2010

Dear Mr. Hunt,

As per your request, I have reviewed the site and GIS data to determine potential impacts to sites 42Cb447, 42Cb449, and 42Cb1032 and whether any impacts could be considered as an adverse effect on these sites.

Site 42Cb447 is the old Jones Mine located on the southern end of the Kinney 2 Mine. Originally the site had five features, four of which were destroyed during mine reclamation. All five features, including a hopper, a tipple, a wood frame building, a fan house, and the mine portal, were documented prior to reclamation. The HABS/HAER documentation for the Jones Mine can be found online at http://memory.loc.gov/cgi-bin/query/D?hh:1:./temp/~ammem_jaB5::. The one remaining standing structure, a fan house, is located 40-45 feet south of the nearest disturbance area. Although the feature is avoided, you may want to consider placing environmental fencing at the edge of the proposed disturbance as a safety and avoidance measure. Since the site has been well documented and reclaimed and the only remaining structure is avoided by the undertaking, MOAC recommends a "no historic properties adversely affected" determination for site 42Cb477 pursuant to Section 106, CFR 800.

Site 42Cb479 is the original Kinney Mine opened in 1920. The site consists of 12 features including eight retaining walls, two concrete foundations, and one standing structure, believed to be a powder house. All but one of these features are avoided by the proposed disturbance footprint for the undertaking. The powder house is approximately 50 feet east of the disturbance area. The retaining walls are avoided by a minium of 45 feet and some by as much as 122 feet. One of the two concrete foundations, thought to represent the remains of a truck scale, is over 100 feet from the nearest disturbance. Only Feature 12, which may be related to the mine's tipple, could be potentially impacted by the undertaking. The feature is only 7 to 10 feet away from the disturbance area. The proposed mine footprint encroaches on approximately 4% of the surface area of 42Cb479. Given the minor amount of disturbance to the existing features at the site and the limited amount of new surface disturbance within the site boundary, MOAC recommends a "no historic properties adversely affected" determination for site 42Cb479 pursuant to Section 106, CFR 800.

MONTGOMERY
ARCHAEOLOGICAL
CONSULTANTS
Box 219, 322 East 100 South, Moab, Utah 84532 (435) 259-5764 Fax (435) 259-5608

Site 42Cb1032 is a minor spur of the Utah and Pleasant Valley Railway that served the Jones, Kinney, and Columbine Mines, as well as several prospects in U P canyon. The spur left the main line a mile north of Scofield and paralleled the east edge of the valley, passing east of the the Scofield Cemetery and ending in U P canyon. As recorded by MOAC in 2007, the spur has been abandoned since the 1970s. Although some portions still retain ties and rail, most of the segment consists of just the railroad bed. Two small portions of the spur will be impacted by the new mine. Given that the site is a minor spur on a large rail system, has been continually upgraded and maintained into the 1970s, the minor impacts to the railroad grade will not have an adverse effect on the site. A "no historic properties adversely affected" determination is recommended for this segment of 42Cb1032.

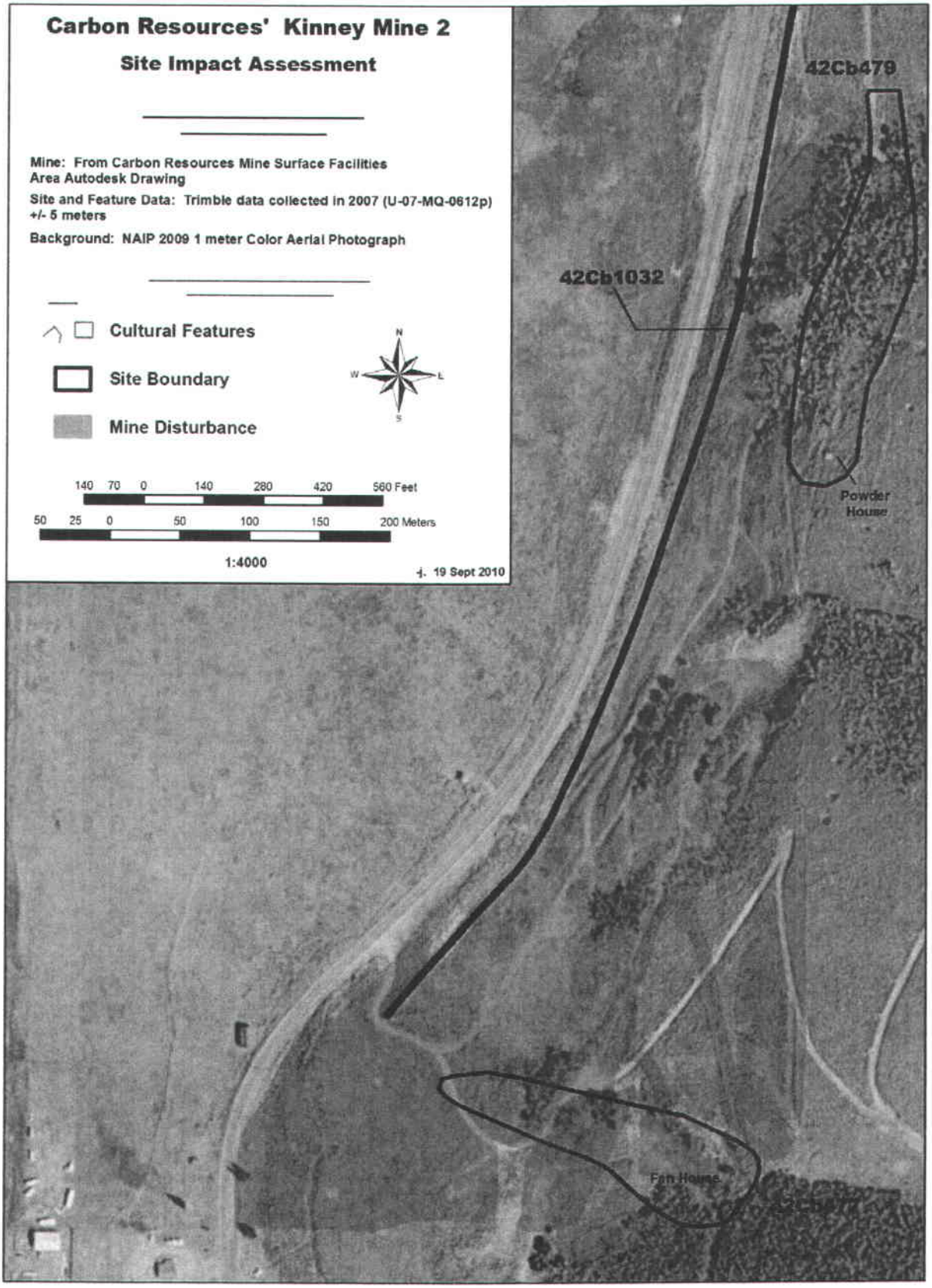
Overall, the impacts of the proposed undertaking on eligible cultural resource are negligible and a determination of "no historic properties adversely affected" is recommend for this undertaking.

Based on the telephone conference last week, Ms. Hunsaker is willing to re-examine the determination of effect for this project, but DOGM would have to resubmit a consultation letter. However, it is unclear what DOGM needs from us to be able to do this. I hope this letter may serve as an addendum to our initial recommendations made in the U-07-MQ-0612 report. One item Ms Hunsaker did ask for was a map showing the disturbance area of the mine in relationship to the sites and features. I have attached this map to this letter.

If you or DOGM need additional information or documentation concerning our recommendations, please feel free to contact me at your convenience.

Sincerely,

Jody J. Patterson


Carbon Resources' Kinney Mine 2
Site Impact Assessment
Mine: From Carbon Resources Mine Surface Facilities Area Autodesk Drawing
Site and Feature Data: Trimble data collected in 2007 (U-07-MQ-0612p) +/- 5 meters
Background: NAIP 2009 1 meter Color Aerial Photograph
Cultural Features
Site Boundary
Mine Disturbance
N
W
E
S
140 70 0 140 280 420 560 Feet
50 25 0 50 100 150 200 Meters
1:4000
j. 19 Sept 2010
42Cb479
42Cb1032
Powder House
Fan House

Chapter 1

Identification of Interests

Owner and Control: Coal Energy Group 3, LLC

112 .310 Members and Managers of Coal energy Group 3, L.L.C.

Social Security numbers of Alton Coal Development. LLC's members and managers provided in "Confidential Binder"

Member Payor AML Fees	Robert C. Nead, Jr. 6602 Ilex Circle Naples , FL 34109 XXX-XX-9706
Member	James J. Wayland 2841 Capistrano Way Naples, FL 34105 XXX-:XX-3509

All members and managers use the employer identification number of Coal Energy Group 3, LLC No. 83-2286468.

CONFIDENTIAL

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 10-23-2018

Employer Identification Number:
83-2286468

Form: SS-4

Number of this notice: CP 575 B

COAL ENERGY GROUP 3 LLC
ROBERT NEAD MBR
6602 ILEX CIR
NAPLES, FL 34109

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN 83-2286468. This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

Based on the information received from you or your representative, you must file the following form(s) by the date(s) shown.

Form 1065 03/15/2019

If you have questions about the form(s) or the due date(s) shown, you can call us at the phone number or write to us at the address shown at the top of this notice. If you need help in determining your annual accounting period (tax year), see Publication 538, *Accounting Periods and Methods*.

We assigned you a tax classification based on information obtained from you or your representative. It is not a legal determination of your tax classification, and is not binding on the IRS. If you want a legal determination of your tax classification, you may request a private letter ruling from the IRS under the guidelines in Revenue Procedure 2004-1, 2004-1 I.R.B. 1 (or superseding Revenue Procedure for the year at issue). Note: Certain tax classification elections can be requested by filing Form 8832, *Entity Classification Election*. See Form 8832 and its instructions for additional information.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

CONFIDENTIAL

(IRS USE ONLY) 575B 10-23-2018 COAL B 9999999999 SS-4

IMPORTANT REMINDERS:

* Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.

* Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.

* Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is COAL. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

CONFIDENTIAL Keep this part for your records. CP 575 B (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 B

9999999999

Your Telephone Number ( ) -
_____

Best Time to Call
_____

DATE OF THIS NOTICE: 10-23-2018
EMPLOYER IDENTIFICATION NUMBER: 83-2286468
FORM: SS-4 NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

COAL ENERGY GROUP 3 LLC
ROBERT NEAD MBR
6602 ILEX CIR
NAPLES, FL 34109

Date: 11/15/2018
Receipt Number: 7572031
Amount Paid: $145.00

State of Utah
Department of Commerce
Division of Corporations & Commercial Code
Foreign Registration Statement (Foreign Limited Liability Company)

This form must be type written or computer generated.

RECEIVED
NOV 15 2018
Utah Div of Corp. & Comm Code

EXPEDITE

Important: Read instructions before completing form

Non-Refundable Processing Fee: $70.00

1. Exact Name of Foreign Limited Liability Company:	Coal Energy Group 3, LLC
2. Jurisdiction of Formation:	Nevada
3. Principal office address: Street Address Required	6602 Ibex Circle, Naples, FL 34109 (Address / City / State / Zip)

4. The name of the Registered Agent (Individual or Business Entity or Commercial Registered Agent):
CT Corporation System

The address must be listed if you have a non-commercial registered agent. See instructions for further details.

Address of the Registered Agent: 1108 East South Union Avenue
Utah Street Address Required, PO Boxes can be listed after the Street Address

City: Midvale State UT Zip: 84047

5. If the name is not available in Utah the LLC shall use as it's name:

Must be the same as number (1) unless the name is not available or permitted in Utah.

6. Purpose of the Limited Liability Company: (optional) All legal purposes

7. Managers/Members of the Limited Liability Company: (optional)

Position	Name	Address	City	State	Zip
MANAGER:					
MANAGER:					
MEMBER:					
MEMBER:					

Under penalties of perjury, I declare that this application for authority to transact business bas been examined by me and is, to the best of my knowledge and belief, true, correct and complete.

Authorized Signature: Name & Title: Bob Nead, Manager

Under GRAMA (63-2-201), all registration information maintained by the Division is classified as public record. For confidentiality purposes, you may use the business entity physical address rather than the residential or private address of any individual affiliated with the entity.

Optional Inclusion of Ownership Information: This information is not required.

Is this a female owned business? ○ Yes ○ No

Is this a minority owned business? ○ Yes ○ No If yes, please specify: Select/Type the race of the owner here

NOV 15 '18 AM 11:44

01/14

CONFIDENTIAL

Utah

Department of Commerce
Licensing and Enforcement System

Payer: SNELL & WILMER L.L.P.
Drawer ID: TerminalID
User : mmoore
Date: 11/15/2018

Application Fee	1	70.00	70.00
Expedited Proce	1	75.00	75.00
		Check	$145.00

Amount Due: $145.00
Amount Paid: $145.00
Receipt #: 7572031

CONFIDENTIAL

Interests in the Coal Hollow Coal Mine: C/025/0005
Interests in the Wildcat Coal Loadout: C/007/0033

Members and Managers of Alton Coal Development. L.L.C.

Social Security numbers of Alton Coal Development. LLC's members and managers provided in "Confidential Binder"

President Payor AML Fees	Robert C. Nead. Jr. 6602 Ilex Circle Naples . FL 34109 XXX-XX-9706
Managing Member	James J. Wayland 2841 Capistrano Way Naples, FL 34105 XXX-:XX-3509

CONFIDENTIAL

Chapter 1

Right of Entry

LEASE AND SUB-LEASE OF COAL ESTATE

and

OPTION AGREEMENT

between

CARBON RESOURCES, LLC

and

COAL ENERGY GROUP 3, LLC

THIS LEASE AND SUB-LEASE OF COAL ESTATE, and OPTION AGREEMENT (hereafter referred to as the "*Lease Agreement*"), is effective as of the 25 day of September, 2018, (hereafter referred to as the *"Effective Date"*) and is by and between **CARBON RESOURCES, LLC**, a Utah limited liability company, with its principal office at 3019 Country Club Drive, Pueblo, Colorado 81008 (hereafter referred to as *"Carbon Resources"),* and **COAL ENERGY GROUP 3, LLC**, a Nevada limited liability company, with its principal office at 6602 Ibex Circle, Naples, Florida 34109 (hereafter referred to *"Coal Energy"*). Carbon Resources and Coal Energy may be individually referred to as a *"Party"* and they are collectively referred to as the *"Parties"* throughout this Lease Agreement.

WITNESSETH:

WHEREAS, Carbon Resources owns, or leases certain tracts or parcels of real property, or rights to real property and minerals located in Carbon County, Utah, more particularly described within Exhibits 1, 2, 3, and 4 attached to this Lease Agreement (the "*Leased Premises*" and as more fully defined below), which descriptions are incorporated within this Lease Agreement as if set out fully at length; and

WHEREAS, part of the tracts or parcels of land are located on the site of the previous "Columbine" and "Kinney Mines", which were leased to Western Reserve Coal, Inc., the predecessor in interest to Carbon Resources, LLC; and

WHEREAS, the Parties desire to effectively manage and operate the lands and coal leased, sub-leased and assigned to Coal Energy; and

WHEREAS, Carbon Resources agrees to lease and sublease unto Coal Energy the rights associated with the coal contained within any and all coal seams (except as specifically excluded)

lying within the Leased Premises; all rights associated with the separate parcels within the Leased Premises; the rights to mine and market the coal; and as allowed, to assign to Coal Energy all permits, licenses and miscellaneous rights necessary to operate a Mining Operation on the Leased Premises, subject in all respects to each and every term, covenant, provision, and condition set forth herein.

NOW, THEREFORE, for and in consideration of Coal Energy's proper and timely payment of the described specified Approval Fee, rents, royalties, and the observation and performance of the terms, and conditions contained herein, with reliance upon Coal Energy's part to honor, observe, and/or perform, the Parties do hereby agree to the following terms and conditions of this Lease Agreement.

DEFINITIONS

In this Lease Agreement, capitalized terms shall have the meanings set forth below:

*"**Arm's Length Purchaser**"* means any purchaser of the coal to which Lessee is not affiliated through common ownership or control.

*"**Arm's Length Sale**"* means the sale of coal from the Leased Premises to an Arm's Length Purchaser.

"Assigned Rights" means the leasehold interests and Mining Rights evidenced by the various written agreements and instruments attached as Exhibits 1, 2, 3, 4, and 5, including all associated rights, privileges or interests, subject to any limitations contained therein, assigned to Coal Energy.

"Coal Estate" means all of the coal in the Leased Premises, along with all rights associated with the mining, transporting, and processing of the materials removed, from, or on the Leased Premises.

"Common Mining Operations" means coal Mining Operations on the lands of the Leased Premises, both now and in the future, conducted by Coal Energy in conjunction with or as part of Mining Operations being conducted upon "*Other Lands*", including but not limited to all private, county, state, and federal lands, including whether now held or hereafter acquired by Coal Energy, so long as the mining conducted is part of a common mining plan or Mining Operations involving the Leased Premises, including any plan of unitization for coal, or a federal logical mining unit (*"LMU"*) pursuant to any such unitization, and so that operations or mining in any of the Leased Premises shall be deemed operations or mining on the LMU for federal diligent development and

continued operations requirements.

*"**Fees and Royalties**"* means and includes all of the different payment obligations set forth within Article 4 of this Lease Agreement.

*"**Gross Selling Price**"* means, for the purpose of calculating the Production Royalty for all coal which is mined, removed and sold hereunder, the price actually charged in an Arm's Length Sale of said coal, as loaded in truck or train at the mine by Coal Energy, with no deduction for transporting coal from the face to the load point or for loading coal into the truck or train.

"Kinney#2 Mine" means the historic designation for the mine on the Leased Premises, located near Schofield, Utah, where the coal Mining Operations will be conducted.

"Leased Premises" means: (i) the Coal Estate encompassing and lying within the lands described in and as reflected by the attached Exhibits, readily accessible by the mining methods described below; and (ii) the surface and the remainder of the lands necessary to explore, mine and develop the Coal Estate when used in conjunction with the Mining Operations of Coal Energy.

"Mineable and Merchantable Coal" means coal that can be mined and sold at a profit by Coal Energy, when reached in the ordinary course of mining, using modern and efficient mining methods, practices, and equipment. It is anticipated by the Parties, the Mineable and Merchantable Coal will, generally, include the coal recovered using a minimum six foot (6') coal thickness for all underground coal. When used singularly, "Merchantable Coal" refers to the coal actually sold.

"Mining Operations" means without limitation: core drilling or active exploration for coal (subject to the restrictions below); construction of improvements, or installation of roadways at, or leading to the permitted mine site; removal of overburden; establishment of mining pits; placement of, or advancement of entryways, ventilation, or conveyors; installation or use of high wall or long wall miners; the removal, extraction, storage, preparation, shipment and disposal of coal, and gas occurring in coal seams, beds or deposits when vented as a non-commercial substance in conjunction with coal development or extraction operations; and surface or underground transportation of coal along, under, and through the Leased Premises.

"Other Lands" means any lands or property other than the Leased Premises, regardless of whether the Other Lands are contiguous or adjacent to the Leased Premises.

"Other Mines" means Mining Operations at locations separate from the Leased Premises that do not share the Kinney#2 Mine portal or where mining may be conducted in coal seam(s)

different from the coal seams mined at the Kinney#2 Mine.

"Royalty Year" means the twelve (12) month period used to determine the due date for all Advanced Minimum Royalty payments and date of annual reconciliation with Production Royalty. The first Royalty Year will begin on the first day of the month, occurring six (6) months after the month in which the Approval Date occurs. Each twelve (12) month period thereafter will be the respective Royalty Year for computing the due date of the Advanced Minimum Royalty payments and reconciling the Advanced Minimum Royalty with Production Royalty payments.

"Term of Lease" means any period where Coal Energy exercises the rights and privileges granted under this Lease Agreement, including but not limited to the Initial Term, any Renewal Term, any Extension Term, or any Reclamation Term.

"Ton" means Two Thousand (2,000) pounds (AV) of coal, commonly referred to as a *"short ton."*

Additional terms defined in the body of this Lease Agreement include:

"Access Rights" defined in § 1.04;

"Advanced Minimum Royalty" defined in § 4.03;

"Approval Fee" defined in § 4.01;

"Approval Date" defined in § 4.01;

"Base Leases" defined in § 1.01;

"*Breach*" defined in § 18.01;

"*Condition of Breach*" defined in § 18.02;

"Carbon County Leased Coal Estate" defined in § 1.01;

"Carbon Resources Sections 28 and 33 Coal Estate" defined in § 1.01;

"Carbon Resources Section 32 Surface Lands Estate" defined in § 1.01;

"Default" defined in § 19.02;

"Down-Blending Adjustment Fee" defined in § 4.06 (a);

"Expiration Date" defined in § 2.01;

"Extension Term" defined in § 2.04;

"Force Majeure" defined in § 18.06;

"Gross Royalty Burden" defined in §4.04 (a)(2);

"Initial Term" defined in § 2.01;

"Kinney Mine #2" defined in § 3.01;

"*Mine Loading Point*" defined in § 3.01;

"*Mining Rights*" defined in § 1.03;

"*Notice of Breach*" defined in § 18.02;

"*Notice of Termination-Coal Energy*" defined in § 19.02;

"*Notice of Termination-Coal Resources*" defined in § 19.04;

"*Option*" defined in § 15.01;

"*Option Period*" defined in § 15.01;

"*Option Price*" defined in § 15.01;

"*Parcel*" defined in §1.01;

"*Permits and Licenses*" defined in § 3.02;

"*Production Goal*" defined in § 3.05;

"*Production Royalty*" defined in § 4.04;

"*Property Interests*" defined in § 15.01;

"*Quarterly Installment*" defined in § 4.03 (a);

"*Reclamation Term*" defined in § 2.04;

"*Renewal Term*" defined in § 2.03;

"*Retained Interest*" defined in § 15.05;

"*Retained Production Royalty*" defined in § 15.05;

"*Right to Cure Period*" defined in § 18.03;

"*Telonis Leased Surface Land*" defined in § 1.01;

"*Tonnage and Quality Reports*" defined in § 5.03;

"*Up-Blending Adjustment Credit*" defined in § 4.06(b);

"*Wheelage Report*" defined in § 5.03; and

"*Wheelage*" defined in § 4.05;

ARTICLE 1
GRANT OF LEASEHOLD and SUBLEASE

1.01 **Description of the Leased Premises.** The Leased Premises are comprised of: (i) the four (4) separately described parcels (each, a "*Parcel*"), including the fee simple lands of

Carbon Resources;(ii) rights in lands owned by third parties and granted to Carbon County by lease (the *"Base Leases"*); and (iii) other easements and rights. A plat generally depicting the Parcels is attached as Exhibit 6 and these Parcels are more particularly described as follows:

(a) ***"Carbon County Leased Coal Estate."*** Means the lands described in the *Lease and Agreement,* between Carbon County, a political subdivision of the State of Utah, as lessor, and Carbon Resources as lessee, dated March 15, 2017. A copy of the *Lease and Agreement* is attached as "Exhibit 1" to this Lease Agreement and incorporated herein by reference. The Carbon County Leased Coal Estate is generally referred to as *"Parcel 1"* within this Lease Agreement;

(b) ***"Carbon Resources Section 32 Surface Lands Estate."*** Means the lands described in which Carbon Resources holds a surface estate only. A copy of the deed conveying the estate to Carbon Resources is attached as "Exhibit 2" to this Lease Agreement and incorporated herein by reference. The Carbon Resources Section 32 Surface Lands Estate is generally referred to as *"Parcel 2"* within this Lease Agreement;

(c) ***"Telonis Leased Surface Land."*** Means the lands described in the *Lease and Easement Agreement* between the Telonis Family, lessors and Western Reserve Coal Company Incorporated, lessee, dated December 1, 2007. A copy of the Lease and Easement Agreement is attached as "Exhibit 3" to this Lease Agreement and incorporated herein by reference. The Telonis Leased Surface Land is generally referred to as *"Parcel 3"* within this Lease Agreement; and

(d) ***"Carbon Resources Sections 28 and 33 Coal Estate."*** Means the lands described in which Carbon Resources holds the entire Coal Estate. A copy of the deed conveying the estate to Carbon Resources is attached as "Exhibit 4" to this Lease Agreement and incorporated herein by reference. The Carbon Resources Section 28 and 33 Coal Estate is generally referred to as *"Parcel 4"* within this Lease Agreement.

1.02 **Lease, Sub-Lease, and Assignment**. Subject to and conditioned upon each and every term, covenant, provision, and condition contained within this Lease Agreement, throughout the Term of Lease:

(a) Carbon Resources hereby leases, lets, grants and quitclaims to Coal Energy the Mining Rights, and Access Rights in Parcels 2 and 4;

(b) Carbon Resources hereby agrees to sublease to Coal Energy all Mining Rights of Carbon Resources under the Base Leases by executing and delivering the *Subleases* attached hereto as Exhibit 5 (as to Parcels 1 and 3); and

(c) Carbon Resources hereby assigns to Coal Energy the Assigned Rights .

1.03 **Mining Rights.** Included within the rights, titles, and interest conveyed within this Lease Agreement (but not necessarily limited to) relating to the Leased Premises, are all of the various rights, privileges or interests enabling and supporting the Mining Operations of Coal Energy as described or inferred in Exhibits 1, 2, 3, 4, and 5 and subject to any limitations contained therein (*"Mining Rights"*). Coal Energy acknowledges having been given copies of said Exhibits for its review, analysis and interpretation in order to understand and determine the scope of the Mining Rights it will be receiving.

1.04 **Transportation and Access Rights.** Included within the rights, titles, and interest conveyed within this Lease Agreement (but not necessarily limited to) and relating to the Leased Premises (except as may be limited in the Base Leases), are certain rights, privileges or interests, which shall be considered as part of the Mining Operations granting access to, across, and through the Leased Premises, along with the right to use of the Leased Premises for the removal and transportation of coal as described or inferred in Exhibits 1, 2, 3, 4, and 5 and subject to any limitations contained therein (*"Access Rights"*). Coal Energy acknowledges having been given copies of said Exhibits for its review, analysis and interpretation in order to understand and determine the scope of the Access Rights it will be receiving.

1.05 **Assigned Rights.** To the extent held by Lessor, included within the rights, titles, and interest conveyed within this Lease Agreement (but not necessarily limited to) and relating to the Leased Premises (except as may be limited in the Base Leases), are each of the following Assigned Rights, which shall each be considered as enabling and supporting the Mining Operations. Attached as Schedule 1 to this Lease Agreement is a generalized list of items identified as included within the Assigned Rights. The Assigned Rights granted by Carbon Resources to Coal Energy (including but not limited to Schedule 1) are and include:

(a) The exclusive right to exercise, utilize, and enjoy any and all of the rights, easements and privileges set out within this Lease Agreement including but not limited to this Article 1, and all other rights, easements, and privileges previously or subsequently leased, let, demised, granted, and/or conveyed to Carbon Resources (and/or its affiliates,

subsidiaries, agents, parent companies, successors, or assigns) under, pursuant to, or in accordance with any surface rights agreements, leases, agreements, subleases, deeds, or other instruments affecting the Leased Premises and/or any other premises appurtenant, vicinal, or adjacent thereto, now owned, possessed or hereafter obtained by Carbon Resources in relation to the Leased Premises; and

(b) The right to freely and fully utilize and exercise said Assigned Rights, privileges, and easements as may be necessary, convenient, or incidental to Coal Energy, its successors' or assigns' activities within any coal(s) granted and reserved to it hereunder and/or any other coal(s), or on, in or upon the lands.

1.06 **No Implied Reservation of Rights.** Except as expressly set forth within this Lease Agreement, Carbon Resources does not reserve any rights associated with the coal removed from the Leased Premises. While Coal Energy may fulfill some or all of its obligations under a coal sales contract with production from the Leased Premises, Carbon Resources does not, and is not intended to, have any rights in or to said coal sales contract, or to the proceeds from the sale of the coal, except the right to payment and receipt of the Fees and Royalties described below.

1.07 **Express Condition to Lease Agreement.** Notwithstanding anything that may appear to the contrary in this Lease Agreement, **as an express pre-condition of Coal Energy to comply with any term or provision of this Lease Agreement, or the requirement to perform any obligation described herein,** including but not limited to: (i) the requirement to pay any amounts to Carbon Resources; (ii) complete at the earliest possible date the application process for obtaining all Permits and Licenses; or (iii) otherwise take any steps to commence Mining Operations:

(a) Carbon Resources must obtain any required lessor consent for Coal Energy to be the sub-lessee of the Base Leases; and

(b) Coal Energy, having had a reasonable time to conduct due diligence on examination of title to the Leased Premises after the Effective Date, must be satisfied in good faith that there is no material title defect to the Leased Premises granted herein that will prevent Coal Energy from commencing and carrying out to completion the Mining Operations envisioned by the Parties within this Lease Agreement.

1.08 **Failure of Pre-Conditions.** In the event the pre-conditions set forth above in § 1.07 are not timely met, or not met to the satisfaction of Coal Energy, Coal Energy may, at its sole

discretion, take all reasonable steps necessary to satisfy the pre-condition, or, subject to 4.01 below (if termination is after the Approval Date), cancel this Lease Agreement and have no further obligation or liability under this Lease Agreement.

1.09 **Renegotiation of Base Leases.** Carbon Resources and Coal Energy will mutually work toward renegotiating any term or condition to the Base Leases that may be reasonably necessary and mutually beneficial to the Parties as determined in good faith by each Party. The Parties will jointly evaluate all provisions of the Base Leases and proceed in a manner designed to achieve the most beneficial terms for the Parties.

ARTICLE 2
TERM OF LEASE

2.01 **Initial Term.** The initial term (*"Initial Term"*) of this Lease Agreement is for a period of five (5) years beginning with and running forward from the Effective Date first above written and expiring on the fifth (5th) anniversary of the Effective Date (*"Expiration Date"*).

2.02 **Renewal Term.** Subject to the obligation to pay the Advanced Minimum Royalties set out within § 4.03 below, Coal Energy will have the right to renew this Lease Agreement for up to four (4) additional five (5) year terms (each described as a *"Renewal Term"*). If any Base Lease requires notice or any other specific requirement to renew or extend, Coal Energy must comply with the specific terms and conditions of the Base Lease in addition to the enumerated terms and conditions of this Lease Agreement.

2.03 **Sub-Leases.** Notwithstanding anything that may appear to the contrary, the Initial Term and all Renewal Terms of this Lease Agreement, as to the lands covered by the Base Leases, are subject to and shall be coterminous with the terms of the Base Leases.

2.04 **Extension of Term - Reclamation.** The rights of Coal Energy to conduct Mining Operations pursuant to this Lease Agreement, whether during the Initial Term, Renewal Term, or during any other agreed upon extension, renewal or continuation, shall be further extended for that additional period of time following the conclusion of Mining Operations, for the purposes of, and as necessary, or incidental to allow for the completion of all reclamation activity by Coal Energy: (i) upon the Leased Premises; or (ii) from those areas encompassing any LMU including the Leased Premises; or (iii) where the lands of the Leased Premises are being mined by Coal Energy in conjunction with, or as part of the Mining Operations being conducted upon Other Lands

(*"Reclamation Term"*). The Reclamation Term is to allow Coal Energy to obtain release of all reclamation bonds on any permits covering, or including the Leased Premises after conclusion of Mining Operations. During the Reclamation Term, Coal Energy shall have all the Mining Rights as set out within this Lease Agreement solely in order to satisfactorily comply with all reclamation requirements, orders, and regulations regarding the applicable permit(s) and Mining Operations, and release of all bonds. At the conclusion of the Reclamation Term, all rights of Coal Energy will terminate.

ARTICLE 3
PERMITTING AND MINING OPERATIONS

3.01 **New Mining Operations**. Coal Energy will principally conduct underground Mining Operations on the Leased Premises, supported by necessary and prudent surface support operations in conjunction with and adjunct to the underground Mining Operations. Coal Energy will conduct Mining Operations on the Leased Premises, utilizing some areas either previously mined, or where the area was included within a previously permitted area. Coal Energy will open and operate a deep mine using the name "*Kinney Mine #2.*" However, the Mining Operations of Coal Energy will be new operations and the name Kinney Mine #2 is used solely for reference and Coal Energy will obtain a new mine identification. Coal Energy is not the successor in interest to Carbon Resources regarding the previous mining conducted by Carbon Resources.

3.02 **Application for Permits and Licenses**. Following execution of this Lease Agreement by Carbon Resources, Coal Energy will immediately begin the process of applying with the respective agencies for all required local, state, and federal permits and licenses necessary to carry out the Mining Operations on the Leased Premises (*"Permits and Licenses"*). Coal Energy has the obligation to diligently apply for and acquire the necessary Permits and Licenses to conduct the Mining Operations.

3.03 **Reclamation Bonds**. In conjunction with issuance of all Permits and Licenses and as applicable throughout this Lease Agreement, Coal Energy will, at its cost, timely post all bonds, including but not limited to reclamation bonds, necessary to commence and continue Mining Operations.

3.04 **Commencement of Mining Operations**. Coal Energy will commence Mining Operations as soon as is practicable after the issuance of all Permits and Licenses and it will, throughout the Term of Lease, diligently conduct its Mining Operations thereafter to meet the

production goals set out within § 3.05 below by mining all of the Mineable and Merchantable Coal from the Leased Premises.

3.05 **Production Goals**. At such time as the Mining Operations of Coal Energy on the Leased Premises are fully established, and for each year of mining conducted on the Leased Premises thereafter, Coal Energy will make good faith efforts to produce one million (1,000,000) Tons per year from the Leased Premises (*"Production Goal"*) until all of the Mineable and Merchantable Coal is removed from the Leased Premises. Even though establishing a Production Goal, Coal Energy has no obligation to meet the Production Goal for years: (i) when Mining Operations are being conducted on Other Lands, but no mining of coal is being conducted on the Leased Premises; or (ii) when due to mining conditions, or reserve availability, it is impracticable for Coal Energy to mine Mineable and Merchantable Coal from the Leased Premises; or (iii) where there is not a suitable market for the sale of the coal at a reasonable profit.

ARTICLE 4
FEES AND ROYALTIES

4.01 **Approval Fee**. Coal Energy agrees to pay unto Carbon Resources the one time fixed sum of ***One Million Dollars ($1,000,000.00)*** as a single, lump sum fee (*"Approval Fee"*) due and payable within thirty (30) days after the later date (being the *"Approval Date"*) of: (i) approval of the mine permit issued by the Utah Division of Oil, Gas and Mining; or (ii) approval of the Roof Control Plan issued by the Mine Safety and Health Administration. The Approval Fee is not recoupable for any purpose(s) hereunder, or allocable to any other payment obligation hereunder.

4.02 **Royalties**. Coal Energy agrees to pay to Carbon Resources the greater of: (i) the amount of Advanced Minimum Royalty (as described in § 4.03 below); or (ii) the Production Royalty (as described in § 4.04 below), for each Royalty Year. The exact amount of all Fees and Royalties are to be reconciled at the end of each Royalty Year, subject to the terms and conditions set out below. Coal Energy will not be required to pay any Production Royalty on poor quality coal or waste material, unless Coal Energy actually sells the same.

4.03 **Advanced Minimum Royalty**. Coal Energy covenants and agrees to pay unto Carbon Resources the fixed sum of ***Four Hundred Thousand Dollars ($400,000.00)*** per year, as a minimum royalty (*"Advanced Minimum Royalty"*) hereunder, irrespective of any tonnage(s) or

amount(s) of coal mined and removed until the Mineable and Merchantable Coal is fully removed from the Leased Premises. Beginning with the first payment, due and payable as described below, the Advanced Minimum Royalty will be due and payable each successive Royalty Year throughout the Term of Lease subject to: (i) completion of mining of the Mineable and Merchantable Coal; (ii) Coal Energy's exercise of the "Option" set forth in Article 15 below; and (iii) except for and during any period where the Fees and Royalties are abated pursuant to § 4.08.

(a) The Advanced Minimum Royalty will be paid in four equal quarterly installments of ***One Hundred Thousand Dollars ($100,000.00)*** during the Royalty Year ("*Quarterly Installment*");

(b) The first Quarterly Installment of Advanced Minimum Royalty will be due thirty (30) days following commencement of the first Royalty Year and thereafter each Quarterly Installment is due and payable thirty (30) days following the first day of every quarter period of the Royalty Year; and

(c) Each Advanced Minimum Royalty payment shall be fully recoupable as a credit against any Production Royalties that may become due and payable during the three-year period after such payment. By way of example only, a payment of Advanced Minimum Royalty on January 1, 2019, shall only be a credit against any Production Royalties due under this Lease Agreement for coal produced by Coal Energy between January 1, 2019 and December 31, 2021; the right to offset the Advanced Royalty Payment made on January 1, 2019 would not apply to Production Royalties due on coal produced by Coal Energy after December 31, 2021.

4.04 **Production Royalties.** Coal Energy covenants and agrees to pay to Carbon Resources a royalty based upon the Gross Selling Price, for each and every Ton of coal mined and sold from the Leased Premises (*"Production Royalty"*), as follows:

(a) **Parcel 1.** Six percent (6%) of the Gross Selling Price for coal mined and sold from the Carbon County Leased Coal Estate, subject to the following:

(1) The payment of the Production Royalty to Carbon Resources on coal removed from the Carbon County Leased Coal Estate is payable in addition to the annual advanced royalty and the production royalty due to Carbon County under the terms of the Carbon County Lease and to be paid directly to Carbon County by Coal Energy (that production royalty being the sum of $0.50 or two percent (2%)),

whichever is greater, of the gross sales price of every ton of coal mined and sold from the Carbon County Lease); and

(2) In the event Coal Energy does not exercise the Option (as described within § 15.01 below) prior to expiration of the Option Period (as described within § 15.02 below), then upon expiration of the Option Period, the Production Royalty rate for Parcel 1 (the Carbon County Leased Coal Estate) will be recalculated and the new amount will be paid in lieu of the Production Royalty rate set out in (a) above. Upon expiration of the Option Period, the total royalty burden on coal produced from the Carbon County Leased Coal Estate will increase to, but not exceed, ten percent (10%)) (*"Gross Royalty Burden"*). The Production Royalty due Carbon Resources will be calculated by determining the percentage royalty payable to Carbon County and subtracting that percentage rate from the Gross Royalty Burden. The difference between the Gross Royalty Burden and the percentage royalty payable to Carbon County will be the new royalty rate for the Production Royalty to be paid to Carbon Resources on the coal mined from Parcel 1. By way of example only, if the royalty payable to Carbon County increases to three percent (3%), the Production Royalty due to Carbon Resources on the coal mined from Parcel 1 will be seven percent (7%), for a Gross Royalty Burden equal to ten percent (10%).

(b) **Parcels 2 and 4.** Six percent ($6^{\%}$) of the Gross Selling Price for coal mined and sold from the Carbon Resources Section 32 Surface Lands Estate; and the Carbon Resources Sections 28 and 33 Coal Estate.

4.05 **Wheelage Fee.** Coal Energy covenants and agrees to pay to Carbon Resources a Fee based upon the tonnage amount of coal transported across the surface of the Leased Premises which originates from Mining Operations conducted on Other Lands (*"Wheelage"*). Coal Energy will pay Wheelage equal to four percent (4%) of the Gross Selling Price of each and every Ton of coal transported across the surface of the Leased Premises, where the coal was mined on Other Lands, subject to the following:

(a) At no time will Coal Energy have an obligation to pay any Wheelage to Carbon Resources for any coal mined on or from the Leased Premises; and

(b) In the event the production royalty payable by Coal Energy on any federal coal mined by Coal Energy and transported across the Leased Premises is reduced, the rate for the Wheelage on the federal coal will be increased by an amount equal to one-half (1/2) of the amount of the reduction so granted. By way of example (only) of the change in Wheelage on federal coal, if the production royalty on such federal coal leases is reduced by three percent (3%), the Wheelage on coal produced on those federal leases shall be increased by one and one-half percent (1.5%) to five and one-half percent (5.5%).

4.06 **Right to Commingle Coal.** Coal Energy shall have the right to co-mingle coal mined from the Leased Premises with coal mined from Other Lands and Other Mines as part of Common Mining Operations and Coal Energy will not be required to pay any Production Royalties to Carbon Resources on the amount of coal co-mingled from the Other Lands or Other Mines (where not from the Leased Premises). Coal Energy will keep accurate records of the quality and quantity of coal mined from Other Lands and Other Mines (where not from the Leased Premises) and co-mingled with coal mined from the Leased Premises. Even though not required to pay Production Royalties on coal mined from Other Mines (where not from the Leased Premises), Coal Energy will be required to make adjustments as follows:

(a) If coal mined from the Leased Premises is blended together with lesser quality coal from Other Mines to form a blended coal product sold in an Arm's Length Sale at a price less than would be garnered if the coal from the Leased Premises had been sold without blending with the lesser quality coal from Other Mines, then Coal Energy will pay a "*Down-Blending Adjustment Fee*" to Carbon Resources for the proportionate amount of the coal from the Leased Premises. The Down-Blending Adjustment Fee is to be the applicable Production Royalty rate multiplied by the dollar amount of the difference between the actual fair market value for the coal mined from the Leased Premises, if not Down-Blended, and the Gross Sales Price for the coal as Down-Blended;

(b) If coal mined from the Leased Premises is blended together with higher quality coal from Other Mines to form a blended coal product sold in an Arm's Length Sale at a price more than would be garnered if the coal from the Leased Premises had been sold without blending with the higher quality coal from Other Mines, then Coal Energy will be entitled to take an "*Up-Blending Adjustment Credit*" against the Production Royalties paid to Carbon Resources for the proportionate amount of the coal from the Leased Premises.

The Up-Blending Adjustment Credit is to be the applicable Production Royalty rate multiplied by the dollar amount of the difference between the Gross Sales Price for the coal mined from the Leased Premises and the actual fair market value for the coal mined from the Leased Premises, if not Up-Blended.

4.07 **Unmined Coal.** Coal Energy will not be required to pay any Production Royalty to Carbon Resources for any coal that is not recovered by Coal Energy from the Leased Premises, if the unmined coal: (i) is left in place as required by any governmental entity having jurisdiction; (ii) is otherwise impaired as part of the normal Mining Operations to recover the Mineable and Merchantable Coal consistent with the mining plan adopted by Coal Energy and consistent with the provisions of this Lease Agreement; or (iii) is not Mineable and Merchantable.

4.08 **Abatement of Fees and Royalties.** The payment of Advanced Minimum Royalties, Production Royalties, or any other additional Fees and Royalties are subject to abatement and termination (however, any unpaid but due Quarterly Installment remains due and payable) as follows:

(a) At the conclusion of the recovery of all of the Mineable and Merchantable Coal from the Leased premises, all Advanced Minimum Royalties and Production Royalties will be abated and no longer payable, but the obligation of Coal Energy to pay Wheelage to Carbon Resources will continue; and

(b) In that the reclamation of the Leased Premises is an additional benefit to Carbon Resources, Coal Energy will not be required to pay any Fee and Royalties of any kind except for Wheelage, after Coal Energy formally declares that Mining Operations have ceased on the Leased Premises (and not merely been suspended) and that only reclamation activities will be conducted on the Leased Premises.

4.09 **Payment Dates.** All Fees and Royalties due to Carbon Resources are to be paid concurrently with the Quarterly Installments (as described in § 4.03 above) for the calendar quarter in which the Fees and Royalties accrue.

4.10 **Late Payments.** In the event Coal Energy fails to timely pay any Fees and Royalties when due and has not paid the Fees and Royalties within ten (10) days after the date payment was due, Coal Energy will be charged a late fee of one percent (1%) of the total amount due per week until paid in full, for a maximum of four (4) weeks. Thereafter, if any Fees and

Royalties remain unpaid, they will draw interest at the rate of twelve percent (12%) per annum until paid in full.

4.11 **Payment Method.** All payments required within this Article 4 will be made by overnight check to a bank account designated by Carbon Resources, or by such other method mutually agreed upon by the Parties in writing.

4.12 **Payments are Inclusive.** The Fees and Royalties are acknowledged by Carbon Resources to be sufficient compensation for the use of the Leased Premises, the Mining Operations, and mining and removal of the coal from the Leased Premises, including but not limited to: (i) Wheelage for coal transported across or through the Leased Premises from any Other Lands; (ii) use of the Leased Premises even if not engaged in the active mining of coal on the Leased Premises; and (iii) to fully satisfy Carbon Resources for all reasonable and customary damages and losses caused and created by the scope of Mining Operations contemplated by this Lease Agreement.

4.13 **Payment Without Demand.** All Fees and Royalties, rentals, taxes, levies, and other payments herein agreed to be paid by Coal Energy shall be paid as and when due, without demand, and all of the same shall be deemed and treated as rents reserved by Carbon Resources; with Carbon Resources, in addition to its other rights and remedies herein provided, reserving to itself all the rights and remedies of landlords under the present and future laws of the State of Utah for the collection and recovery of rents.

ARTICLE 5
TONNAGE AND QUALITY DETERMINATION

5.01 **Tonnage Weights.** The quantity of coal mined from the Leased Premises pursuant to this Lease Agreement will be determined by calculating the amount of the coal loaded into a truck or a train car at the mine ("*Mine Loading Point*"). The loaded truck or train car weight (less tare) will be measured with certified scales at the Mine Loading Point or equivalent location that accurately measures all of the Merchantable coal mined from the Leased Premises and from Other Lands where the mined coal passes through the Leased Premises and/or passes through the Kinney#2 portal.

5.02 **Coal Quality Determination.** Coal Energy shall sample, at a minimum, calorific value and ash value of all coal mined from the Leased Premises and delivered at the Mine Loading

Point on a daily basis. These data will be provided to Carbon Resources together with the Tonnage and Quality Reports at the time production royalties are due.

5.03 **Tonnage and Quality Reports.** At the same time Fees and Royalty payments are due hereunder, Coal Energy covenants and agrees to supply Carbon Resources a true and accurate tonnage and quality account statement of all coal mined, sold, and removed from the Leased Premises during the applicable period (*"Tonnage and Quality Reports"*), and a true and accurate tonnage account and statement of all coal transported across the Leased Premises but mined from Other Lands (*"Wheelage Report"*). The Tonnage and Quality Reports shall, at a minimum, in sufficient detail specify:

(a) The tonnage and quality of coal mined from the Leased Premises pursuant to this Lease Agreement;

(b) The Gross Selling Price received by Coal Energy for coal mined pursuant to this Agreement;

(c) The tonnage and quality of coal from Other Mines blended with coal from the Leased Premises to provide documentation for any adjustment for Down-Blending or Up-Blending;

(d) The tonnage of coal transported across or through the Leased Premises but mined from Other Lands;

(e) The Production Royalty due on coal sold; and

(f) All other reasonably available information kept in the ordinary course of its business regarding the coal mined in a form which is readily useable.

5.04 **Records and Inspections; Audits.** Carbon Resources, its agents, employees and representatives, upon not less than thirty (30) business days' advance written notice to Coal Energy, shall have the right to inspect books and records maintained by Coal Energy in relation to Mining Operations conducted on the Leased Premises for the purposes of determining and verifying the amount of the Fees and Royalties payable in accordance with this Lease Agreement, provided that any such inspection does not unreasonably interfere with or delay Coal Energy's operations.

(a) Coal Energy shall maintain separate records of its Mining Operations sufficient to demonstrate compliance with the terms and conditions of this Lease Agreement;

(b) Within ninety (90) days after the end of each calendar year during which there has been any production and removal of Coal from the Leased Premises, Carbon Resources may request that Coal Energy's accounts and records relating to the determination and calculation of the Fees and Royalties payments for the year just ended be audited by an independent certified public accountant mutually selected by Coal Energy and Carbon Resources. If such audit determines there has been a deficiency or an excess in any payment made to Carbon Resources, such deficiency or excess shall be resolved by adjusting the next quarterly Royalty and Fees payment due hereunder. Carbon Resources shall pay all costs of the audit if no deficiency is determined or if the deficiency is less than or equal to five percent (5%) of the total payment. Coal Energy shall pay all costs of the audit if the deficiency is greater than five percent (5%) of the total payment. All Royalty and Fees payments shall be considered final and in full satisfaction of all obligations of Coal Energy with respect thereto, unless Carbon Resources gives Coal Energy written notice describing and setting forth a specific objection to the calculation thereof within thirty (30) days after receipt by Carbon Resources of the auditor's report provided for in this paragraph; and

(c) Carbon Resources' right to inspect Coal Energy's books and records with respect to any particular calendar year shall expire ninety (90) days after Coal Energy's delivery to Carbon Resources of the last statement for that calendar year.

ARTICLE 6
SUPPORT

6.01 **Subsurface, Subjacent, and Adjacent Support**. Carbon Resources, to the extent it may lawfully do so, hereby releases, relinquishes, waives, transfers, and otherwise sets-over unto Coal Energy, its successors and assigns, any and all statutory or equitable rights or claims to vertical, lateral, subjacent and adjacent support of the Leased Premises. In addition, Carbon Resources hereby irrevocably binding itself and any associated person(s) and party(ies) does hereby release, relinquish, waive, forego, transfer, and otherwise set over unto Coal Energy, its successors and assigns forever, any and all claims, demands, disputes, causes of action, choses in action, rights, judgments, suits, and/or otherwise liabilities of any kind or nature which Carbon Resources and/or any of the

afore-specified associated person(s) or party(ies) may have by reason of any subsidence, failure, slumps, and/or slides of the Leased Premises.

(a) It is specifically acknowledged and agreed by Carbon Resources that Coal Energy, and/or Coal Energy Coal's agent(s) or other Coal Energy lessees, may conduct underground mining operations which will include full pillar extraction, and or long-wall operations which may damage or affect the surface and/or limit the use of the surface either during or following Mining Operations, including any post mining use that may be envisioned by Carbon Resources, or the erection or use of any structure thereupon and that no additional compensation for such damage shall be required; and(b) Coal Energy will remain liable for acts of gross negligence which result in a mine fire, or otherwise blocking significant amounts of Mineable and Merchantable coal that could be mined at a profit but for the act of gross negligence.

6.02 **Pre-Mining Survey**. Carbon Resources shall have the right to conduct a pre-mining survey of any residential dwelling or structures and shall identify such residential dwellings and structures prior to commencement of Mining Operations.

ARTICLE 7
MODE OF DELIVERY/REPORTING

7.01 **Payments, Reports, and Maps**. Paper copies of all Production Royalty payments, tonnage reports, Wheelage Reports, maps, and all other reports, plans, and payments due to Carbon Resources pursuant to this Lease Agreement shall be mailed by Coal Energy, without demand, as and when due to Carbon Resources to its mailing address, or to such other mailing address(es) which Carbon Resources may from time to time so designate in writing unto Coal Energy. Digital copies of all Production Royalty payments, tonnage reports, Wheelage Reports, maps, and all other reports, plans, and payments due to Carbon Resources pursuant to this Lease Agreement shall be emailed to geohuntllc@gmail.com and to pamelareeves2011@hotmail.com at the same time paper copies are placed in the US mail.

ARTICLE 8
GENERAL OBLIGATIONS

8.01 **Mining Standards.** Coal Energy covenants and agrees that its Mining Operations on the Leased Premises shall be conducted in a practical, skillful, workmanlike, and diligent manner as to expeditiously achieve the Production Goals. Provided, Coal Energy shall not be required to remove all coal and conduct Mining Operations which, by consideration of local conditions, quality of coal, thickness of seam, or character of coal, cannot be mined and sold at a profit. As part of its Mining Operations, Coal Energy will mine and remove all seams, leaders, riders, bands, and/or splits of Mineable and Merchantable Coal if such mining is in compliance with all laws and regulations and compatible with the overall mine plan.

8.02 **Compliance With Laws.** Coal Energy covenants and agrees to conduct its Mining Operations and all of its other activities upon and within the Leased Premises at all times in full and complete compliance with all applicable statutes, regulations, rules, orders, and other governmental mandates which are currently in force or may be hereafter enacted by the United States of America, State of Utah, and/or other applicable governmental authority(ies). Coal Energy covenants and agrees not to utilize or participate in any utilization of the Leased Premises, in whole or in part, for any use(s) not specifically contemplated, hereunder.

8.03 **Permits and Licenses.** Coal Energy covenants and agrees to secure, maintain, and keep in full force and effect, at its sole cost and expense all Permits and Licenses and any and all other necessary or incidental mine licenses or permits required to mine and remove coal hereunder in compliance with all of the laws and regulations of the State of Utah and/or United States of America.

8.04 **Other Mining Operations.** The coal contained in or upon the Leased Premises may be part of a seam or deposit of coal which extends through Other Lands onto or become part of the Leased Premises. Coal Energy may desire or find it advantageous to conduct Mining Operations upon the Leased Premises in conjunction with Mining Operations being conducted by Coal Energy upon Other Lands. Coal Energy shall have the absolute right to conduct Mining Operations upon the Leased Premises in conjunction with, part of, or associated with other Mining Operations being conducted by Coal Energy, even if those Mining Operations are not located upon the Leased Premises. Coal Energy shall have the right to include the Leased Premises as part of a LMU, a common mine plan, or part of a permit encompassing Other Lands, where the lands of the

Leased Premises are being mined by Coal Energy in conjunction with or as part of the Mining Operations being conducted upon Other Lands, whether or not immediately adjacent to the Leased Premises, so long as conducted as part of a common mining plan or Common Mining Operations.

8.05 **No Implied Obligations of Coal Energy**. It is understood and agreed between Carbon Resources and Coal Energy that the mining of coal from the Leased Premises is highly speculative because of, among other things, the depth of cover, the potential methane gas content of the coal, the location of the Leased Premises, and foreseeable and unforeseeable geologic circumstances that exist on the Leased Premises. Except as expressly provided for in this Lease Agreement, Coal Energy is under no obligation, express or implied, to explore, develop, mine, remine or otherwise work and/or rework the Leased Premises, for coal or any other mineral or substance which may be covered hereby, except in the course of recovering the Mineable and Merchantable Coal suitable for recovery, in accordance with its approved mine plan and permits. It being expressly agreed that the good faith judgment of Coal Energy in conducting Mining Operations, determining the amount of coal to be mined and otherwise carrying out the purposes of this Lease Agreement shall be conclusive.

(a) In the event it is determined necessary by Coal Energy, suspension of Mining Operations will be without prejudice to its rights to resume operations; and

(b) Carbon Resources specifically acknowledges and agrees that this Lease Agreement shall not be forfeited for any failure to prosecute Mining Operations on the Leased Premises except for gross negligence of Coal Energy, nor shall any forfeiture be claimed or enforced for the breach of any implied covenant, and the rights herein granted and conveyed shall not be canceled or revert to Carbon Resources or their assigns so long as all payments herein stipulated to be paid by Coal Energy are paid to Carbon Resources.

8.06 **Compliance with Leases**. Lessor will comply with the conditions of all Base Leases for the Leased Premises that are sub-let to the Coal Energy by Carbon Resources.

ARTICLE 9
RECLAMATION AND POST MINING LAND USE

9.01 **Reclamation Standards**. Coal Energy will diligently and in a workmanlike and timely fashion reclaim all sites disturbed by Coal Energy, in accordance with and as required by state and federal laws, any surface disturbance, mining and/or reclamation permits with respect to

the Leased Premises and/or otherwise arising in connection with, as a consequence of, or in association with the mining and removal of coal as contemplated hereunder.

9.02 **Exclusive Control.** Carbon Resources shall not itself, nor shall any of its contractors, agents, employees, guests, invitees or assigns interfere with or in any way hinder the reclamation activities of Coal Energy. Coal Energy shall have sole and exclusive use, and control to and of all areas that are being reclaimed until the latest of such time as all reclamation activity being conducted by Coal Energy is completed, and Coal Energy has received a full release of all reclamation bonds on any permits covering, or including the Leased Premises.

9.03 **Enforcement.** Coal Energy shall have the right to seek injunctive relief before a court of appropriate jurisdiction to enforce its rights to conduct all reclamation activities and to deny access to all others to the areas being reclaimed, without the necessity of posting any bond or surety.

ARTICLE 10
RECORDS AND INSPECTIONS

10.01 **Record Keeping**. Coal Energy will keep, maintain, and preserve true and accurate records, books, and accounts of the amount and quality of all coal mined, and removed from the Leased Premises, the amount and quality of coal co-mingled with coal from the Leased Premises and the Gross Selling Price received for the coal mined and removed from the Leased Premises pursuant to this Lease Agreement.

10.02 **Maps**. Coal Energy shall furnish to Carbon Resources accurate maps of Coal Energy's Mining Operations upon or within the Leased Premises on an annual basis or upon request.

10.03 **Right of Inspection of Mining Operations.** Carbon Resources shall, at its sole expense, have the right to inspect the Mining Operations of Coal Energy, but any inspection shall be conducted pursuant to all applicable laws and regulations and in accordance with all safety requirements. All inspections by Carbon Resources, its agents and contractors shall be at the sole risk to Carbon Resources and Carbon Resources agrees to indemnify and hold Coal Energy harmless from any and all claims of injury or for damage that may occur to Carbon Resources, its agents and contractors. Carbon Resources must give Coal Energy reasonable notice of the intent to visit or inspect, no less than five (5) full business days in advance of inspection, and the inspections shall be conducted only during those times as authorized by Coal Energy, or any

regulatory agency, with the designation of the time by Coal Energy to be reasonable, and in those areas not unsuitable or unsafe for inspection by Carbon Resources.

10.04 **Survival.** The provisions of this Article 10 survive the expiration, cancellation, or sooner termination of this Lease Agreement.

ARTICLE 11
TAXES

11.01 **Payment of Taxes by Coal Energy.** Coal Energy must pay all taxes, fees, assessments, levies, and all other governmental charges which may be assessed, or charged upon the coal severed, mined, and produced by Coal Energy pursuant to this Lease Agreement; upon any improvements constructed by Coal Energy on the Leased Premises; and upon all other activities conducted by Coal Energy pursuant to or in connection with this Lease Agreement, including, without limitation, mineral severance taxes, unmined mineral taxes, gross receipts taxes, employment taxes, black lung taxes, and abandoned mine land (AML) taxes and fees as, when, and to the extent(s), and in the amount(s) the same become due and payable, without demand by Carbon Resources.

11.02 **Payment of Taxes by Carbon Resources.** Carbon Resources must pay all taxes, fees, assessments, levies, which may be assessed, charged, or levied upon the Leased Premises and any and all of the personal property(ies) of Carbon Resources as well as the *ad valorem* taxes upon the Leased Premises, when, to the extent(s), and in the amount(s) the same become due and payable, without demand by Coal Energy. Carbon Resources may not allow or permit any portion of the leasehold estate to be levied upon, forfeited or sold on account of any unpaid tax, assessment or charge. However, should Carbon Resources become delinquent in paying taxes and levies to the extent as to jeopardize Coal Energy's operation, upon Coal Energy's discovery of said delinquency Coal Energy will notify Carbon Resources of said delinquency, should Carbon Resources fail to cure said delinquency within ten (10) business days, Coal Energy may, without being obligated to do so, pay such taxes or encumbrances and any penalties thereon to reclaim such Leased Premises from tax sale. Any such payments by Coal Energy may be credited or deducted from payments due and payable under this Lease Agreement.

11.03 **Reimbursement.** In the event(s) any such taxes, assessments, levies, fees, in whole or in part set forth in §11.02 should be paid by Coal Energy, then Coal Energy upon written notice

to Carbon Resources, shall have the right to offset or take as a credit against royalties any amount paid for or behalf of Carbon Resources.

11.04 **Protest and Roll Backs**. Coal Energy shall have the absolute right to protest or contest any tax, assessment or levy that may be in the name of Carbon Resources but which is a tax, assessment, or levy to be paid by Coal Energy. In the event that the Leased Premises are taxed as agricultural property ("greenbelt") and if that classification or characterization of said land is changed due to the Mining Operations of Coal Energy, Coal Energy shall pay the increased amounts due to the roll back or new assessment.

ARTICLE 12
LIENS

12.01 **Liens**. Coal Energy covenants and agrees to prevent any lien, assessment, attachment, and/or any other encumbrance, of whatsoever kind or nature, arising from the actions of Coal Energy, or its agents or contractors, from being filed against or encumbering Carbon Resources' title in and to the Leased Premises.

12.02 **Payment by Carbon Resources**. In the event, and as often as such event may occur, any third party(ies) perfects a legal right to encumber said Leased Premises, in whole or in part, as a result of Coal Energy's failure, in whole or in part, to pay such parties as herein provided; or as Coal Energy may be otherwise legally obligated, Carbon Resources, at its sole option and in addition to its other rights and remedies hereunder including, but not limited to the remedies set out within this Lease Agreement, does and shall have the right to pay, in whole or in part, and settle with such parties directly. Provided, however, prior to the payment, Carbon Resources will provided Coal Energy no less than ten (10) business days advance written notice of its intent to do so. All such direct payments by Carbon Resources shall be forthwith reimbursed by Coal Energy to Carbon Resources. This paragraph and/or the payment of such direct payment sums, in whole or in part, by Carbon Resources is not and shall not be construed as a waiver, alteration, or modification of any of the Coal Energy's obligations assumed by it hereunder not of Lessor's rights hereunder; nor as a covenant by Carbon Resources to perform the same.

ARTICLE 13
INDEMNIFICATION

13.01 **Indemnification by Coal Energy**. Coal Energy agrees to defend, pay, indemnify, and hold Carbon Resources harmless from and/or against any and all liabilities arising, directly, indirectly, out of and/or as a consequence of Coal Energy's use, occupation, utilization, and/or Mining Operations and/or any other related work, services, or other activities conducted pursuant to or in connection with this Lease Agreement, together with all costs and expenses including, but not limited to, attorneys' fees and other litigation costs that may be incurred by Carbon Resources in connection therewith, so long as the liabilities were caused by the negligence or fault of Coal Energy.

13.02 **Indemnification by Carbon Resources**. Carbon Resources agrees to defend, pay, indemnify, and hold Coal Energy harmless from and/or against any and all liabilities arising, directly, indirectly, out of and/or as a consequence of Carbon Resources' actions or other activities conducted pursuant to or in connection with the Leased Premises, together with all costs and expenses including, but not limited to, attorneys' fees and other litigation costs that may be incurred by Coal Energy in connection therewith, so long as the liabilities were caused by the negligence or fault of Carbon Resources.

13.03 **Survival.** The provisions of indemnification as set out within this Article 13 shall survive the expiration or termination of this Lease Agreement.

ARTICLE 14
INSURANCE

14.01 **Coverage by Coal Energy.** Coal Energy covenants and agrees to obtain, keep, and maintain, in full force and effect, at all times, during the continuance of this Lease Agreement comprehensive liability insurance covering Coal Energy's Mining Operations and other activities conducted pursuant to or in connection with this Lease Agreement with the greater of those minimum liability coverage limits required by law, or liability coverage limits of no less than One Million Dollars ($1,000,000.00) per occurrence and Two Million Dollars ($2,000,000.00) aggregate for the death and/or injury of person(s) and/or damage to any real or personal property(ies).

14.02 **Additional Coverages.** In addition to the previously specified liability insurance, Coal Energy covenants and agrees to obtain, keep, and maintain in full force and effect, at all times, coverage concerning Workmen's Compensation and Black Lung Claims, Unemployment Compensation Insurance, occupational disease insurance, employer liability insurance, and all insurance coverages concerning Coal Energy's Mining Operations and other activities conducted pursuant to this Lease Agreement now and/or hereafter required by the United States of America, State of Utah, and/or all other applicable governmental authorities.

14.03 **Additional Named Insured.** Carbon Resources shall be named an additional insured under all insurance policies obtained by Coal Energy pursuant to Section 14.01 and 14.02, and, upon request therefor, shall furnish a copy of endorsements so naming Carbon Resources as an additional insured.

ARTICLE 15
OPTION

15.01 **Option to Purchase.** In addition to leasing and sub-leasing the Leased Premises to Coal Energy, along with the rights conveyed within this Lease Agreement, Carbon Resources grants an option (the *"Option"*) to Coal Energy to purchase and/or take an assignment of: (i) all rights, titles, and interests directly held by Carbon Resources in the real property and mineral interests of and contained with the Leased Premises; and (ii) all other rights, titles, and interests in and to the Leased Premises held by Carbon Resources, or that benefit the Leased Premises that permit or allow Mining Operations to be conducted by Coal Energy upon the Leased Premises (collectively the "*Property Interests*"). The Property Interests include all fee simple interest as well as any lesser property rights in and to the Leased Premises held by Carbon Resources or that it has beneficial right to enjoy.

15.02 **Option Period.** Coal Energy will have the right to exercise the Option at any time following payment of the Approval Fee to Carbon Resources and the right to exercise the Option will extend until expiration at midnight on the third anniversary of the Approval Date (*"Option Period"*).

15.03 **Option Price.** In the event Coal Energy elects to exercise the Option, it will pay to Carbon Resources the sum of *Eight Million Dollars ($8,000,000.00)* (*"Option Price"*). No previous Fee or Royalty payments made by Coal Energy will be credited against the Option Price.

15.04 **Exercise of Option.** In order to exercise the Option, Coal Energy must provide written notice to Carbon Resources of its intent to exercise the Option prior to the expiration of the Option Period (*"Option Notice"*). Coal Energy will have sixty (60) days from the date of the Option Notice to pay the Option Price to Carbon Resources. Carbon Resources will, at its sole costs, have the obligation to provide executed agreements, deeds, assignments, consents to assignment, bills of sale, and other instruments of title sufficient to convey all of Carbon Resources' Property Interests in and to the Leased Premises to Coal Energy.

15.05 **Retained Interest.** In the event Coal Energy exercises the Option (even though Carbon Resources will transfer to Coal Energy all of its Property Interests in and to the Leased Premises), as additional consideration for the transfer of the Property Interests, Carbon Resources will retain the right to receive a continued Production Royalty and the right to receive Wheelage (*"Retained Interest"*), as a covenant running with the land on the Leased Premises, at the following rates (in lieu of the rates set forth in Article 4 above):

(a) *Two percent* (2%) interest on the Gross Selling Price for all coal mined and sold from the lands comprising the Leased Premises (*"Retained Production Royalty"*); and

(b) *Twenty-Five Cents* ($0.25) per ton for coal transported across the surface of the Leased Premises which originates from Mining Operations conducted on Other Lands.

15.06 **No Further Fees.** With payment of the Option Price, this Lease Agreement will terminate and, except for the Retained Interest, all Property Interests of Carbon Resources (and its affiliates) in and to the lands and interests described as part of the Leased Premises will be transferred to Coal Energy, and the Property Interests of Carbon Resources will fully and irrevocably transfer to Coal Energy. Except for the payments under the Retained Interest, Coal Energy will have no further obligations to Carbon Resources.

15.07 **No Transfers and Assignments.** Until after expiration of the Option Period where no Option Notice having been given by Coal Energy, Carbon Resources may not and will not transfer, assign, mortgage, hypothecate, alienate, or otherwise encumber any right, title, or interest it holds, or has a beneficial or equitable right to, in the Leased Premises.

ARTICLE 16
ASSIGNMENT

16.01 **Assignment by Coal Energy.** This Lease Agreement, the leasehold estate created hereby, and any rights, titles, interests, easements, and/or privileges leased hereby, may NOT be assigned, mortgaged, conveyed, subleased, licensed, encumbered, contracted, permitted, or otherwise transferred, or set over by Coal Energy, in whole or in part, without the express, written consent of Carbon Resources, which will not be unreasonably withheld or delayed, as is reasonably necessary for the full and complete removal of all Mineable and Merchantable Coal.

16.02 **Obligation of Assignee.** In the event of an assignment, mortgaging, conveyance, sublease, license, encumbrance, contract, or otherwise transfer of this Lease Agreement, the assignee shall be obliged to assume and fulfill all obligations of Coal Energy as set out within this Lease Agreement.

ARTICLE 17
WARRANTY OF TITLE

17.01 **Warranty of Ownership.** Carbon Resources hereby represents, warrants, and covenants with Coal Energy that Carbon Resources: (i) is the holder or sole owner of all Property Interests in, to, pursuant to, or held in accordance with the Leased Premises and as conveyed to Coal Energy including all coal and the rights to mine and sell said coal from Parcel 2, the Carbon Resources Section 32 Surface Lands Estate; and Parcel 4, the Carbon Resources Sections 28 and 33 Coal Estate; (ii) is vested, by valid and enforceable leases, easements and agreements, with all Property Interests in, to, pursuant to, or held in accordance with the Leased Premises and as conveyed to Coal Energy including all coal and the rights to mine and sell said coal from Parcel 1, the Carbon County Leased Coal Estate; and Parcel 3, the Telonis Leased Surface Land.

17.02 **Right to Lease.** Carbon Resources hereby represents, warrants, and covenants with Coal Energy that subject to the obligation to obtain consent in section 1.07(a), Carbon Resources has the unrestricted right to enter into this Lease Agreement with Coal Energy, regarding the Leased Premises; that there are no outstanding contractual arrangements or obligations, without limitation, that will diminish, restrict or inhibit the rights granted to Coal Energy; and the title granted by Carbon Resources to the Leased Premises is: (i) free and clear of any lien or encumbrance of any kind regarding the fee lands of Carbon Resources; or (ii) subject only to lease agreements for the areas leased by Carbon Resources, but these areas are otherwise free and clear

of any restriction on the right of Coal Energy to assume the rights and operate on the Leased Premises.

17.03 **Consideration for Warranty.** The Fees and Royalties payable to Carbon Resources under the terms of this Lease Agreement are based upon and in consideration for the conveyance of the full, unrestricted and unencumbered Property Interests granted to Coal Energy. The right of Coal Energy to mine and sell the coal from the Leased Premises is without the requirement to obtain any further rights from Carbon Resources regarding the Leased Premises and the Mining Operations to be conducted thereon or to pay any additional fees, royalties, or rents except as set out within this Lease Agreement to Carbon Resources.

17.04 **Defect in Title.** In the event that Carbon Resources' title in and to the Leased Premises, is defeated, in whole or in part, by the holder of superior title in and to the same, Coal Energy may initiate and take whatever steps are necessary to secure or obtain whatever disputed rights or interests that are necessary to provide clear title to Coal Energy, or take whatever curative steps are necessary to remove the encumbrance or lien which restricts its rights granted hereunder. Coal Energy may thereafter seek reimbursement from Carbon Resources for all of its costs and expenses incurred, or retain the interest obtained and reduce the amount of Fees and Royalties paid to Carbon Resources by the same proportionate amount.

ARTICLE 18
BREACH OF LEASE

18.01 **Breach of Lease.** In the event: (i) the Fees and Royalties are not paid within thirty (30) days of the date when due; or (ii) Coal Energy has failed to comply with any material term or condition of this Lease Agreement, including but not limited to a failure to diligently pursue obtaining the Permits and Licenses or obtain the Reclamation Bond; Carbon Resources may declare Coal Energy in breach of the terms of this Lease Agreement ("*Breach*"). However, the Breach by Coal Energy of any obligation arising hereunder shall not automatically or otherwise work a forfeiture or termination of this Lease Agreement, nor be grounds for cancellation, except as herein expressly provided.

18.02 **Notice of Breach.** In the event Carbon Resources considers Coal Energy is in Breach with a material condition of this Lease Agreement, then Carbon Resources must provide Coal Energy written notice, delivered to the address set out herein, in accordance with the

provisions of Article 20 ("*Notice of Breach*"). The Notice of Breach must describe each condition, act, or omission constituting Breach and the applicable provision and section of this Lease Agreement violated by the Breach ("*Condition of Breach*"). Carbon Resources must give Coal Energy: (i) written Notice of Breach within ten (10) days of any failure to make payments of Fees and Royalties when due; and (ii) written Notice of Breach of Coal Energy's nonperformance of other any material obligation under this Lease Agreement within thirty (30) days of Carbon Resources discovering any such Condition of Breach.

18.03 **Cure Period**. In the event of any Condition of Breach by Coal Energy, prior to termination of this Lease Agreement by Carbon Resources, Coal Energy will have a reasonable opportunity to cure the Condition of Breach (*"Right to Cure Period"*):

(a) Coal Energy shall have ten (10) business days after receipt of the written Notice of Breach to make any payment of Fees or Royalties owed to Carbon Resources, or to challenge the Notice of Breach; and

(b) Where the Condition of Breach is other than a failure to pay any Fees or Royalties, Coal Energy shall have sixty (60) days from and after the date of receipt of any Notice of Breach, within which to cure and remedy said Condition of Breach.

18.04 **Extension of Time to Cure.** Coal Energy shall use all good faith efforts to cure the Condition of Breach in the least amount of time necessary to do so. In the event of nonpayment of Fees and Royalties, time is of the essence to cure or to challenge the Condition of Breach. Other than for the nonpayment of Fees and Royalties, in the event the Condition of Breach cannot reasonably be cured by Coal Energy within the sixty (60) day period, then the time period for Coal Energy to cure the Condition of Breach may be extended by written permission from Carbon Resources, which will not be unreasonably withheld, for the amount of time reasonably necessary to diligently pursue a cure of the Condition Of Breach, where Coal Energy has already made a good faith attempt to cure the Condition of Breach and no irreparable loss or harm will be suffered by Carbon Resources in the interim.

18.05 **Forbearance by Carbon Resources**. Any failure of Carbon Resources to exercise any right hereunder, from time to time, or for any period of time, to declare Coal Energy in Breach of any term or condition, or in Default for a failure to cure a Condition of Breach, Carbon

Resources will not be deemed to have agreed to a waiver, modification, or abrogation of the provisions of this Article, in whole or in part, and any such failure to exercise said rights shall not preclude or prevent Carbon Resources from enforcing its rights under this Article, at any time or from time to time, thereafter upon any subsequent Default.

18.06 ***Force Majeure.*** Coal Energy shall not be deemed to be in Default for failure to perform any of its obligations, other than the obligation to pay Fees and Royalties, during periods in which performance is prevented by any cause reasonably beyond Coal Energy's control (any such cause being herein called *"Force Majeure"*) such as, for example and not by way of limitation, fire, cave-in, floods, windstorms, other damage from the elements, strikes, riots, civil unrest, interference by Carbon Resources, interference by any lessor to a lease held by Carbon Resources, unavailability of transportation or necessary equipment, lack of satisfactory market for coal from the Leased Premises, action of governmental authority, litigation, acts of nature, acts of God, and acts of public enemy. The duration of this Lease Agreement shall be extended, unless sooner terminated by Coal Energy by release as herein above provided, for a period equal to the period for which performance is suspended due to *Force Majeure*. All periods of *Force Majeure* shall be deemed to begin at the time Coal Energy stops performance hereunder by reason of *Force Majeure*, and Coal Energy shall notify Carbon Resources of the beginning and ending date of each such period.

ARTICLE 19
TERMINATION

19.01 **Coal Energy's Right of Termination and Abandonment.** Coal Energy may, at its sole option, terminate this Lease Agreement in the event of substantial adverse interference by Carbon Resources with the Mining Operations of the Coal Energy. In addition, Coal Energy may terminate this Lease Agreement in its entirety at any time and from time to time during the Initial Term, Renewal Term, or Reclamation Term of this Lease Agreement if the Mining Operations can no longer be operated at a profit by the Coal Energy. In lieu of terminating the Lease Agreement in its entirety, Coal Energy may abandon any portions of the Leased Premises that are no longer needed by Coal Energy for its operations, or where it will be unable to recover Mineable and Merchantable Coal in sufficient quantities to continue mining of the coal, however this will not relieve Coal Energy from completing the commitments agreed to under the present term of this

Lease Agreement including payment of Advanced Minimum Royalty (4.03) through the current lease term.

19.02 **Coal Energy Notice to Terminate or Abandon**. Coal Energy must give Carbon Resources at least ninety (90) days written notice of Coal Energy's decision that it intends to terminate this Lease Agreement in its entirety, or to abandon any portion or any area within the Leased Premises and that Coal Energy intends not to mine coal from the same area (*"Notice of Termination-Coal Energy"*). However, delivery of a Notice of Termination or Abandonment will not release Coal Energy from the obligation to pay the Advanced Minimum Royalty through the then-current term of the Lease.

19.03 **Carbon Resources' Right of Termination.** Subject to the Right to Cure Period set out within Article 18, Carbon Resources may terminate this Lease Agreement if Coal Energy Coal Energy fails to timely cure any Condition of Breach (*"Default"*).

19.04 **Carbon Resources Notice to Terminate or Abandon**. Prior to termination of this Lease Agreement, in the event of Default by Coal Energy, Carbon Resources must provide written notice of its intent to terminate this Lease Agreement (*"Notice of Termination-Coal Resources"*). Carbon Resources must give Coal Energy a written Notice of Termination of Carbon Resources' decision to terminate this Lease Agreement no less than ten (10) business days of the effective date of termination. If Coal Energy has failed to cure the Default within ten (10) days, this Lease Agreement will terminate.

19.05 **Effect of Termination or Abandonment**. Upon any termination of this Lease Agreement, or upon abandonment of a portion of the Leased Premises by Coal Energy, Coal Energy covenants and agrees to duly make all payments then accrued and due to Carbon Resources, and to complete all then-outstanding reclamation obligations arising from Coal Energy's Mining Operations on the Leased Premises, and to execute and deliver to Carbon Resources, upon request, a release agreement, in recordable form, releasing all rights, titles, estates, and interests of Coal Energy in and to any of the Leased Premises. Coal Energy and its respective heirs, successors, assigns, officers, directors, agents, shareholders, and each of them, forever will thereafter be released from any further liability, obligation, covenant, or condition to perform under the terms of this Lease Agreement.

19.06 **Handover**. In the event of any termination by Coal Energy, or a termination of the Lease Agreement by Carbon Resources due to a Breach of the Lease Agreement by Coal Energy

not timely cured, Coal Energy will, as allowed by law, transfer the mine permit to Carbon Resources, peaceably withdraw from the mine leaving behind, as property of Carbon Resources, all improvements, structures, and non-mobile equipment, and any stockpiles of coal. Notwithstanding the forgoing, Carbon Resources will take all necessary steps to have Coal Energy removed from all Permits and Licenses prior to beginning any Mining Operations. Any bond posted or financial assurance given by Coal Energy to a government entity will not be returned until reclamation has been completed.

ARTICLE 20
NOTICES

20.01 **Service.** All notices where provided for, or required anywhere in this Lease Agreement shall be served upon the receiving Party by (a) United States Postal Service, postage pre-paid, certified mail, with return receipt requested, or by FedEx, and in addition by (b) first class mail postage pre-paid. Notice is deemed received on actual date of receipt of the notice, or on the fifth day after the date of mailing the notice by certified mail, with return receipt requested. Notice shall be delivered to the following addresses:

For Carbon Resources:	Pam Reeves 3019 Country Club Drive, Pueblo, Colorado 81008
With a Copy To:	Gregory Hunt 16577 Columbine Lane Cedaredge, CO 81413
With a Copy To:	George A. Hunt 2643 E. Maywood Drive Salt Lake City, UT 84109
For Coal Energy:	Bob Nead 6602 Ilex Circle Naples, Florida 34109
With a Copy To:	Bennett E. Bayer 106 West Vine Street Suite 800 Lexington, Kentucky 40507

In the case of change of the mailing address of any Party, the Party so changing its mailing address shall give written notice to the other Party.

ARTICLE 21
CUMULATIVE REMEDIES AND ARBITRATION

21.01 **Cumulative Rights.** In addition to all other rights and remedies herein provided, the Parties shall have the right to pursue any and all rights and remedies they may have under the law of the State of Utah or otherwise concerning any violation and/or default of any term, condition, provision, and agreement hereof.

ARTICLE 22
MISCELLANEOUS

22.01 **Choice of Law.** This Lease Agreement, in all respects, shall be governed, construed, and enforced in accordance with the substantive laws of the State of Utah. Courts having competent jurisdiction within the State of Utah shall be the sole venue for any dispute arising under this Lease Agreement, each party hereby waiving all rights to object to such venue.

22.02 **Time is of the Essence.** Time is of the essence of each and every term of this Lease Agreement and each and every performance required hereby.

22.03 **Merger.** This Lease Agreement constitutes the entire, integrated agreement by and between the Parties hereto with respect to the subject matters hereof and supersedes all oral and written, prior and contemporaneous negotiations, representations, agreements, and undertakings of the Parties hereto relating to the subject matters hereof.

22.04 **Modifications.** This Lease Agreement shall not be modified, altered, supplemented or otherwise amended, in whole or in part, unless said modification, alteration, supplement, and/or other amendment is in writing and mutually executed by the Parties hereto. No evidence of any such modification, alteration, supplement, or amendment of this Lease Agreement shall be received in any controversy arising out of or pursuant to the same unless it is in writing and executed as specified.

22.05 **Severance for Partial Invalidity.** In the event any provision of this Lease Agreement shall be adjudged invalid by a court having competent jurisdiction over the Parties hereto, such invalid provision shall be deemed deleted from this Lease Agreement and this Lease Agreement shall be construed as to give full force and effect to the remaining provisions hereof unless such severance substantially changes the intent of the parties

22.06 **Recording.** This Lease Agreement shall not be recorded. However, the Parties agree to prepare and record a Memorandum of Lease. Upon the expiration, cancellation, or

earlier termination of this Lease Agreement and in the event a memorandum hereof has been previously recorded, then upon Carbon Resources' request, Coal Energy will provide Carbon Resources a recordable memorandum, in a form prescribed by Carbon Resources, witnessing the expiration, cancellation, or earlier termination of this Lease Agreement.

22.07 **Survival.** All representations, warranties, obligations, agreements, stipulations, and covenants made herein or in connection herewith, notwithstanding any provisions of this Lease Agreement that may appear to the contrary, shall survive, to their full extent, the expiration, cancellation, or earlier termination of this Lease Agreement for whatever reason. All such representations, warranties, obligations, agreements, stipulations, and covenants shall remain fully enforceable until such time as they have been fully kept, paid, honored, observed, and/or performed subject only to any applicable statute(s) of limitation.

22.08 **Relationship of Parties.** The relationship between the Parties hereto is solely that of landlord and tenant, and such relationship shall not be interpreted or established as that of partners, joint venturers, cotenants, principal, and agent, or any relationship other than that of landlord and tenant. Carbon Resources' right to review any of Coal Energy's mining projections, plans, maps, and other data, and its right to inspect Coal Energy's records or mines shall not be deemed, treated, or construed as anything more than a right to review the same. Carbon Resources has no right of management over any of the Mining Operations conducted by Coal Energy.

22.09 **Captions and Pronouns.** The captions appearing in this Lease Agreement are for identification purposes only and shall not be construed as affecting in any way the meaning of the provisions hereof. Carbon Resources and Coal Energy may also be referred to as "it" or similar terms and the plural and singular shall be understood to be one and the same where applicable in reference to the Parties.

22.10 **Inure to and Bind the Parties.** This Lease Agreement, and the conditions, provisions, covenants, acknowledgments, stipulations, options, and agreements contained herein, shall inure to the benefit of and be of full and binding effect upon the Parties hereto and their respective successors, assigns, beneficiaries and transferees. Nothing set forth in this Lease Agreement confers or is intended to confer upon any person or entity other than the Parties hereto, and their respective successors, assigns, and transferees, any benefits, rights, or remedies under or by reason of this Lease Agreement, excepting solely as set forth herein.

22.11 **Authority**. Each person executing this Lease Agreement is doing so under express authority of the Party upon whose behalf they are signing, and the person signing warrants

they are acting under and with authority of the respective Party which agrees to be bound by the terms and conditions of this Lease Agreement. To the extent deemed necessary, either Party may request and receive an executed authorization and acknowledgment of effect and enforceability from the other Party.

22.12 **Confidentiality.** Except for the financial and tonnage reports supplied to Carbon Resources, intended by Coal Energy for Carbon Resources to retain possession, all other information reviewed by the Parties remains the property of the Party providing the information. The Parties agree and covenant to receive all information as confidential. Other than Royalty and Tonnage Reports, the Parties agree to return, on demand, any and all information so furnished, as well as any copies or reproductions of any material produced by or created for or by the Parties except as retained by legal counsel in anticipation of litigation.

22.13 **Counterpart Execution.** This Lease Agreement may be executed in counterparts, with each to have the effect of an original.

{THE REMAINDER OF THIS PAGE IS PURPOSEFULLY LEFT BLANK}
{EXECUTION APPEARS ON THE FOLLOWING PAGE}

IN WITNESS WHEREOF, having read the foregoing Lease Agreement, the Parties express their agreement to the terms and conditions of this Lease Agreement by subscribing their signatures on the date as indicated.

CARBON RESOURCES LLC:

BY:_____ Date: 9-25-18

ITS: Manager

COAL ENERGY GROUP 3, LLC:

BY:_____Date: _____

ITS:_____

{THE REMAINDER OF THIS PAGE IS PURPOSEFULLY LEFT BLANK}
{ACKNOWLEDGMENTS APPEAR ON THE FOLLOWING PAGE}

STATE OF Colorado }
}
COUNTY OF Pueblo }

The foregoing Lease Agreement was signed, sworn to, and acknowledged before me by Pamela Reeves, the Manager of Carbon Resources, LLC, personally known to me or who presented evidence of their identity, on this 25th day of Sept., 2018, who warranted they were acting on behalf of and with the express authority of Carbon Resources, LLC to execute this Lease Agreement and bind Carbon Resources LLC to its terms and conditions.

My Commission Expires: 2·10·20
My Registration Number: 20164005299

Shannan Stuffelbeam
NOTARY PUBLIC

SHANNAN L STUFFELBEAM
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20164005299
MY COMMISSION EXPIRES FEBRUARY 10, 2020

STATE OF _____ }
}
COUNTY OF _____ }

The foregoing Lease Agreement was signed, sworn to, and acknowledged before me by _____, the _____ of Coal Energy GROUP 3, LLC personally known to me or who presented evidence of their identity, on this ___ day of _____, 2018, who warranted they were acting on behalf of and with the express authority of Coal Energy GROUP 3, LLC to execute this Lease Agreement and bind Carbon Resources LLC to its terms and conditions.

My Commission Expires: _____
My Registration Number: _____

_____
NOTARY PUBLIC

LEASE AND AGREEMENT

This Lease and Agreement made and entered into this 15th day of March, 2017, by and between Carbon County, a political subdivision of the State of Utah, hereinafter referred to as "Lessor", and Carbon Resources, LLC, a Utah limited liability company, with its principal office at 3019 Country Club Drive, Pueblo, CO 81008, hereinafter referred to as "Lessee".

RECITALS

The subject fee coal, owned by Carbon County, located on the site of the previous Columbine and Kinney Mines, has been leased to Western Reserve Coal, Inc., the predecessor in interest to Carbon Resources, LLC, since 1985, and advanced royalties have been paid to Carbon County from that time through the present date. Western Reserve Coal, Inc., through a number of related entities, has expended millions of dollars conducting studies, drilling, monitoring, permitting and undertaking other efforts to benefit the property in preparation of opening Kinney Mine #2.

WITNESSETH:

1. For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the rental and royalty payments to be made hereunder, and the mutual agreements set forth in this lease, the Lessor does hereby lease exclusively to Lessee, for the sole purpose of exploring, developing, mining, and producing any coal located therein, together with the right to remove and sell any coal located therein, and the right to use the surface (to the extent Lessor has such surface rights), the land described as follows:

Township 12 South, Range 7 East, SLB&M
Section 33: S1/2; S1/2 NW1/4; SW ¼ NE 1/4
Section 34: ALL
Section 35: ALL
Section 36: ALL

Ent 835819 Bk 881 Pg 1
Date: 16-MAR-2017 9:08:44AM
Fee: NoneFiled By: CR
CARBON COUNTY RECORDER, Recorder
CARBON COUNTY CORPORATION
For: CARBON COUNTY

Township 13 South, Range 7 East, SLB&M
Section 3: NW1/4
Section 4: All
Section 5: E1/2 NW1/4
Section 9: N1/2 NW1/4
Section 16: SE1/4 NW1/4; E1/2 SW1/4; SW1/4 NE1/4; W1/2 SE1/4
Section 21: SE1/4; E1/2 SW1/4
Section 28: E1/2; E1/2 W1/2
Section 33: E1/2 NE/14; SW1/4 NE1/4; NE1/4 SE1/4

2. As consideration for this Lease Agreement, Lessee agrees to pay to Lessor an annual royalty in the amount of $5,620.00, payable in advance and due on the 1st day of March each year this Lease Agreement is in effect, commencing March 1, 2017. This payment shall be hereinafter referred to as the "Advanced Royalty".

As further consideration, Lessee shall also pay to Lessor the sum of $0.50 or two percent, whichever is greater, of the gross sales price of every ton of coal mined and sold during the term of the lease. This payment shall hereinafter be referred to as the "Production Royalty".

The Advanced Royalty for each year shall be credited against the Production Royalties as they accrue under the lease during the year for which the rental was paid. Royalties shall be payable quarterly within thirty (30) days from the expiration of the quarter in which the coal is mined. All payments due hereunder shall be paid at the Treasurer's office of Lessor.

3. This Lease and Agreement shall commence forthwith and shall extend thereafter for a period of ten (10) years.

(A) Lessee is hereby granted and shall have an option to extend the term of this Lease for four (4) successive five-year terms so long as it is not in default hereunder. Said options shall be exercised by Lessee delivering to Lessor at least three (3) months prior to the expiration of the ten-year primary term or any five-year term, written notice of its intention to so extend the term of this Lease.

(B) Before the commencement of any five-year renewal term hereunder, the amount of royalty per ton due during said renewal term may be renegotiated between the parties. In no event, however, shall the renegotiated royalty rate exceed the rate charged for underground mining by the Federal government on coal lands in the vicinity of the lands above described.

4. Lessee agrees that any mining done on said property shall be in a workmanlike manner in accordance with good and economical mining practices with due regard to the safety, development and preservation of said premises. Lessee agrees to comply with the statutes, rules and regulations of the State of Utah, and the laws, rules and regulations of the United States of American and with all other laws, rules and regulations which may hereafter be enacted or promulgated in the interest of safety and workmanlike operations of the premises contained in this Lease.

5. Lessee agrees, at reasonable times and as requested by the appropriate official of Lessor, to furnish a plat or map showing development work and improvements on the leased premises, and to furnish in such form as Lessor may request, within thirty (30) days from the expiration of each quarter, a report certified by Lessee or its agent or representative having personal knowledge of the facts.

6. Lessee agrees to permit at reasonable times inspection of the premises by an authorized representative of Lessor and to permit inspection of the making of copies of extracts of all books and records pertaining to or disclosing the operation and/or removal of coal from the leased premises.

Ent 835819 Bk 0881 Pg 0002

7. Lessee agrees to pay, when due, all taxes lawfully assessed by the State of Utah upon improvements or output of coal on or from the leased premises.

8. Upon termination of this Lease by forfeiture or by expiration of the terms herein provided, the Lessee shall have then the privilege at any time within twenty-four (24) months thereafter to complete necessary reclamation work required by statute and to remove from the leased premises all machinery, equipment, tools, and materials other than underground roof support which is necessary for the preservation of the mine. Upon expiration of the twenty-four (24) month period any of the property of Lessee, which remains on or in the leased premises, shall become the property of Lessor.

9. Lessee shall have no right to assign or transfer this Lease or sublease said property or any portion thereof without the written consent of the Lessor first obtained.

Lessor agrees that Lessee may lien or encumber its rights under this lease in favor of a third-party so long as that lien or encumbrance is expressly subject to the rights of Lessor and if the lien or encumbrance is extinguished to the extent the rights of the Lessee are modified or terminated in whole or in part for any reason.

10. If any portion of the rents or royalties falling due under the terms of this Lease shall remain unpaid for a period exceeding thirty (30) days, or if the Lessee shall fail to rectify any other default hereunder within ninety (90) days after service of written notice thereof by Lessor, then and in such event, at the option of Lessor, this lease shall become forfeited and the Lessor may exercise all rights of entry and re-entry upon the leased premises, provided, nevertheless, if by the nature of the remedial work required it cannot, within reasonable dispatch, be cured within the period of ninety (90) days, then if upon service of said written notice Lessee in good faith commences and with reasonable dispatch under the circumstances thereafter continues to rectify the default, Lessor shall not forfeit or terminate this Lease on account of the default being so remedied.

11. Lessor does not warrant to Lessee that it is the owner of the above described property or the coal contained therein. It is agreed, however, that if it is legally determined that Lessor does not own the coal under any of the leased land, then the Lessees shall not be required to pay future rental on such acreage, but this amended lease shall remain in full force and effect with respect to the coal acreages owned by Lessor. On any acreage so deleted, Lessee shall not be entitled to any refund or annual rentals theretofore paid to Lessor.

12. Lessee shall hold Lessor harmless on account of any and all liability arising out of Lessee's operation on the leased premises.

13. Notices provided herein shall be given to the parties as follows:

Ent 835819 Bk 0881 Pg 0003

If to Lessor: Carbon County
Attn: Carbon County Clerk
County Administration Building
751 East 100 North
Price UT 84501

If to Lessee: Carbon Resources, LLC
3019 Country Club Drive
Pueblo, CO 81008

With a copy to: Ronald Barker
Barker Law Offices, LLC
2870 South State St.
Salt Lake City, UT 84115

With a copy to: Geo-Hunt Consulting, LLC
16577 Columbine Lane
Cedaredge, CO 81413

14. The Lease and Agreement constitutes the entire agreement understanding between the parties hereto.

Witness the hands of the parties hereto in as of the date first above set forth.

CARBON COUNTY, a Body Corporate and Politic of the State of Utah

Chairman, Carbon County Board of Commissioners

STATE OF UTAH)
:ss
COUNTY OF CARBON)

Personally appeared before me this 15th day of March, 2017, Jake Mellor, who duly acknowledged to me that he signed the foregoing document as Chairman of the Carbon County Board of Commissioners for an on behalf of Carbon County, a body corporate and politic of the State of Utah.

LORI PEREZ
NOTARY PUBLIC-STATE OF UTAH
COMMISSION# 678204
COMM. EXP. 06-20-2018

Notary Public

Ent 835819 Bk 0881 Pg 0004

ATTEST:

County Clerk

STATE OF UTAH County Clerk COUNTY OF CARBON

CARBON RESOURCES, LLC

Pamela Reeves, Managing Member

STATE OF UTAH)
:ss
COUNTY OF CARBON)

Personally appeared before me this 15th day of March, 2017, Pamela Reeves, who duly acknowledged to me that she signed the foregoing document on behalf of Carbon Resources, LLC, pursuant to a resolution of its managing members.

SANDRA LEHMAN
NOTARY PUBLIC-STATE OF UTAH
COMMISSION# 675059
COMM. EXP. 03-01-2018

Notary Public

Ent 835819 Bk 0881 Pg 0005

Ent 125882 Bk 657 Pg 128
Date: 05-OCT-2007 3:36PM
Fee: $25.00 Charge
Filed By: VB
VIKKI BARNETT, Recorder
CARBON COUNTY CORPORATION
For: SOUTH EASTERN UTAH TITLE CO

Recorded at the Request of: *South Eastern Utah Title Company*

Order No. 78,429-C

Mail Tax Notice To: Carbon Resources, LLC
34 Valle Hermosa
Sandia Park, NM 87047

SPECIAL WARRANTY DEED
(General Partnership)

HANSON NATURAL RESOURCES COMPANY, A DELAWARE GENERAL PARTNERSHIP NOW KNOWN AS
PEABODY NATURAL RESOURCES COMPANY, A DELAWARE GENERAL PARTNERSHIP

Grantor of St. Louis, State of Missouri, hereby CONVEYS and WARRANTS to

CARBON RESOURCES, LLC, A NEVADA LIMITED LIABILITY COMPANY

of Sandia Park, State of New Mexico, Grantee(s) for the sum of ten dollars and other good and valuable consideration, the following described tract of land in Carbon County, State of Utah, to-wit:

SEE ATTACHED EXHIBIT 'A'

Tax Serial No. 1B-483-1

Subject to easements, reservations and restrictions however evidenced.

Witness the hand of said grantors, this 4th day of October, 2007.

Peabody Natural Resources Company, a Delaware general partnership

James C. Sevem, Vice President

STATE OF MISSOURI }
} SS.
CITY OF ST. LOUIS }

On the 4th day of October, 2007, personally appeared before me James C. Sevem, who being by me duly sworn did say that he is the Vice President of Peabody Natural Resources Company, a partnership, and that the foregoing instrument was signed in behalf of said partnership by authority of the Articles of said Partnership, and the said James C. Sevem duly acknowledged to me that said partnership executed the same.

Notary Public

KAREN M. SENSEL
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis City
My Commission Expires: Feb. 6, 2009
Commission #05668848

EXHIBIT A

A Parcel of land lying in the East 1/2 of Section 32, Township 12 South, Range 7 East, SLB&M, Carbon County, Utah, more particularly described as follows:

BEGINNING at a point which lies North, a distance of 1320.00 feet from the Southeast Corner of Section 32, T12S, R7E, SLB&M; thence South 89° 59' 00" West a distance of 920.00 feet, more or less, to the intersection of the East Right of Way boundary of the State Road 96; thence in a Northerly direction along said East highway Right of Way boundary, a distance of 270.00 feet; thence in a Northeasterly direction along said highway boundary a distance of 317.10 feet; thence North 45° 32' 00" East along said highway boundary a distance of 465.40 feet; thence in a Northeasterly direction along said highway boundary 733.00 feet, more or less, to the intersection of said highway boundary, and the East boundary of said Section 32; thence South a distance of 1475.00 feet, more or less, to the point of beginning.

LESS AND EXCEPTING therefrom a parcel of land more particularly described as follows:
Commencing at the Southeast corner of said Northeast 1/4 of the Southeast 1/4 of said Section 32, running thence North along the Section line 330 feet, more or less, to a point 50 feet North of the railway track of the Union Pacific Railway running across said land; thence in a Southwesterly direction parallel with and 50 feet distance from center line of said track, 412.5 feet, more or less, to the South line of said Northeast 1/4 of the SE 1/4; thence East 132 feet, more or less, to the point of beginning.

ALSO, LESS AND EXCEPTING any and all rights, title and interest, if any, acquired by The Atchison, Topeka and Santa Fe Railway Company and the Star Lake Railroad Company prior to January 1, 1991, in and to the above described real property.

ALSO, LESS AND EXCEPTING any portion lying within the Union Pacific Railroad Right of Way or any other Railroad Right of Way.

TOGETHER WITH AND SUBJECT TO the above listed lands, any and all interests in and to a Loading Site License Agreement, dated October 11, 1985, between Southern Pacific Land Company (Licensor) (predecessor in interest to Catellus Development Corporation) and Bishopgate Coal Corporation (Licensee), and which Loading Site License Agreement was assigned by Santa Fe Pacific Minerals Corporation (successor in interest to SFP Minerals Corporation), assigns all their right, title and interest to Hanson Natural Resources Company. as conveyed in the Assignment and Assumption, recorded September 27, 1993 in Book 334 at Page 440.

ALSO TOGETHER WITH AND SUBJECT TO the above listed lands, any and all interests in and to an Access and Haulage Rights License Agreement, dated October 11, 1985, recorded in Book 254 at Page 142, between Bishopgate Coal Corporation (Licensor) and Southern Pacific Land Company (Licensee) (predecessor in interest to Catellus Development Corporation), and which Access and Haulage Rights License Agreement was assigned to SFP Minerals (predecessor in interest to Santa Fe Pacific Minerals Corporation in the Assignment, recorded October 7, 1991 in Book 310 at Page 206, and wherein Santa Fe Pacific Minerals Corporation, (as successor in interest to SFP Minerals), assigns all their right, title and interest to Hanson Natural Resources Company, as conveyed in the Assignment and Assumption, recorded October 7, 1993 in Book 335 at Page 49.

Tax Serial # IB-483-1

TOGETHER WITH all and singular the hereditaments and appurtenances thereunto belonging, or in any wise appertaining, the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and, subject to the reservations and exceptions set forth herein, all the estate, right, title, interest, claim and demand whatsoever of the Grantor, either in law or in equity, of, in and to the above-described Property with the hereditaments and appurtenances.

TO HAVE AND TO HOLD the said Property with the hereditaments and appurtenances, unto the Grantee, her heirs, successors and assigns forever. Grantor covenants and agrees that Grantor will SPECIALLY WARRANT AND FOREVER DEFEND Grantee's title in the Property against all persons lawfully claim' g, or to claim the same, by, through or under Grantor, EXCEPT AND SUBJECT TO alt rights-of-way, easements, leases, deed and plat restrictions, partitions, severances, encumbrances, licenses, reservations and exceptions which are of record as of the date first above written, and to all rights of persons in possession, and to physical conditions, encroachments and possessory rights which would be evident from an inspection and survey of the Property, and to the reservations and other matters set forth on Exhibit B attached hereto and incorporated herein. Grantor does not warrant title generally.

BY ACCEPTANCE OF THIS DEED, Grantee acknowledges and agrees that this conveyance is made and accepted subject to the following covenants and agreements which shall be deemed covenants running with the land enforceable against Grantee and her heirs, successors and assigns:

1. Grantee knows and understands that the Property includes areas with rough, unnatural and unstable surfaces;

2. Grantee assumes all risks and responsibility for any injuries or damages sustained by any person or to any property, in whole or in part, resulting from, arising out of, or in *any way* connected with, the possession or use of the Property by Grantee, and Grantee agrees to indemnify and hold harmless Grantor, its agents, employees or representatives, from any and all claims, demands, actions or suits of *any* kind or nature whatsoever for such injuries and damages, and any expenses connected therewith;

3. Grantee acknowledges that mining activity has been conducted in the vicinity of the Property and coal dust and other mining residue is present on the Property;

4. Grantor does not warrant or represent subjacent or lateral support of the surface and subsurfaces of the Property;

5. Grantor does not warrant or otherwise represent that the Property is safe, habitable or otherwise suitable for the purposes for which it is intended to be used by Grantee or for any other purposes whatsoever;

6. Grantor does not warrant or represent circumstances relating to the environmental quality of the land, or other conditions arising out of the prior use of the land; and

7. The Property is conveyed "AS IS," and Grantee has inspected the Property to its satisfaction and accepts the Property in "AS IS" condition.

ACCEPTANCE

The foregoing Special Warranty Deed is accepted by, the Grantee. Grantee accepts the Property subject to all the terms, conditions, limitations, restrictions, reservations, covenants, agreements and undertakings set forth in the foregoing Special Warranty Deed and all Exhibits thereto, all of which shall run with the land and shall be binding on Grantee's heirs, successors and assigns.

CARBON RESOURCES, LLC, a
Nevada limited liability company

By: WRCC, LLC, a Nevada limited liability company
Its managing member

By: Western Reserve Coal Company Incorporated, a
Nevada corporation, Its managing member

By: J H Reeves
J.H. Reeves, President

STATE OF New Mexico)
) ss.
COUNTY OF Bernalillo)

The foregoing instrument was acknowledged before me this 28th day of September, 2007 by J.H. Reeves, as President of Western Reserve Coal Company Incorporated, managing member of WRCC, LLC, managing member of Carbon Resources, LLC, a Nevada limited liability company.

Witness my hand and official seal.

My commission expires: March 15, 2010

{Seal}

OFFICIAL SEAL
Barbara A. Mast
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 3/15/10

Barbara A. Mast
Notary Public

EXHIBIT B
TO
SPECIAL WARRANTY DEED

Grantor Reservations and Warranty Exceptions

Part I:

Grantor, Peabody Natural Resources Company, does hereby reserve and retain for itself and its Affiliates (defined as any wholly or partially owned subsidiary entity of Peabody Energy Corporation, their successors and assigns) and their successors and, assigns, the following easements and property interests:

1. An undivided one-half (1/2) interest in any and all right, title and interest owned, controlled or held by Grantor in and to the mineral estate as recited and defined in Special Warranty Deed dated June 25, 1993 between Santa Fe Pacific Minerals Corporation and Hanson Natural Resources Company recorded in Book 330, Page 648 in the official records of the Carbon County Clerk and Recorder's office; and

2. All other coal, oil and gas, coal bed methane and other minerals of any nature whatsoever underlying the surface, together with the right to enter upon the surface to produce oil and gas, coal bed methane and other minerals.

To the extent any of the foregoing reserved easements and property interests are easements in gross, such easements are fully and freely transferable and divisible. By acceptance of this Deed, Grantee acknowledges that all easements and property interests reserved in this Deed are commercial in nature and shall be fully and freely transferable and divisible.

Part II:

Without limiting any other provision of this Deed, Grantor's special warranty obligations shall be subject to and shall exclude each of the following:

1. The easements and property interests reserved in Part I above.

2. Rights or claims of parties in possession not shown by the public records.

3. Easements, or claims of easements, not shown by the public records.

4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments and any facts which a correct survey and inspection of the Property would disclose and which are not shown by the public records.

5. Taxes for 2007 and subsequent years.

6. Any boundary discrepancy due to the location of fence lines and the effect of any right, title or interest that may be claimed due to any said discrepancy.

7. All existing roads, highways, ditches, utilities, reservoirs, canals, pipelines, power, telephone, or water lines, railroads, aircraft overflight paths and rights of way and easements therefore.

8. Exceptions in Title Commitment

LEASE AND EASEMENT AGREEMENT

THIS LEASE AND EASEMENT AGREEMENT ("Lease"), made and entered into December 1, 2007 ("Effective Date"), by and between **Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis (Telonis Family)**, by and through Nick Sampinos, their Attorney-in-Fact, whose address is 190 North Carbon Avenue, Price, Utah 84501 ("Lessor") and **Western Reserve Coal Company Incorporated**, a Nevada corporation, whose address is 34 Vale Hermosa, Sandia Park, New Mexico 87047, ("Lessee").

Recitals

A. The parties are the successors to the original grantors and grantees under that certain Deed of Easement dated June 21, 1963, relating to a parcel of land reserved for purposes of operating a coal mine ("Original Easement").

B. The Grantee is desirous of expanding the footprint area of the Original Easement to accommodate its coal mine development plans.

C. The parties desire to replace and substitute the Original Easement with this Lease as of the Effective Date.

Agreement

NOW, THEREFORE, for and in consideration of Ten Dollars, the covenants set forth herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties agree as follows:

1. Grant.

a. Upon and subject to the terms and conditions hereof, and subject to the reservations contained herein, Lessor hereby leases and lets to Lessee for its exclusive use and possession the lands situated in Carbon County, Utah, more fully described on **Exhibit A** to this Lease and Easement Agreement and as more fully depicted in **Exhibit B**, an engineer's drawing of the Lessor's land described in **Exhibit A,** both of which are attached hereto and by this reference are made a part hereof ("Premises") for the purposes set forth herein. The parties acknowledge and agree that a survey is being performed by a licensed surveyor on other portions of the Lessor's land which may result in the re-establishment of the west quarter corner of Section 33 and the 1/16 corners, north and south of said quarter corner. The parties hereto hereby reserve the right to amend Exhibits A and B hereto to conform to any adjustments made in the legal description of the Lessor's land and the parties further agree to cooperate and coordinate with each other to facilitate any necessary amendments thereto.

b. Lessee shall have the right to use the Premises for the following purposes:

(i) Construction, operation and maintenance of buildings and facilities to be used in connection with operation of Lessee's coal mine, as permitted by the Utah Division of Oil, Gas and Mining.

N.S.

c. Lessor reserves and retains, and this Lease does not include, Lessor's rights to and ownership, if any, of oil and gas, timber and other minerals and the rights to develop such minerals, to the extent such uses do not interfere with Lessee's permitted activities on the Premises.

d. Lessor hereby further reserves and retains the right at all times relevant hereto to enter upon the Premises for all lawful purposes related to (i) Lessor's ownership and management of the Premises; (ii) access for Lessor's or Lessor's livestock grazing lessee's use of the adjoining lands owned by Lessor; and (iii) access for Lessor's or Lessor's hunting lessee's activities on the adjoining land owned by Lessor, provided, however, that Lessor's reservation hereunder shall not, nor shall it be interpreted to, limit or restrict the grant made hereunder to Lessee.

2. Term. This Lease shall commence on the Effective Date and shall remain in full force and effect for a term of twenty-five (25) Lease Years ("Term") (each twelve (12) month period beginning on the Effective Date is referred to herein as a "Lease Year").

This Lease Term notwithstanding, this Lease shall automatically terminate when any of the following events occur: (i) the coal deposits accessed through this Lease and/or processed on the Premises have been exhausted; or (ii) Grantee otherwise terminates removal of coal and abandons the coal mining operation thereon for a consecutive period of eight (8) years; or (iii) the Division of Oil, Gas and Mining of the State of Utah issues a final nonappealable order of closure and reclamation of Grantee's mining operation on the Premises. At such time, the Premises granted hereby shall revert to the Lessor, and Lessee shall have no further claim to nor interest therein.

3. Rentals.

a. Lessee agrees to pay and Lessor agrees to accept as an annual rental ("Rental") to maintain this Lease in full force and effect during the Term of this Lease the following:

(i) The sum of Three Thousand Dollars ($3,000.00) on or before December 31, 2007 and on or before December 31 of each year thereafter through the end of the year following commencement of mining operations on said lands.

(ii) The sum of Six Thousand Dollars ($6,000.00) on or before December 31 of each year following commencement of mining operations on said land and continuing thereafter on or before December 31 of each year thereafter so long as mining operations are being conducted thereon;

(iii) The sum of Three Thousand Dollars ($3,000.00) per year following termination of mining operations on said property and until the Premises are reclaimed and abandoned by Lessee; and

(iv) Payment shall be made to the address set forth herein, or, upon prior written notice from Lessor given no less than thirty (30) days before the anniversary date, to a bank account identified by Lessor.

N.S.

4. Taxes. Lessee agrees that during the Term of this Lease, Lessee shall be responsible to pay all property and ad valorem taxes and special assessments levied against the Premises and on any building, facility, structure or appurtenance Lessee may construct on the Premises. Lessee shall reimburse Lessor for such payments made by Lessor, within fifteen (15) days from receipt of the payment notice.

5. Insurance. During the Term of this Lease, Lessee shall provide, pay for, and maintain in full force and effect the following types and amounts of insurance: (i) Workers' Compensation Insurance, in accordance with the laws of the State of Utah; (ii) Comprehensive General Liability Insurance with limits of not less than $1,000,000 applicable to bodily injury, sickness or death in any one occurrence; and $1,000,000 for loss of or damage to Premises in any one occurrence; (ii) Automobile Liability Insurance covered owned, unowned and hired vehicles used by Lessee with limits of not less than $1,000,000 for bodily injury and Premises damage claims; and (iv) Excess or Umbrella Liability, inclusive of the identified limits, with limits of not less than $5,000,000 Combined Single Limit. Lessor and Lessee waive each of their respective rights of subrogation for any insured losses occurring or arising out of activities on the Premises. Lessee shall have Lessor named as an additional insured on any and all liability policies that it has covering operations on the Premises and shall provide Lessor with a copy of a certificate of insurance evidencing the required insurance coverage.

6. Permits and Bonds. Lessee shall obtain any and all licenses, permits and associated bonds necessary and required to conduct operations under this Lease and shall be bound by the terms thereof and shall perform work in accordance therewith. Lessee shall have full responsibility for all reclamation work resulting from Lessee's activities on the Premises. Lessor shall cooperate with Lessee in effecting any reasonable changes or modifications to a permit, license or approval necessary to carryout Lessee's activities hereunder. Upon completion of mining operations upon the Premises pursuant to this Lease, Lessee shall complete all required reclamation upon the Premises in full compliance with all then applicable lease terms, applicable law and permit requirements. Lessee shall have the right to reenter the Premises after termination of this Lease for the purpose of performing or completing such reclamation.

7. Lessee's Covenants. Lessee shall:

a. Pay rent at the times and place and in the manner aforesaid, and if Lessee shall fail to pay rent within five (5) days of when it is due, Lessee shall pay Lessor interest of twelve percent (12%) per annum on all outstanding amounts due under the lease commencing on the date such amounts are due until paid.

b. Not use or occupy the Premises for any unlawful purposes; and will conform to and obey all present and future laws and ordinances, and all rules, regulations, requirements and orders of all government authorities or agencies, respecting the use and occupation of the Premises.

c. Design all roads, structures, buildings, facilities or appurtenances constructed on the Premises by Lessee in such a manner as to make the most economical use of the land consistent with Lessee's reasonable needs.

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d. Lessee shall install fencing in accordance with Lessor's specifications around the northern, eastern and southern boundaries of the Premises in a fashion acceptable to Lessor, including lockable gate(s) and cattleguard(s) as may be required to exclude livestock from the Premises and Lessee shall thereafter perform all necessary maintenance upon said fences, gates and cattleguards so long as this Lease remains in full force and effect.

8. Indemnification.

a. Lessee shall indemnify and hold harmless Lessor, its agents, affiliates, partners, successors, and assigns (other than Lessee) from any and all claims, demands, suits, losses, expenses (including reasonable attorneys' fees), damages and injuries (including death) to persons and property whatsoever that result from or arise out of the operations of Lessee or any of its sublessees, contractors, subcontractors or assigns under this Lease.

b. Lessor shall indemnify and hold harmless Lessee, its agents, affiliates, partners, successors, and assigns (other than Lessor) from any and all claims, demands, suits, losses, expenses (including reasonable attorneys' fees), damages and injuries (including death) to persons and property whatsoever that result from or arise out of the operations of Lessor or any of its lessees (other than Lessee), sublessees, contractors, subcontractors or assigns (other than Lessee).

c. This covenant of indemnity shall survive for a period of one (1) year after termination of this Lease or after Lessee has obtained full and final release of all reclamation bonds held by Lessee and encompassing the Premises, whichever is longer.

9. Title and Quiet Enjoyment. Lessor covenants and warrants that Lessee shall and may peaceably and quietly have, hold, occupy, use and enjoy, and shall have the full, exclusive and unrestricted use and enjoyment of all of the Premises. Lessor consents to any rezoning reasonably necessary for Lessee to be able to conduct its business on the Leased Premises. Lessor shall deliver possession of said Premises to Lessee on or before the Effective Date, free and clear of any use or occupation by Lessor, its successors, heirs or assigns, otherwise not permitted hereunder.

10. Multiple Uses. Any conflicts concerning the use of the Premises for activities under this Lease will be governed in accordance with the laws of the State of Utah. Lessee hereby further acknowledges the existence of (i) a Grazing Lease between the Telonis Family and Nick Sampinos relating to the grazing of livestock on Lessor's lands; and (ii) a hunting lease between the Telonis Family and Lloyd Pehrson relating to big game hunting on the land owned by Lessor which adjoins the Premises, provided, however, that, except as specifically provided herein, in the event of a conflict between uses of the Premises, the rights granted in this Lease shall have preference over the rights granted in the grazing and hunting leases and nothing in those leases shall waive, amend or diminish any rights granted to Lessee in this Lease. At all times relevant hereto, Lessor, its grazing lessee and its hunting lessee and their respective authorized agents, employees and invitees shall have the right to travel through the Premises, on designated roads to access the adjoining lands of Lessor.

N.S. CW

11. Assignment. Lessee shall not assign, transfer, mortgage, pledge, sell or convey this Lease to any person without the prior written consent of Lessor, which consent shall not be unreasonably withheld, provided, however, that consent shall not be required for an assignment, transfer, mortgage, pledge or sale by Lessee (i) to an affiliate of Lessee, (ii) to a third party who is financing Lessee's coal mining business when such assignment is a part of a collateral assignment of the bulk of the assets associated with the mine, or (iii) any third party buying, or receiving an assignment of, all or substantially all of the assets of Lessee associated with Lessee's coal mine in Carbon County, Utah or any direct or indirect interest in the equity interests of Lessee. Lessor may assign, transfer or sell its rights under this Lease in conjunction with the sale or a collateral assignment of the Premises and subject to Lessee's rights hereunder. In the event of any assignment by Lessee hereunder, Lessee shall notify Lessor in writing with evidence satisfactory to Lessor of such assignment. In the event of any change in the ownership of the Premises, Lessor shall notify Lessee in writing of such change in ownership.

12. Renewal of Lease. Lessee shall have the option to take a renewal of the demised Premises for one (1) additional five (5) year term, as hereinafter provided, under and subject to the same covenants, provisions and agreements, except the amount of rental, as are herein contained. In the event Lessee desires to exercise this renewal option, Lessee shall notify Lessor of such desire, in writing, not less than ninety (90) days prior to the expiration of the term hereby granted.

In the event that Lessee exercises its option to renew the term of this Lease as hereinabove provided, following expiration of the initial term hereof, Lessee hereby expressly agrees to pay to Lessor the sum of Eighteen Thousand Dollars ($18,000.00) per year, commencing on or before January 1 of the year immediately following expiration of the original term of this Lease and continuing on or before the 1st day of January of each of the four (4) years thereafter.

13. Default; Remedies.

a. If Lessee fails to comply with any material provisions of this Lease, and if Lessee does not initiate and diligently pursue steps to correct the default within sixty (60) days after notice has been given to it by Lessor specifying with particularity the nature of the default, then upon the expiration of the sixty (60) day period, Lessor shall have the right to declare this Lease in default, unless such failure is of such nature that it is susceptible of cure but with due diligence cannot be cured with such sixty (60) day period in which event Lessee shall have such additional time as may be required to cure the same with such diligence and continuity as shall be reasonably satisfactory to Lessor. The service of a default notice shall be a condition precedent to the bringing of any action by Lessor on this Lease for such default, and no such action shall be brought with respect to such default until the lapse of sixty (60) days after service of such notice. The doing of any acts by Lessee reasonably sufficient to cure all or any of the alleged breaches or defaults shall not be deemed an admission or presumption that Lessee has failed to perform any or all of its obligations hereunder.

b. If either party brings an action to enforce the terms hereof or declare rights hereunder, the prevailing party in any such action, on trial or appeal, shall be entitled to its reasonable attorney fees to be paid by the losing party.

N.S. CW

14. Miscellaneous.

a. Nothing herein contained shall be construed to waive, relinquish, or in any manner modify any right or interest of Lessee in the Premises existing at the time of execution of this Lease.

b. Lessor shall provide Lessee with such consents, approvals or certificates required by regulatory agencies having jurisdiction over Lessee's mining operations to evidence Lessee's rights under this Lease.

c. All notices provided for herein shall be given to the parties at the following address:

If to LESSOR:

c/o Nick Sampinos, Attorney-in-Fact
190 North Carbon Avenue
Price, Utah 84501
Telephone: 435-637-9000
Fax: 435-637-2111

If to LESSEE:

Western Reserve Coal Company Incorporated
Attn: President
34 Valle Hermosa
Sandia Park, New Mexico 87047
Telephone: 505-286-1253
Fax: 505-286-1278

With a copy to the Lessee's Mine Manager

or at such other address or number as shall be designated by either party in a notice to the other party given in accordance with this section. Except as otherwise provided in this Lease, all such communications shall be deemed to have been duly given, (a) in the case of a notice sent by regular mail, on the date actually received by the addressee, (b) in the case of a notice sent by registered or certified mail, on the date receipted for (or refused) on the return receipt, (c) in the case of a notice delivered by hand, when personally delivered, (d) in the case of a notice sent by facsimile or electronic transmission, upon transmission subject to telephone confirmation of receipt, and (e) in the case of a notice sent by overnight mail or overnight courier service, the date delivered at the designated address, in each case given or addressed as aforesaid.

d. Lessee shall, at all times relevant hereto, and at Lessee's expense, (i) maintain a locked gate at the entrance into the Premises; (ii) provide key(s) or the combination to the gate lock to Lessor and (iii) refrain from providing keys or lock combinations to unauthorized persons.

N.S. CA

e. This Lease shall inure to the benefit of and be binding upon the heirs, successors, personal representatives and assigns of the parties hereto.

f. This Lease represents the entire agreement between the parties with respect to the Premises, supercedes all prior agreements, oral or written, and amends and replaces all provisions of the Original Easement with the provisions of this Lease. Lessor and Lessee shall have no, and each party expressly releases the other party from any and all, obligations or liabilities arising under or relating to the Original Easement. Lessee agrees to execute and record for the benefit of Lessor, in the office of the Carbon County, Utah Recorder, a Release of the Original Easement.

g. This Lease may be executed in any number of counterparts, and each counterpart hereof shall be deemed to be an original instrument, but all such counterparts shall constitute but one original.

h. This Lease shall be construed in accordance with and governed by the laws of the State of Utah.

i. The parties shall record a Short Form of Lease and Easement Agreement, in the form attached hereto as **Exhibit C**, in the appropriate county records.

IN WITNESS WHEREOF, the parties have hereunto set their hands this 14th day of February, 2008.

LESSOR

Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis

By: _____
Nick Sampinos, Attorney-in-Fact

LESSEE

Western Reserve Coal Company Incorporated, a Nevada corporation

By: _____
Clay Wisdom
Its: Vice-President

N.S.

STATE OF UTAH)
: ss.
COUNTY OF CARBON)

On the 14th day of February, 2008, personally appeared before me Nick Sampinos, who being by me duly sworn, did say that, pursuant to a power of attorney, the Lease and Easement Agreement was signed on behalf of Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis and he duly acknowledged to me that he executed the same.

NYLA NOYES
NOTARY PUBLIC • STATE OF UTAH
190 N. CARBON AVE.
PRICE, UTAH 84501
COMM. EXP. 11-18-2011

NOTARY PUBLIC
Residing at: Price, Utah
My Commission Expires: 11/18/2011

STATE OF UTAH)
: ss.
COUNTY OF CARBON)

On the 14th day of February, 2008, personally appeared before me Clay Wisdom, who being by me duly sworn, did say that he is the Vice-President of Western Reserve Coal Company Incorporated, a Nevada corporation, and that the said Lease and Easement Agreement was signed on behalf of said company and the said Clay Wisdom duly acknowledged to me that said company executed the same.

NYLA NOYES
NOTARY PUBLIC • STATE OF UTAH
190 N. CARBON AVE.
PRICE, UTAH 84501
COMM. EXP. 11-18-2011

NOTARY PUBLIC
Residing at: Price, Utah
My Commission Expires: 11/18/2011

N.S. CW

EXHIBIT A
to Lease and Easement Agreement

PREMISES

Property located in Section 33, Township 12 South, Range 7 East, Salt Lake Base & Meridian.

Beginning at a point on the east right-of-way line of Utah State Highway 96, said point being further described as being S00° 14'01"E, 1652.62 feet along the west section line of Section 33, Township 12 South, Range 7 East, Salt Lake Base and Meridian in Carbon County, Utah and N90° 00'00" E, 235.93 feet from said west line of Section 33; thence along said east right-of-way line the following three courses, N11° 02'21" E, 75.98 feet; thence N18° 41'18"E, 180.40 feet; thence N10° 47'24"E, 82.52 feet; thence along the Telonis north property line N90° 00'00"E, 285.41 feet; thence S01° 17'17"W, 175.81 feet; thence S26° 57'44"W, 450.28 feet; thence S0° 14'01"E, 1947.79 feet; thence S90° 00'00"W, 400.00 feet to the west line of the Telonis property, which is the west line of said Section 33, thence N0° 14'01"W, 2200.00 feet along said section line being also the west line of the Telonis property, thence N90° 00'00"E, 235.93 feet to the point of beginning. Containing 22.88 acres.

OW
NS

EXHIBIT C
TO LEASE AND EASEMENT AGREEMENT

SHORT FORM OF LEASE AND EASEMENT AGREEMENT

This Short Form of Lease and Easement Agreement ("Short Form"), made and entered into December 1, 2007 ("Effective Date"), by and between **Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis (Telonis Family)**, by and through Nick Sampinos, their Attorney-in-Fact, whose address is 190 North Carbon Avenue, Price, Utah 84501 ("Lessor") and **Western Reserve Coal Company Incorporated**, a Nevada corporation, whose address is 34 Vale Hermosa, Sandia Park, New Mexico 87047 ("Lessee").

Recitals

A. The parties have entered into that certain Lease and Easement Agreement dated effective December 1, 2007 ("Lease Agreement"). Capitalized terms used herein and not otherwise defined shall have the meanings assigned to them in the Lease Agreement.

B. The parties are the successors to the original grantors and grantees under that certain Deed of Easement dated June 21, 1963, relating to a site reserved for purposes of operating a coal mine ("Original Easement"). The parties desire to replace and substitute the Original Easement with the Lease Agreement as of the Effective Date.

D. The Parties desire to enter into this Short Form of Lease and Easement Agreement for purposes of placing of record a notice of the Lease Agreement in the office of the Recorder of Carbon County, Utah.

Short Form

NOW, THEREFORE, for and in consideration of the covenants of the Lease Agreement, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties agree as follows:

1. Grant.

a. Lessor has leased to Lessee and hereby makes a confirmatory lease to Lessee of, the lands situated in Carbon County, Utah, more fully described on **Exhibit 1** attached hereto and by this reference made a part hereof ("Premises") for the purposes set forth herein.

b. Lessee shall have the right to use the Premises for the following purposes:

(i) Construction, operation and maintenance of buildings and facilities to be used in connection with operation of Lessee's coal mine, as permitted by the Utah Division of Oil, Gas and Mining.

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c. Lessor reserves and retains, and the Lease Agreement does not include, rights to and ownership of oil and gas, timber and other minerals and the rights to develop such minerals, to the extent such uses do not interfere with Lessee's permitted activities on the Premises.

2. Term. The term of the Lease Agreement shall commence on the Effective Date and shall remain in full force and effect for a term of twenty-five (25) Lease Years ("Term") (each twelve (12) month period beginning on the Effective Date is referred to herein as a "Lease Year").

This Lease Term notwithstanding, this Lease shall automatically terminate when any of the following events occur: (i) the coal deposits accessed through this Lease an/or processed on the Premises have been exhausted; or (ii) Grantee otherwise terminates removal of coal and abandons the coal mining operation thereon for a consecutive period of eight (8) years; or (iii) the Division of Oil, Gas and Mining of the State of Utah issues a final nonappealable order of closure and reclamation of Grantee's mining operation on the Premises. At such time, the Premises granted hereby shall revert to the Lessor, and Lessee shall have no further claim to nor interest therein.

3. Renewal of Lease. Lessee shall have the option to take a renewal of the demised Premises for one (1) additional five (5) year term, as hereinafter provided, under and subject to the same covenants, provisions and agreements, except the amount of rental, as are herein contained. In the event Lessee desires to exercise this renewal option, Lessee shall notify Lessor of such desire, in writing, not less than ninety (90) days prior to the expiration of the term hereby granted.

4. Multiple Uses. Any conflicts concerning the use of the Premises for activities under this Lease will be governed in accordance with the laws of the State of Utah. Lessee hereby further acknowledges the existence of (i) a Grazing Lease between the Telonis Family and Nick Sampinos relating to the grazing of livestock on Lessor's lands; and (ii) a hunting lease between the Telonis Family and Lloyd Pehrson relating to big game hunting on the land owned by Lessor which adjoins the Premises, provided, however, that, except as specifically provided in the Lease Agreement, in the event of a conflict between uses of the Premises, the rights granted in the Lease Agreement shall have preference over the rights granted in the grazing and hunting leases and nothing in those leases shall waive, amend or diminish any rights granted to Lessee in this Lease. At all times relevant hereto, Lessor, its grazing lessee and its hunting lessee and their respective authorized agents, employees and invitees shall have the right to travel through the Premises, on designated roads to access the adjoining lands of Lessor.

5. Assignment. Lessee shall not assign, transfer, mortgage, pledge, sell or convey the Lease Agreement to any person without the prior written consent of Lessor, which consent shall not be unreasonably withheld, provided, however, that consent shall not be required for an assignment, transfer, mortgage, pledge or sale by Lessee (i) to an affiliate of Lessee, (ii) to a third party who is financing Lessee's coal mining business when such assignment is a part of a collateral assignment of the bulk of the assets associated with the mine, or (iii) any third party buying, or receiving an assignment of, all or substantially all of the assets of Lessee associated with Lessee's coal mine in Carbon County, Utah or any direct or indirect interest in the equity

N.S.

interests of Lessee. Lessor may assign, transfer or sell its rights under this Lease in conjunction with the sale or a collateral assignment of the Premises and subject to Lessee's rights hereunder. In the event of any assignment by Lessee hereunder, Lessee shall notify Lessor in writing with evidence satisfactory to Lessor of such assignment. In the event of any change in the ownership of the Premises, Lessor shall notify Lessee in writing of such change in ownership.

6. Miscellaneous.

a. All notices provided for herein shall be given to the parties at the following address:

If to LESSOR:

c/o Nick Sampinos, Attorney-in-Fact
190 North Carbon Avenue
Price, Utah 84501
Telephone: 435-637-9000
Fax: 435-637-2111

If to LESSEE:

Western Reserve Coal Company Incorporated
Attn: President
34 Valle Hermosa
Sandia Park, New Mexico 87047
Telephone: 505-286-1253
Fax: 505-286-1278

With a copy to the Lessee's Mine Manager

or at such other address or number as shall be designated by either party in a notice to the other party given in accordance with this section. Except as otherwise provided in the Lease Agreement, all such communications shall be deemed to have been duly given, (a) in the case of a notice sent by regular mail, on the date actually received by the addressee, (b) in the case of a notice sent by registered or certified mail, on the date receipted for (or refused) on the return receipt, (c) in the case of a notice delivered by hand, when personally delivered, (d) in the case of a notice sent by facsimile or electronic transmission, upon transmission subject to telephone confirmation of receipt, and (e) in the case of a notice sent by overnight mail or overnight courier service, the date delivered at the designated address, in each case given or addressed as aforesaid.

b. The Lease Agreement contains terms and conditions that are not set forth in this Short Form but which nevertheless are by reference made a part hereof. If there is a conflict between the terms of this Short Form and the terms of the Lease Agreement, the terms of the Lease Agreement shall control in all respects. Lessor and Lessee intend that the terms of the Lease Agreement remain separate and distinct from and not merge into the terms of this Short Form. Requests for information regarding the Lease Agreement should be made to the parties at the addresses set forth above.

N.S.

c. This Short Form may be executed in any number of counterparts, and each counterpart hereof shall be deemed to be an original instrument, but all such counterparts shall constitute but one original.

IN WITNESS WHEREOF, the parties have hereunto set their hands this _____ day of _____, 2008..

LESSOR

Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis

By: _____
Nick Sampinos, Attorney-in-Fact

LESSEE

Western Reserve Coal Company Incorporated

By: _____
Clay Wisdom
Its: Vice President

STATE OF UTAH)
: ss.
COUNTY OF CARBON)

On the _____ day of _____, 2008, personally appeared before me Nick Sampinos, who being by me duly sworn, did say that pursuant to a power of attorney the said Short Form of Lease and Easement Agreement was signed on behalf of Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis and he duly acknowledged to me that he executed the same.

_____
NOTARY PUBLIC
Residing at: _____
My Commission Expires: _____

STATE OF)
: ss.
COUNTY OF)

On the _____ day of _____, 2008, personally appeared before me CLAY WISDOM, who being by me duly sworn, did say that he is the Vice-President of Western Reserve Coal Company Incorporated, a Nevada corporation, and that the said Short Form of Lease and Easement Agreement was signed on behalf of said company and the said Clay Wisdom duly acknowledged to me that said company executed the same.

_____
NOTARY PUBLIC
Residing at: _____
My Commission Expires: _____

N.S. CW

EXHIBIT 1
to Short Form of Lease and Easement Agreement

PREMISES

Property located in Section 33, Township 12 South, Range 7 East, Salt Lake Base & Meridian.

Beginning at a point on the east right-of-way line of Utah State Highway 96, said point being further described as being S00° 14'01"E, 1652.62 feet along the west section line of Section 33, Township 12 South, Range 7 East, Salt Lake Base and Meridian in Carbon County, Utah and N90° 00'00" E, 235.93 feet from said west line of Section 33; thence along said east right-of-way line the following three courses, N11° 02'21" E, 75.98 feet; thence N18° 41'18"E, 180.40 feet; thence N10° 47'24"E, 82.52 feet; thence along the Telonis north property line N90° 00'00"E, 285.41 feet; thence S01° 17'17"W, 175.81 feet; thence S26° 57'44"W, 450.28 feet; thence S0° 14'01"E, 1947.79 feet; thence S90° 00'00"W, 400.00 feet to the west line of the Telonis property, which is the west line of said Section 33, thence N0° 14'01"W, 2200.00 feet along said section line being also the west line of the Telonis property, thence N90° 00'00"E, 235.93 feet to the point of beginning. Containing 22.88 acres.

N.S.

QUIT-CLAIM DEED
AND
NOTICE OF RELEASE OF EASEMENT

WHEREAS, Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis (Telonis Family), by and through Nick Sampinos, their Attorney-in-Fact, having an address of 190 North Carbon Avenue, Price, Utah 84501, and Western Reserve Coal Company Incorporated, a Nevada corporation, having an address of 34 Vale Hermosa, Sandia Park, New Mexico 87047, are successors to the original grantors and grantees under that certain Deed of Easement dated June 21, 1963, relating to a site reserved for purposes of operating a coal mine with respect to certain real property more particularly described below; and

WHEREAS, the said Deed of Easement, dated June 21, 1963, was recorded in the office of the Recorder of Carbon County, Utah on July 15, 1963, in Book 85 at Pages 413 – 414, inclusive, "Original Easement"; and

WHEREAS, successor Grantee, Western Reserve Coal Company Incorporated, is desirous of expanding the footprint area of the Original Easement; and

WHEREAS, the parties desire to replace and substitute the Original Easement with a Lease and Easement Agreement effective as of December 1, 2007; and

WHEREAS, successor Grantee, Western Reserve Coal Company Incorporated desires to release any and all interest it may have in and to said Original Easement, pursuant to the recordation of this Quit-Claim Deed and Notice of Release of Easement.

NOW, THEREFORE, for $10.00 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Western Reserve Coal Company Incorporated, as Grantor herein, by and through the undersigned, hereby releases any and all interest it may have in and to said Original Easement, and hereby Quit Claims to the Telonis Family, Grantee herein, the following described real property situated in Carbon County, State of Utah:

> Beginning at the west quarter corner of Section 33, Township 12 South, Range 7 East, S.L.M., and running thence south 1200 feet; thence east 400 feet; thence north 2200 feet; thence west 400 feet; thence south 1000 feet to the point of beginning.

NS

DATED this 14th day of February, 2008.

Western Reserve Coal Company Incorporated,
a Nevada corporation

By: _____
Clay Wisdom
Its: Vice-President

STATE OF UTAH)
: ss.
COUNTY OF CARBON)

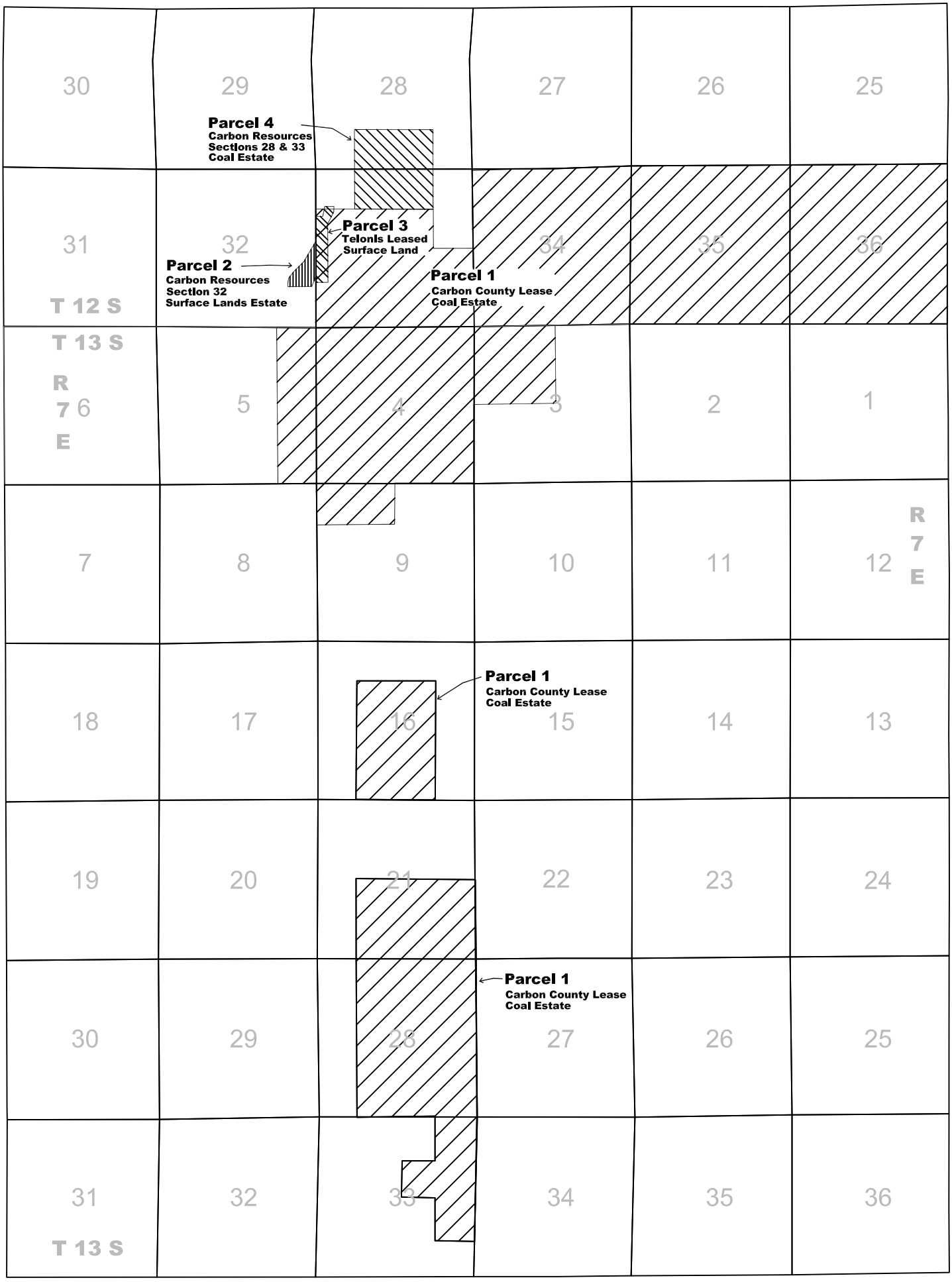
On the 14th day of February, 2008, personally appeared before me CLAY WISDOM, who being by me duly sworn, did say that he is the Vice-President of Western Reserve Coal Company Incorporated, a Nevada corporation, and that the foregoing Quit-Claim Deed and Notice of Release of Easement was signed on behalf of said company and the said Clay Wisdom duly acknowledged to me that said company executed the same.

NYLA NOYES
NOTARY PUBLIC-STATE OF UTAH
190 N. CARBON AVE.
PRICE, UTAH 84501
COMM. EXP. 11-18-2011

_____
Notary Public
Residing at: Price, Utah
My Commission Expires: 11/18/2011

CW
NS

EXHIBIT 6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Sections 28 & 33
Coal Estate
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Parcel 3
Telonis Leased
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LEASE AND EASEMENT AGREEMENT

THIS LEASE AND EASEMENT AGREEMENT ("Lease"), made and entered into December 1, 2007 ("Effective Date"), by and between **Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis (Telonis Family)**, by and through Nick Sampinos, their Attorney-in-Fact, whose address is 190 North Carbon Avenue, Price, Utah 84501 ("Lessor") and **Western Reserve Coal Company Incorporated**, a Nevada corporation, whose address is 34 Vale Hermosa, Sandia Park, New Mexico 87047, ("Lessee").

Recitals

A. The parties are the successors to the original grantors and grantees under that certain Deed of Easement dated June 21, 1963, relating to a parcel of land reserved for purposes of operating a coal mine ("Original Easement").

B. The Grantee is desirous of expanding the footprint area of the Original Easement to accommodate its coal mine development plans.

C. The parties desire to replace and substitute the Original Easement with this Lease as of the Effective Date.

Agreement

NOW, THEREFORE, for and in consideration of Ten Dollars, the covenants set forth herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties agree as follows:

1. Grant.

a. Upon and subject to the terms and conditions hereof, and subject to the reservations contained herein, Lessor hereby leases and lets to Lessee for its exclusive use and possession the lands situated in Carbon County, Utah, more fully described on **Exhibit A** to this Lease and Easement Agreement and as more fully depicted in **Exhibit B**, an engineer's drawing of the Lessor's land described in **Exhibit A,** both of which are attached hereto and by this reference are made a part hereof ("Premises") for the purposes set forth herein. The parties acknowledge and agree that a survey is being performed by a licensed surveyor on other portions of the Lessor's land which may result in the re-establishment of the west quarter corner of Section 33 and the 1/16 corners, north and south of said quarter corner. The parties hereto hereby reserve the right to amend Exhibits A and B hereto to conform to any adjustments made in the legal description of the Lessor's land and the parties further agree to cooperate and coordinate with each other to facilitate any necessary amendments thereto.

b. Lessee shall have the right to use the Premises for the following purposes:

(i) Construction, operation and maintenance of buildings and facilities to be used in connection with operation of Lessee's coal mine, as permitted by the Utah Division of Oil, Gas and Mining.

N.S.

c. Lessor reserves and retains, and this Lease does not include, Lessor's rights to and ownership, if any, of oil and gas, timber and other minerals and the rights to develop such minerals, to the extent such uses do not interfere with Lessee's permitted activities on the Premises.

d. Lessor hereby further reserves and retains the right at all times relevant hereto to enter upon the Premises for all lawful purposes related to (i) Lessor's ownership and management of the Premises; (ii) access for Lessor's or Lessor's livestock grazing lessee's use of the adjoining lands owned by Lessor; and (iii) access for Lessor's or Lessor's hunting lessee's activities on the adjoining land owned by Lessor, provided, however, that Lessor's reservation hereunder shall not, nor shall it be interpreted to, limit or restrict the grant made hereunder to Lessee.

2. Term. This Lease shall commence on the Effective Date and shall remain in full force and effect for a term of twenty-five (25) Lease Years ("Term") (each twelve (12) month period beginning on the Effective Date is referred to herein as a "Lease Year").

This Lease Term notwithstanding, this Lease shall automatically terminate when any of the following events occur: (i) the coal deposits accessed through this Lease and/or processed on the Premises have been exhausted; or (ii) Grantee otherwise terminates removal of coal and abandons the coal mining operation thereon for a consecutive period of eight (8) years; or (iii) the Division of Oil, Gas and Mining of the State of Utah issues a final nonappealable order of closure and reclamation of Grantee's mining operation on the Premises. At such time, the Premises granted hereby shall revert to the Lessor, and Lessee shall have no further claim to nor interest therein.

3. Rentals.

a. Lessee agrees to pay and Lessor agrees to accept as an annual rental ("Rental") to maintain this Lease in full force and effect during the Term of this Lease the following:

(i) The sum of Three Thousand Dollars ($3,000.00) on or before December 31, 2007 and on or before December 31 of each year thereafter through the end of the year following commencement of mining operations on said lands.

(ii) The sum of Six Thousand Dollars ($6,000.00) on or before December 31 of each year following commencement of mining operations on said land and continuing thereafter on or before December 31 of each year thereafter so long as mining operations are being conducted thereon;

(iii) The sum of Three Thousand Dollars ($3,000.00) per year following termination of mining operations on said property and until the Premises are reclaimed and abandoned by Lessee; and

(iv) Payment shall be made to the address set forth herein, or, upon prior written notice from Lessor given no less than thirty (30) days before the anniversary date, to a bank account identified by Lessor.

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4. Taxes. Lessee agrees that during the Term of this Lease, Lessee shall be responsible to pay all property and ad valorem taxes and special assessments levied against the Premises and on any building, facility, structure or appurtenance Lessee may construct on the Premises. Lessee shall reimburse Lessor for such payments made by Lessor, within fifteen (15) days from receipt of the payment notice.

5. Insurance. During the Term of this Lease, Lessee shall provide, pay for, and maintain in full force and effect the following types and amounts of insurance: (i) Workers' Compensation Insurance, in accordance with the laws of the State of Utah; (ii) Comprehensive General Liability Insurance with limits of not less than $1,000,000 applicable to bodily injury, sickness or death in any one occurrence; and $1,000,000 for loss of or damage to Premises in any one occurrence; (ii) Automobile Liability Insurance covered owned, unowned and hired vehicles used by Lessee with limits of not less than $1,000,000 for bodily injury and Premises damage claims; and (iv) Excess or Umbrella Liability, inclusive of the identified limits, with limits of not less than $5,000,000 Combined Single Limit. Lessor and Lessee waive each of their respective rights of subrogation for any insured losses occurring or arising out of activities on the Premises. Lessee shall have Lessor named as an additional insured on any and all liability policies that it has covering operations on the Premises and shall provide Lessor with a copy of a certificate of insurance evidencing the required insurance coverage.

6. Permits and Bonds. Lessee shall obtain any and all licenses, permits and associated bonds necessary and required to conduct operations under this Lease and shall be bound by the terms thereof and shall perform work in accordance therewith. Lessee shall have full responsibility for all reclamation work resulting from Lessee's activities on the Premises. Lessor shall cooperate with Lessee in effecting any reasonable changes or modifications to a permit, license or approval necessary to carryout Lessee's activities hereunder. Upon completion of mining operations upon the Premises pursuant to this Lease, Lessee shall complete all required reclamation upon the Premises in full compliance with all then applicable lease terms, applicable law and permit requirements. Lessee shall have the right to reenter the Premises after termination of this Lease for the purpose of performing or completing such reclamation.

7. Lessee's Covenants. Lessee shall:

a. Pay rent at the times and place and in the manner aforesaid, and if Lessee shall fail to pay rent within five (5) days of when it is due, Lessee shall pay Lessor interest of twelve percent (12%) per annum on all outstanding amounts due under the lease commencing on the date such amounts are due until paid.

b. Not use or occupy the Premises for any unlawful purposes; and will conform to and obey all present and future laws and ordinances, and all rules, regulations, requirements and orders of all government authorities or agencies, respecting the use and occupation of the Premises.

c. Design all roads, structures, buildings, facilities or appurtenances constructed on the Premises by Lessee in such a manner as to make the most economical use of the land consistent with Lessee's reasonable needs.

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d. Lessee shall install fencing in accordance with Lessor's specifications around the northern, eastern and southern boundaries of the Premises in a fashion acceptable to Lessor, including lockable gate(s) and cattleguard(s) as may be required to exclude livestock from the Premises and Lessee shall thereafter perform all necessary maintenance upon said fences, gates and cattleguards so long as this Lease remains in full force and effect.

8. Indemnification.

a. Lessee shall indemnify and hold harmless Lessor, its agents, affiliates, partners, successors, and assigns (other than Lessee) from any and all claims, demands, suits, losses, expenses (including reasonable attorneys' fees), damages and injuries (including death) to persons and property whatsoever that result from or arise out of the operations of Lessee or any of its sublessees, contractors, subcontractors or assigns under this Lease.

b. Lessor shall indemnify and hold harmless Lessee, its agents, affiliates, partners, successors, and assigns (other than Lessor) from any and all claims, demands, suits, losses, expenses (including reasonable attorneys' fees), damages and injuries (including death) to persons and property whatsoever that result from or arise out of the operations of Lessor or any of its lessees (other than Lessee), sublessees, contractors, subcontractors or assigns (other than Lessee).

c. This covenant of indemnity shall survive for a period of one (1) year after termination of this Lease or after Lessee has obtained full and final release of all reclamation bonds held by Lessee and encompassing the Premises, whichever is longer.

9. Title and Quiet Enjoyment. Lessor covenants and warrants that Lessee shall and may peaceably and quietly have, hold, occupy, use and enjoy, and shall have the full, exclusive and unrestricted use and enjoyment of all of the Premises. Lessor consents to any rezoning reasonably necessary for Lessee to be able to conduct its business on the Leased Premises. Lessor shall deliver possession of said Premises to Lessee on or before the Effective Date, free and clear of any use or occupation by Lessor, its successors, heirs or assigns, otherwise not permitted hereunder.

10. Multiple Uses. Any conflicts concerning the use of the Premises for activities under this Lease will be governed in accordance with the laws of the State of Utah. Lessee hereby further acknowledges the existence of (i) a Grazing Lease between the Telonis Family and Nick Sampinos relating to the grazing of livestock on Lessor's lands; and (ii) a hunting lease between the Telonis Family and Lloyd Pehrson relating to big game hunting on the land owned by Lessor which adjoins the Premises, provided, however, that, except as specifically provided herein, in the event of a conflict between uses of the Premises, the rights granted in this Lease shall have preference over the rights granted in the grazing and hunting leases and nothing in those leases shall waive, amend or diminish any rights granted to Lessee in this Lease. At all times relevant hereto, Lessor, its grazing lessee and its hunting lessee and their respective authorized agents, employees and invitees shall have the right to travel through the Premises, on designated roads to access the adjoining lands of Lessor.

N.S. CW

11. Assignment. Lessee shall not assign, transfer, mortgage, pledge, sell or convey this Lease to any person without the prior written consent of Lessor, which consent shall not be unreasonably withheld, provided, however, that consent shall not be required for an assignment, transfer, mortgage, pledge or sale by Lessee (i) to an affiliate of Lessee, (ii) to a third party who is financing Lessee's coal mining business when such assignment is a part of a collateral assignment of the bulk of the assets associated with the mine, or (iii) any third party buying, or receiving an assignment of, all or substantially all of the assets of Lessee associated with Lessee's coal mine in Carbon County, Utah or any direct or indirect interest in the equity interests of Lessee. Lessor may assign, transfer or sell its rights under this Lease in conjunction with the sale or a collateral assignment of the Premises and subject to Lessee's rights hereunder. In the event of any assignment by Lessee hereunder, Lessee shall notify Lessor in writing with evidence satisfactory to Lessor of such assignment. In the event of any change in the ownership of the Premises, Lessor shall notify Lessee in writing of such change in ownership.

12. Renewal of Lease. Lessee shall have the option to take a renewal of the demised Premises for one (1) additional five (5) year term, as hereinafter provided, under and subject to the same covenants, provisions and agreements, except the amount of rental, as are herein contained. In the event Lessee desires to exercise this renewal option, Lessee shall notify Lessor of such desire, in writing, not less than ninety (90) days prior to the expiration of the term hereby granted.

In the event that Lessee exercises its option to renew the term of this Lease as hereinabove provided, following expiration of the initial term hereof, Lessee hereby expressly agrees to pay to Lessor the sum of Eighteen Thousand Dollars ($18,000.00) per year, commencing on or before January 1 of the year immediately following expiration of the original term of this Lease and continuing on or before the 1st day of January of each of the four (4) years thereafter.

13. Default; Remedies.

a. If Lessee fails to comply with any material provisions of this Lease, and if Lessee does not initiate and diligently pursue steps to correct the default within sixty (60) days after notice has been given to it by Lessor specifying with particularity the nature of the default, then upon the expiration of the sixty (60) day period, Lessor shall have the right to declare this Lease in default, unless such failure is of such nature that it is susceptible of cure but with due diligence cannot be cured with such sixty (60) day period in which event Lessee shall have such additional time as may be required to cure the same with such diligence and continuity as shall be reasonably satisfactory to Lessor. The service of a default notice shall be a condition precedent to the bringing of any action by Lessor on this Lease for such default, and no such action shall be brought with respect to such default until the lapse of sixty (60) days after service of such notice. The doing of any acts by Lessee reasonably sufficient to cure all or any of the alleged breaches or defaults shall not be deemed an admission or presumption that Lessee has failed to perform any or all of its obligations hereunder.

b. If either party brings an action to enforce the terms hereof or declare rights hereunder, the prevailing party in any such action, on trial or appeal, shall be entitled to its reasonable attorney fees to be paid by the losing party.

N.S. CW

14. Miscellaneous.

a. Nothing herein contained shall be construed to waive, relinquish, or in any manner modify any right or interest of Lessee in the Premises existing at the time of execution of this Lease.

b. Lessor shall provide Lessee with such consents, approvals or certificates required by regulatory agencies having jurisdiction over Lessee's mining operations to evidence Lessee's rights under this Lease.

c. All notices provided for herein shall be given to the parties at the following address:

If to LESSOR:

c/o Nick Sampinos, Attorney-in-Fact
190 North Carbon Avenue
Price, Utah 84501
Telephone: 435-637-9000
Fax: 435-637-2111

If to LESSEE:

Western Reserve Coal Company Incorporated
Attn: President
34 Valle Hermosa
Sandia Park, New Mexico 87047
Telephone: 505-286-1253
Fax: 505-286-1278

With a copy to the Lessee's Mine Manager

or at such other address or number as shall be designated by either party in a notice to the other party given in accordance with this section. Except as otherwise provided in this Lease, all such communications shall be deemed to have been duly given, (a) in the case of a notice sent by regular mail, on the date actually received by the addressee, (b) in the case of a notice sent by registered or certified mail, on the date receipted for (or refused) on the return receipt, (c) in the case of a notice delivered by hand, when personally delivered, (d) in the case of a notice sent by facsimile or electronic transmission, upon transmission subject to telephone confirmation of receipt, and (e) in the case of a notice sent by overnight mail or overnight courier service, the date delivered at the designated address, in each case given or addressed as aforesaid.

d. Lessee shall, at all times relevant hereto, and at Lessee's expense, (i) maintain a locked gate at the entrance into the Premises; (ii) provide key(s) or the combination to the gate lock to Lessor and (iii) refrain from providing keys or lock combinations to unauthorized persons.

N.S. CA

e. This Lease shall inure to the benefit of and be binding upon the heirs, successors, personal representatives and assigns of the parties hereto.

f. This Lease represents the entire agreement between the parties with respect to the Premises, supercedes all prior agreements, oral or written, and amends and replaces all provisions of the Original Easement with the provisions of this Lease. Lessor and Lessee shall have no, and each party expressly releases the other party from any and all, obligations or liabilities arising under or relating to the Original Easement. Lessee agrees to execute and record for the benefit of Lessor, in the office of the Carbon County, Utah Recorder, a Release of the Original Easement.

g. This Lease may be executed in any number of counterparts, and each counterpart hereof shall be deemed to be an original instrument, but all such counterparts shall constitute but one original.

h. This Lease shall be construed in accordance with and governed by the laws of the State of Utah.

i. The parties shall record a Short Form of Lease and Easement Agreement, in the form attached hereto as **Exhibit C**, in the appropriate county records.

IN WITNESS WHEREOF, the parties have hereunto set their hands this 14th day of February, 2008.

LESSOR

Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis

By: _____
Nick Sampinos, Attorney-in-Fact

LESSEE

Western Reserve Coal Company Incorporated, a Nevada corporation

By: _____
Clay Wisdom
Its: Vice-President

N.S.

STATE OF UTAH)
: ss.
COUNTY OF CARBON)

On the 14th day of February, 2008, personally appeared before me Nick Sampinos, who being by me duly sworn, did say that, pursuant to a power of attorney, the Lease and Easement Agreement was signed on behalf of Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis and he duly acknowledged to me that he executed the same.

NYLA NOYES
NOTARY PUBLIC-STATE OF UTAH
190 N. CARBON AVE.
PRICE, UTAH 84501
COMM. EXP. 11-18-2011

NOTARY PUBLIC
Residing at: Price, Utah
My Commission Expires: 11/18/2011

STATE OF UTAH)
: ss.
COUNTY OF CARBON)

On the 14th day of February, 2008, personally appeared before me Clay Wisdom, who being by me duly sworn, did say that he is the Vice-President of Western Reserve Coal Company Incorporated, a Nevada corporation, and that the said Lease and Easement Agreement was signed on behalf of said company and the said Clay Wisdom duly acknowledged to me that said company executed the same.

NYLA NOYES
NOTARY PUBLIC-STATE OF UTAH
190 N. CARBON AVE.
PRICE, UTAH 84501
COMM. EXP. 11-18-2011

NOTARY PUBLIC
Residing at: Price, Utah
My Commission Expires: 11/18/2011

N.S. CW

EXHIBIT A
to Lease and Easement Agreement

PREMISES

Property located in Section 33, Township 12 South, Range 7 East, Salt Lake Base & Meridian.

Beginning at a point on the east right-of-way line of Utah State Highway 96, said point being further described as being S00° 14'01"E, 1652.62 feet along the west section line of Section 33, Township 12 South, Range 7 East, Salt Lake Base and Meridian in Carbon County, Utah and N90° 00'00" E, 235.93 feet from said west line of Section 33; thence along said east right-of-way line the following three courses, N11° 02'21" E, 75.98 feet; thence N18° 41'18"E, 180.40 feet; thence N10° 47'24"E, 82.52 feet; thence along the Telonis north property line N90° 00'00"E, 285.41 feet; thence S01° 17'17"W, 175.81 feet; thence S26° 57'44"W, 450.28 feet; thence S0° 14'01"E, 1947.79 feet; thence S90° 00'00"W, 400.00 feet to the west line of the Telonis property, which is the west line of said Section 33, thence N0° 14'01"W, 2200.00 feet along said section line being also the west line of the Telonis property, thence N90° 00'00"E, 235.93 feet to the point of beginning. Containing 22.88 acres.

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EXHIBIT C
TO LEASE AND EASEMENT AGREEMENT

SHORT FORM OF LEASE AND EASEMENT AGREEMENT

This Short Form of Lease and Easement Agreement ("Short Form"), made and entered into December 1, 2007 ("Effective Date"), by and between **Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis (Telonis Family)**, by and through Nick Sampinos, their Attorney-in-Fact, whose address is 190 North Carbon Avenue, Price, Utah 84501 ("Lessor") and **Western Reserve Coal Company Incorporated**, a Nevada corporation, whose address is 34 Vale Hermosa, Sandia Park, New Mexico 87047 ("Lessee").

Recitals

A. The parties have entered into that certain Lease and Easement Agreement dated effective December 1, 2007 ("Lease Agreement"). Capitalized terms used herein and not otherwise defined shall have the meanings assigned to them in the Lease Agreement.

B. The parties are the successors to the original grantors and grantees under that certain Deed of Easement dated June 21, 1963, relating to a site reserved for purposes of operating a coal mine ("Original Easement"). The parties desire to replace and substitute the Original Easement with the Lease Agreement as of the Effective Date.

D. The Parties desire to enter into this Short Form of Lease and Easement Agreement for purposes of placing of record a notice of the Lease Agreement in the office of the Recorder of Carbon County, Utah.

Short Form

NOW, THEREFORE, for and in consideration of the covenants of the Lease Agreement, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties agree as follows:

1. Grant.

a. Lessor has leased to Lessee and hereby makes a confirmatory lease to Lessee of, the lands situated in Carbon County, Utah, more fully described on **Exhibit 1** attached hereto and by this reference made a part hereof ("Premises") for the purposes set forth herein.

b. Lessee shall have the right to use the Premises for the following purposes:

(i) Construction, operation and maintenance of buildings and facilities to be used in connection with operation of Lessee's coal mine, as permitted by the Utah Division of Oil, Gas and Mining.

N.S. cw

c. Lessor reserves and retains, and the Lease Agreement does not include, rights to and ownership of oil and gas, timber and other minerals and the rights to develop such minerals, to the extent such uses do not interfere with Lessee's permitted activities on the Premises.

2. Term. The term of the Lease Agreement shall commence on the Effective Date and shall remain in full force and effect for a term of twenty-five (25) Lease Years ("Term") (each twelve (12) month period beginning on the Effective Date is referred to herein as a "Lease Year").

This Lease Term notwithstanding, this Lease shall automatically terminate when any of the following events occur: (i) the coal deposits accessed through this Lease an/or processed on the Premises have been exhausted; or (ii) Grantee otherwise terminates removal of coal and abandons the coal mining operation thereon for a consecutive period of eight (8) years; or (iii) the Division of Oil, Gas and Mining of the State of Utah issues a final nonappealable order of closure and reclamation of Grantee's mining operation on the Premises. At such time, the Premises granted hereby shall revert to the Lessor, and Lessee shall have no further claim to nor interest therein.

3. Renewal of Lease. Lessee shall have the option to take a renewal of the demised Premises for one (1) additional five (5) year term, as hereinafter provided, under and subject to the same covenants, provisions and agreements, except the amount of rental, as are herein contained. In the event Lessee desires to exercise this renewal option, Lessee shall notify Lessor of such desire, in writing, not less than ninety (90) days prior to the expiration of the term hereby granted.

4. Multiple Uses. Any conflicts concerning the use of the Premises for activities under this Lease will be governed in accordance with the laws of the State of Utah. Lessee hereby further acknowledges the existence of (i) a Grazing Lease between the Telonis Family and Nick Sampinos relating to the grazing of livestock on Lessor's lands; and (ii) a hunting lease between the Telonis Family and Lloyd Pehrson relating to big game hunting on the land owned by Lessor which adjoins the Premises, provided, however, that, except as specifically provided in the Lease Agreement, in the event of a conflict between uses of the Premises, the rights granted in the Lease Agreement shall have preference over the rights granted in the grazing and hunting leases and nothing in those leases shall waive, amend or diminish any rights granted to Lessee in this Lease. At all times relevant hereto, Lessor, its grazing lessee and its hunting lessee and their respective authorized agents, employees and invitees shall have the right to travel through the Premises, on designated roads to access the adjoining lands of Lessor.

5. Assignment. Lessee shall not assign, transfer, mortgage, pledge, sell or convey the Lease Agreement to any person without the prior written consent of Lessor, which consent shall not be unreasonably withheld, provided, however, that consent shall not be required for an assignment, transfer, mortgage, pledge or sale by Lessee (i) to an affiliate of Lessee, (ii) to a third party who is financing Lessee's coal mining business when such assignment is a part of a collateral assignment of the bulk of the assets associated with the mine, or (iii) any third party buying, or receiving an assignment of, all or substantially all of the assets of Lessee associated with Lessee's coal mine in Carbon County, Utah or any direct or indirect interest in the equity

N.S.

interests of Lessee. Lessor may assign, transfer or sell its rights under this Lease in conjunction with the sale or a collateral assignment of the Premises and subject to Lessee's rights hereunder. In the event of any assignment by Lessee hereunder, Lessee shall notify Lessor in writing with evidence satisfactory to Lessor of such assignment. In the event of any change in the ownership of the Premises, Lessor shall notify Lessee in writing of such change in ownership.

6. Miscellaneous.

a. All notices provided for herein shall be given to the parties at the following address:

If to LESSOR:

c/o Nick Sampinos, Attorney-in-Fact
190 North Carbon Avenue
Price, Utah 84501
Telephone: 435-637-9000
Fax: 435-637-2111

If to LESSEE:

Western Reserve Coal Company Incorporated
Attn: President
34 Valle Hermosa
Sandia Park, New Mexico 87047
Telephone: 505-286-1253
Fax: 505-286-1278

With a copy to the Lessee's Mine Manager

or at such other address or number as shall be designated by either party in a notice to the other party given in accordance with this section. Except as otherwise provided in the Lease Agreement, all such communications shall be deemed to have been duly given, (a) in the case of a notice sent by regular mail, on the date actually received by the addressee, (b) in the case of a notice sent by registered or certified mail, on the date receipted for (or refused) on the return receipt, (c) in the case of a notice delivered by hand, when personally delivered, (d) in the case of a notice sent by facsimile or electronic transmission, upon transmission subject to telephone confirmation of receipt, and (e) in the case of a notice sent by overnight mail or overnight courier service, the date delivered at the designated address, in each case given or addressed as aforesaid.

b. The Lease Agreement contains terms and conditions that are not set forth in this Short Form but which nevertheless are by reference made a part hereof. If there is a conflict between the terms of this Short Form and the terms of the Lease Agreement, the terms of the Lease Agreement shall control in all respects. Lessor and Lessee intend that the terms of the Lease Agreement remain separate and distinct from and not merge into the terms of this Short Form. Requests for information regarding the Lease Agreement should be made to the parties at the addresses set forth above.

N.S.

c. This Short Form may be executed in any number of counterparts, and each counterpart hereof shall be deemed to be an original instrument, but all such counterparts shall constitute but one original.

IN WITNESS WHEREOF, the parties have hereunto set their hands this _____ day of _____, 2008..

LESSOR

Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis

By: _____
Nick Sampinos, Attorney-in-Fact

LESSEE

Western Reserve Coal Company Incorporated

By: _____
Clay Wisdom
Its: Vice President

STATE OF UTAH)
: ss.
COUNTY OF CARBON)

On the _____ day of _____, 2008, personally appeared before me Nick Sampinos, who being by me duly sworn, did say that pursuant to a power of attorney the said Short Form of Lease and Easement Agreement was signed on behalf of Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis and he duly acknowledged to me that he executed the same.

_____
NOTARY PUBLIC
Residing at: _____
My Commission Expires: _____

STATE OF)
: ss.
COUNTY OF)

On the _____ day of _____, 2008, personally appeared before me CLAY WISDOM, who being by me duly sworn, did say that he is the Vice-President of Western Reserve Coal Company Incorporated, a Nevada corporation, and that the said Short Form of Lease and Easement Agreement was signed on behalf of said company and the said Clay Wisdom duly acknowledged to me that said company executed the same.

_____
NOTARY PUBLIC
Residing at: _____
My Commission Expires: _____

N.S. CW

EXHIBIT 1
to Short Form of Lease and Easement Agreement

PREMISES

Property located in Section 33, Township 12 South, Range 7 East, Salt Lake Base & Meridian.

Beginning at a point on the east right-of-way line of Utah State Highway 96, said point being further described as being S00° 14'01"E, 1652.62 feet along the west section line of Section 33, Township 12 South, Range 7 East, Salt Lake Base and Meridian in Carbon County, Utah and N90° 00'00" E, 235.93 feet from said west line of Section 33; thence along said east right-of-way line the following three courses, N11° 02'21" E, 75.98 feet; thence N18° 41'18"E, 180.40 feet; thence N10° 47'24"E, 82.52 feet; thence along the Telonis north property line N90° 00'00"E, 285.41 feet; thence S01° 17'17"W, 175.81 feet; thence S26° 57'44"W, 450.28 feet; thence S0° 14'01"E, 1947.79 feet; thence S90° 00'00"W, 400.00 feet to the west line of the Telonis property, which is the west line of said Section 33, thence N0° 14'01"W, 2200.00 feet along said section line being also the west line of the Telonis property, thence N90° 00'00"E, 235.93 feet to the point of beginning. Containing 22.88 acres.

N.S.

QUIT-CLAIM DEED
AND
NOTICE OF RELEASE OF EASEMENT

WHEREAS, Fotini Telonis, Angelo G. Telonis, Thomas G. Telonis and John G. Telonis (Telonis Family), by and through Nick Sampinos, their Attorney-in-Fact, having an address of 190 North Carbon Avenue, Price, Utah 84501, and Western Reserve Coal Company Incorporated, a Nevada corporation, having an address of 34 Vale Hermosa, Sandia Park, New Mexico 87047, are successors to the original grantors and grantees under that certain Deed of Easement dated June 21, 1963, relating to a site reserved for purposes of operating a coal mine with respect to certain real property more particularly described below; and

WHEREAS, the said Deed of Easement, dated June 21, 1963, was recorded in the office of the Recorder of Carbon County, Utah on July 15, 1963, in Book 85 at Pages 413 – 414, inclusive, "Original Easement"; and

WHEREAS, successor Grantee, Western Reserve Coal Company Incorporated, is desirous of expanding the footprint area of the Original Easement; and

WHEREAS, the parties desire to replace and substitute the Original Easement with a Lease and Easement Agreement effective as of December 1, 2007; and

WHEREAS, successor Grantee, Western Reserve Coal Company Incorporated desires to release any and all interest it may have in and to said Original Easement, pursuant to the recordation of this Quit-Claim Deed and Notice of Release of Easement.

NOW, THEREFORE, for $10.00 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Western Reserve Coal Company Incorporated, as Grantor herein, by and through the undersigned, hereby releases any and all interest it may have in and to said Original Easement, and hereby Quit Claims to the Telonis Family, Grantee herein, the following described real property situated in Carbon County, State of Utah:

> Beginning at the west quarter corner of Section 33, Township 12 South, Range 7 East, S.L.M., and running thence south 1200 feet; thence east 400 feet; thence north 2200 feet; thence west 400 feet; thence south 1000 feet to the point of beginning.

NS

DATED this 14th day of February, 2008.

Western Reserve Coal Company Incorporated,
a Nevada corporation

By: _____
Clay Wisdom
Its: Vice-President

STATE OF UTAH)
: ss.
COUNTY OF CARBON)

On the 14th day of February, 2008, personally appeared before me CLAY WISDOM, who being by me duly sworn, did say that he is the Vice-President of Western Reserve Coal Company Incorporated, a Nevada corporation, and that the foregoing Quit-Claim Deed and Notice of Release of Easement was signed on behalf of said company and the said Clay Wisdom duly acknowledged to me that said company executed the same.

NYLA NOYES
NOTARY PUBLIC-STATE OF UTAH
190 N. CARBON AVE.
PRICE, UTAH 84501
COMM. EXP. 11-18-2011

_____
Notary Public
Residing at: Price, Utah
My Commission Expires: 11/18/2011

NS

Drill Data, Pyritic Sulfur in Coal:

Britley Engineering Pyritic Sulfur Report

Pyritic Sulfur Petrographic Analysis DH 81-33-1

Sulfur Forms Analysis from:

DH-76-1-A and DH-76-26

2ND SUBMITTAL REVS/ADDITIONS
12/10

Confidential

BIRTLEY ENGINEERING (CANADA) LTD.

Subsidiary of Great West Steel Industries Ltd.

5112-3rd ST. S.E., CALGARY, ALBERTA T2H 1J6 PHONE 403-253-3719

A BRIEF REPORT ON THE WASHABILITY CHARACTERISTICS OF THE BECHTEL INC. SAMPLE

1. INTRODUCTION

Approximately 800 lbs of coal was received from Bechtel Inc. on September 20th, 1976. The major purpose of the analytical work was to examine the washability characteristics of the sample.

Our Laboratory designation is No. 7781

Confidential

2. ANALYTICAL PROCEDURE

The two (2) barrels of raw coal were thoroughly homogenized, the plus 1" coal was screened out and crushed to pass through a 1" square mesh screen. A head raw sample was extracted and analysed for air dried moisture, proximate analysis, sulphur, calorific value and F.S.I. (see Table 1).

The total air dried sample was then screened dry at 28 mesh and a sink sample was screened at 65 mesh, raw analysis were performed on each size fraction (see Table 1).

The 1" x 28 mesh and 28M x 65 Mesh samples were subject to sink-float tests at the gravities shown in Tables 2 and 3. Residual moisture, ash sulphur and calorific values were determined on an air dried basis for the float product (see Table 3 and 4).

A froth flotation test was performed on the 65 mesh x 0 sample, (probably with little success due to the rank of the coal).

3. DISCUSSION OF RESULTS

The raw coal possessed an air dried ash content of 7.7% and a sulphur content of 0.77%. The as received calorific value was 12241 BTU/lb.

It is noticeable that the coal is particularly hard and generated less than 10% minus 28 mesh material.

Overall, the coal possessed excellent washability characteristics (see Tables 5 and 6), i.e. very little middlings or intermediate near gravity material. In fact, almost 90% of the coal floated at 1.30 S.G.. The specific gravity sulphur relationships (see Tables 7 and 8) indicate that the sulphur is pyritic and the raw coal level of 0.77% can satisfactorily be reduced to approximately 0.45 - 0.55% by conventional washing techniques.

At an effective specific gravity of separation of 1.50 a clean coal can be produced with a yield of about 90%, an ash content of 4% $\pm$ 0.5%, a sulphur content of 0.55% $\pm$ 0.5%, and a calorific value (air dried) of 13400 BTU/lb $\pm$ 150.

D.F. Lynch

Confidential

The following Core Log from Drill Hole 81-33-1 (a twin of Drill Hole D-11) shows lithology from surface to Hiawatha Coal Seam aka "Kinney Coal Seam". Also included is analytical data showing "Sulfur Forms" and a Petrographic Analysis of "Pyritic Species" from the same samples.

"Sulfur Forms" are also shown in analytic data for Drill Holes 76-1A and 76-26.

All of these drill holes are within the permit boundary. Drill Hole 81-33-1 is located several hundred feet from outcrop along line of the proposed new portal entries.

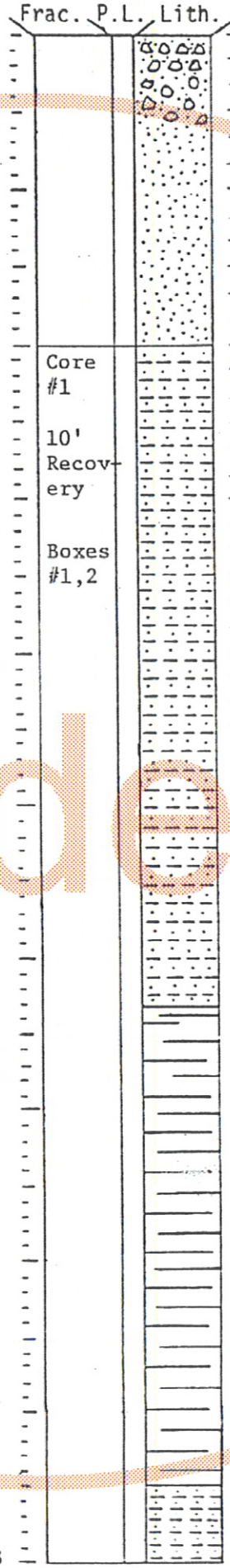
Confidential

83-6-10

CORE DATA SHEET

1. Hole Number 81-33-1 (G-11)
2. Sec. 33 T. 12 S. R. 7 E.
   Project Number _____
4. County Carbon
5. State Utah
6. T. D. 199'
7. Elevation _____
8. Co-ordinate N. _____
   E. _____
9. Date Cored _____
10. Core Run No. _____
11. Logged by Steve Chapman
12. Date Shipped _____
13. Shipped by _____
14. Shipped via _____
    Core Diameter _____
16. Company _____
    Address _____
    _____

Unit	Sum. of Core Rec.	Sum of +4" Pieces	Length of Run	Core Recovery (%)	RQD (%)
	I	II	III	I/III x 100	II/III x 100



Surface soils primarily SS yellow to buff, iron stained

SS yellow to buff, fine to med.

Siltstone, lt. gray to buff, v. fine grained. Plant particles present (carbonized)

Siltstone, yellow to brown, v. fine grained, Limonite filling fractures, also some carbonized plant material

Same as above

Same as above

Shale, dk. gray, inundaunted solution leaching, some Limonite filling fractures

Same as above

Same as above

Same as above

Changes to siltstone, same as previously mentioned

Confidential

CORE DATA SHEET

1. Hole Number 81-33-1 (G-11)
2. Sec. 33 T. 12 S. R. 7 E.
3. Project Number
4. County Carbon
5. State Utah
6. T. D. 199'
7. Elevation
8. Co-ordinate N.
   E.
9. Date Cored
10. Core Run No.
11. Logged by Steve Chapman
12. Date Shipped
13. Shipped by
14. Shipped via
15. Core Diameter
16. Company
    Address

Unit	Sum. of Core Rec. I	Sum of +4" Pieces II	Length of Run III	Core Recovery (%) I/III x100	RQD (%) II/III x100

Frac. P.L. Lith.

29
30
35
36
37
38
39
40
41
42
43

NOT RECOVERED

Core #2

11.5' Recovery

Boxes #3,4, 5

Siltstone same as above

Siltstone, yellow, V. fine grained

SS white to buff, fine grained contains some plant leaves

Same as above

Same as above

Shale, dk. gray, inundaunted

SS lense, same as above

Shale dk. gray

SS yellow to buff, fine grained

Shale, dk gray

Coal 1" thick

SS, yellow to buff, fine to medium grained

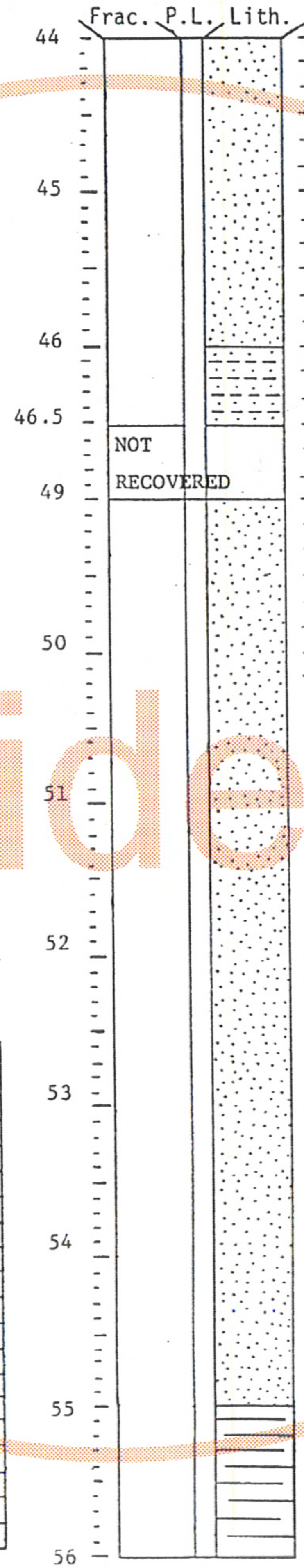
Confidential

83-6-12

CORE DATA SHEET

1. Hole Number 81-33-1 (G-11)
2. Sec. 33 T. 12 S. R. 7 E.
3. Project Number
4. County Carbon
5. State Utah
6. T. D. 199'
7. Elevation
8. Co-ordinate N.
   E.
9. Date Cored
10. Core Run No.
11. Logged by Steve Chapman
12. Date Shipped
13. Shipped by
14. Shipped via
15. Core Diameter
16. Company
    Address

Unit	Sum. of Core Rec.	Sum of +4" Pieces	Length of Run	Core Recovery (%)	RQD (%)
	I	II	III	I/IIIx100	II/IIIx100



SS, yellow to buff, fine to medium grained, with some plant leaves

Siltstone, yellow to buff, plant particles, Iron oxidation

SS, yellow to buff

Shale dk, gray

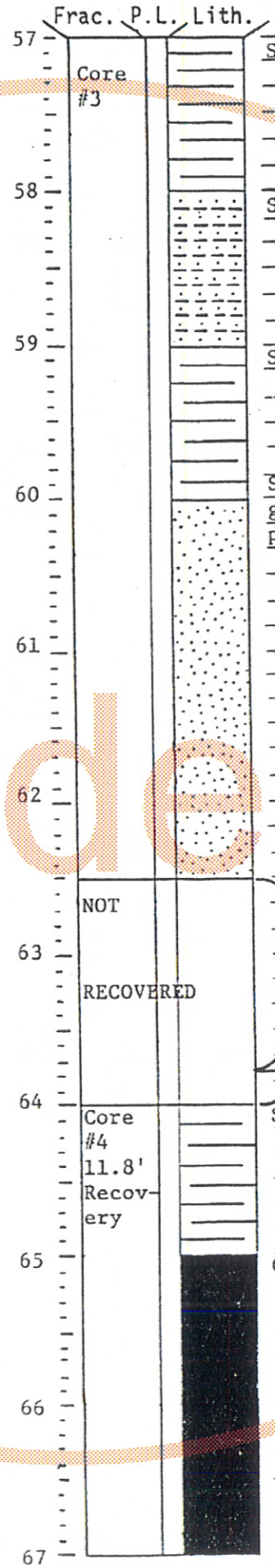
Confidential

83-6-13
CORE DATA SHEET

1. Hole Number 81-33-1 (G-11)
2. Sec. 33 T. 12 S. R. 7 E.
3. Project Number
4. County Carbon
5. State Utah
6. T. D. 199'
7. Elevation
8. Co-ordinate N.
   E.
9. Date Cored
10. Core Run No.
11. Logged by Steve Chapman
12. Date Shipped
13. Shipped by
14. Shipped via
15. Core Diameter
16. Company
    Address

Confidential

Unit	Sum. of Core Rec.	Sum of +4" Pieces	Length of Run	Core Recovery (%)	RQD (%)
	I	II	III	I/IIIx100	II/IIIx100



Shale, dk gray

Siltstone, yellow to buff

Shale, dk. gray

SS, yellow to buff, fine to medium grained, contains oxidized plant particles

GAMMA RAY LOG FROM DHG-11 WOULD INDICATE SANDSTONE

GAMA RAY LOG FROM DHG-11 WOULD INDICATE SHALE

Shale, dk. gray

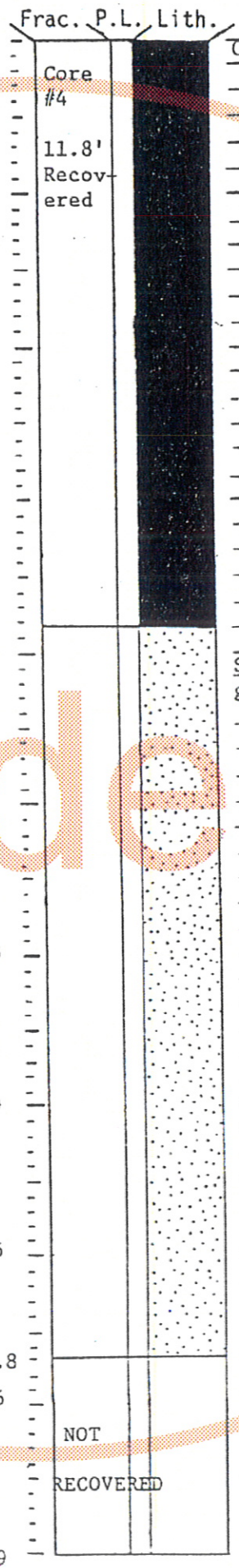
Coal, 5.8'

KINNEY COAL SEAM

83-6-14

CORE DATA SHEET

1. Hole Number 81-33-1 (G-11)
2. Sec. 33 T. 12 S. R. 7 E-
   Project Number ____
4. County Carbon
5. State Utah
6. T. D. 199'
7. Elevation ____
8. Co-ordinate N. ____
   E. ____
9. Date Cored ____
10. Core Run No. ____
11. Logged by Steve Chapman
12. Date Shipped ____
13. Shipped by ____
14. Shipped via ____
15. Core Diameter ____
16. Company ____
    Address ____



Coal

KINNEY COAL SEAM

SS, yellow to buff, fine to medium grained

Unit	Sum of Core Rec.	Sum of +4" Pieces	Length of Run	Core Recovery (%)	RQD (%)
	I	II	III	I/III x 100	II/III x 100

Confidential

F-438

83-6-17

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 · AREA CODE 312 726-8434

WESTERN DIVISION MANAGER
GAIL D. PALMER

PLEASE ADDRESS ALL CORRESPONDENCE TO:
[redacted]
224 South Carbon Avenue
Price, Utah 84501
Phone: (801) 637-7540

SANDERS EXPLORATION
1901 Prospector Square
Park City, Utah 84060

January 14, 1982

Sample identification
by Sanders Exploration
81-33-1 (G-11)
Kenny Seam
Top of Core
Footage Fr: 65.0' to 70.8'

Kind of sample reported to us: Coal

Sample taken at: xxxxx

Sample taken by: Sanders Exploration

Date sampled: xxxxx

Date received: Instructions Received 12-18-81

Confidential

Analysis report no. 57-8283

PROXIMATE ANALYSIS	As Received	Dry Basis	Air Dried
% Moisture	9.59	xxxxx	2.97
% Ash	5.20	5.75	5.58
% Volatile	38.61	42.71	41.44
% Fixed Carbon	46.60	51.54	50.01
	100.00	100.00	100.00
Btu/lb.	11603	12834	
% Sulfur	0.50	0.55	

ULTIMATE ANALYSIS	As Received	Dry Basis
% Moisture	9.59	xxxxx
% Carbon	65.30	72.23
% Hydrogen	4.67	5.16
% Nitrogen	1.41	1.56
% Chlorine	0.00	0.00
% Sulfur	0.50	0.55
% Ash	5.20	5.75
% Oxygen (diff)	13.33	14.75
	100.00	100.00

Moisture, Ash-free Btu = 13617

SULFUR FORMS	As Received	Dry Basis
% Pyritic Sulfur	0.05	0.05
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur (Diff)	0.45	0.50
% Total Sulfur	0.50	0.55

FUSION TEMPERATURE OF ASH	Reducing	Oxidizing
Initial Deformation	2160 °F	2320 °F
Softening (H = W)	2260 °F	2410 °F
Softening (H = ½W)	2360 °F	2470 °F
Fluid	2480 °F	2530 °F

HARDGROVE GRINDABILITY INDEX = 33.4 at 6.04 % Moisture

% EQUILIBRIUM MOISTURE = xxxx

FREE SWELLING INDEX = xxxx

JDB/ap

Original Copy Watermarked
For Your Protection

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

JACK D. BLAIR, Manager, Price Laboratory

[redacted]

Charter Member

83-6-19

COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 · AREA CODE 312 726-8434

Reply to
Instrument Analysis Division
490 Orchard Street
Golden, CO 80401

Phone: 303-278-9521

February 11, 1982

81-33-1 (6-11)

Mr. Jack Blair
CT & E
224 South Carbon
Price, Utah 84501

Sanders Exploration
Kenny Seam
Top of Core
Footage Fr: 65.0' to 70.8'

Confidential

PETROGRAPHIC PYRITE-MARCASITE
DATA ANALYSIS FOR:

Batch No.: 97-H972-335-01
Sample No.: 8283

Peter R. Kremer
Coal Petrographer

M. L. Jacobs, Ph.D., Mngr.
Instrumental Analysis Div.

FEB 22 1982

Charter Member

Batch Number: 97-H972-335-01

Sample Number: 8283

SANDERS EXPLORATION
Kenny Seam
Top of Core
Footage Fr: 65.0' to 70.8'
81-33-1 (6-11)

PYRITE ANALYSIS

		IRREGULAR	DISPERSED EUHEDRA	CLUSTERED EUHEDRA	FRACTURE FILLING	BLEBS	FRAMBOIDS	CELL FILLING	DENDRITIC
Area (Microns^2)		2400	11	1800	0	0	314	0	0
Total Area	4525								
% of Total Area		53.1	0.2	39.8	0.0	0.0	6.9	0.0	0.0
Occurrence		1	3	1	0	0	1	0	0
Total Occurrences	6								
% of Total Occurrences		16.7	49.9	16.7	0.0	0.0	16.7	0.0	0.0
Volume %	0.3								

83-6-20

Confidential

Based on 2000 point counts.

While some marcasite was in evidence, it was in such low concentration it did not appear in the count.

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 · AREA CODE 312 726-8434

USE ADDRESS ALL CORRESPONDENCE TO:
5 EAST 51st AVE., DENVER, COLO. 80239

OFFICE TEL. (303) 373-4772

SANDERS ASSOCIATES, INCORPORATED
922 Kearns Building
Salt Lake City, Utah 84101

October 22, 1976

Sample Identification by

Sanders Associates, Inc.

Kind of sample reported to us	Coal
Sample taken at	xxxxx
Sample taken by	Sanders Associates, Inc.
Date Sampled	xxxxx
Date Received	9-22-76

Sample No. 1
Core Hole No. 76-1A
118.0' - 120.5'

Confidential

Analysis report no. 72-48411 Page 1

PROXIMATE ANALYSIS	As received	Dry basis
% Moisture	11.34	xxxxx
% Ash	5.36	6.04
% Volatile	37.48	42.27
% Fixed Carbon	45.82	51.69
	100.00	100.00
Btu	11069	12485
% Sulfur	0.54	0.61

ULTIMATE ANALYSIS	As received	Dry basis
% Moisture	11.34	xxxxx
% Carbon	63.52	71.65
% Hydrogen	4.57	5.15
% Nitrogen	1.40	1.58
% Chlorine	0.00	0.00
% Sulfur	0.54	0.61
% Ash	5.36	6.04
% Oxygen (diff)	13.27	14.97
	100.00	100.00

SULFUR FORMS	As received	Dry basis
% Pyritic Sulfur	0.14	0.16
% Sulfate Sulfur	0.02	0.02
% Organic Sulfur (Diff)	0.38	0.43
% Total Sulfur	0.54	0.61

FUSION TEMPERATURE OF ASH	Reducing	Oxidizing
Initial Deformation	2225°F	2230°F
Softening (H=W)	2230°F	2240°F
Softening (H=1/2W)	2235°F	2245°F
Fluid	2245°F	2260°F

HARDGROVE GRINDABILITY INDEX = xxxxx at xxxxx % Moisture

% EQUILIBRIUM MOISTURE = xxxxx

FREE SWELLING INDEX = xxxxx

LWT/Mc/bn

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

L. W. Taylor

L.W. TAYLOR, Western Division Manager

Charter Member

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 630 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 · AREA CODE 312 726-8484

ASE ADDRESS ALL CORRESPONDENCE TO:
5 EAST 51st AVE., DENVER, COLO. 80239

OFFICE TEL. (303) 373-4772

SANDERS ASSOCIATES, INCORPORATED
922 Kearns Building
Salt Lake City, Utah 84101

October 22, 1976

Sample Identification by

Sanders Associates, Inc.

Sample No. 2
Core Hole No. 76-1A
120.5' - 122.0'

Hia 1.5'
RAW

Kind of sample reported to us	Coal
Sample taken at	xxxxx
Sample taken by	Sanders Associates, Inc.
Date Sampled	xxxxx
Date Received	9-22-76

Confidential

72-48412 Page 1

Analysis report no.

PROXIMATE ANALYSIS	As received	Dry basis
% Moisture	12.66	xxxxx
% Ash	19.21	21.99
% Volatile	32.21	36.88
% Fixed Carbon	35.92	41.13
	100.00	100.00
Btu	8669	9925
% Sulfur	0.66	0.75

ULTIMATE ANALYSIS	As received	Dry basis
% Moisture	12.66	xxxxx
% Carbon	51.13	58.54
% Hydrogen	3.29	3.77
% Nitrogen	1.11	1.27
% Chlorine	0.00	0.00
% Sulfur	0.66	0.75
% Ash	19.21	21.99
% Oxygen (diff)	11.94	13.68
	100.00	100.00

SULFUR FORMS	As received	Dry basis
% Pyritic Sulfur	0.24	0.28
% Sulfate Sulfur	0.02	0.02
% Organic Sulfur (Diff)	0.40	0.45
% Total Sulfur	0.66	0.75

FUSION TEMPERATURE OF ASH	Reducing	Oxidizing
Initial Deformation	+2700°F	+2700°F
Softening (H=W)	+2700°F	+2700°F
Softening (H=1/2W)	+2700°F	+2700°F
Fluid	+2700°F	+2700°F

HARDGROVE GRINDABILITY INDEX = xxxxx at xxxxx% Moisture

% EQUILIBRIUM MOISTURE = xxxxx

FREE SWELLING INDEX = xxxxx

LWT/Mc/bn

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

L. W. Taylor

L.W. TAYLOR, Western Division Manager

Charter Member

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 230 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 · AREA CODE 312 726-8434

ASE ADDRESS ALL CORRESPONDENCE TO:
75 EAST 51st AVE., DENVER, COLO. 80239

OFFICE TEL. (303) 373-4772

ITEL RESOURCES
One Embarcadero Center
San Francisco, California 94111

February 11, 1977

Kind of sample reported to us	Coal
Sample taken at	xxxx
Sample taken by	Itel Resources
Date Sampled	xxxxx
Date Received	12-27-76

Sample Identification
by
Itel Resources

Composite Sample
Core Hole No. 76-26
Sample Nos. 1) 1085.3' – 1088.0'
2) 1091.0' – 1093.0'
3) 1093.0' – 1094.7'
4) 1134.6' – 1136.0'
5) 1136.0' – 1138.0'
6) 1100.0' – 1103.0'

* Equilibrium Moisture used due to separation on Organic Liquids

Confidential

Analysis report no. 72-53251-ABC Page 1

PROXIMATE ANALYSIS	As received	Dry basis
% Moisture	* 7.42	xxxxx
% Ash	4.95	5.35
% Volatile	40.42	43.66
% Fixed Carbon	47.21	50.99
	100.00	100.00
Btu	12382	13374
% Sulfur	0.56	0.61

ULTIMATE ANALYSIS	As received	Dry basis
% Moisture	* 7.42	xxxxx
% Carbon	69.30	74.85
% Hydrogen	5.05	5.45
% Nitrogen	1.39	1.50
% Chlorine	0.01	0.01
% Sulfur	0.56	0.61
% Ash	4.95	5.35
% Oxygen (diff)	11.32	12.23
	100.00	100.00

SULFUR FORMS	As received	Dry basis
% Pyritic Sulfur	0.10	0.11
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur (Diff)	0.46	0.50
% Total Sulfur	0.56	0.61

FUSION TEMPERATURE OF ASH	Reducing	Oxidizing
Initial Deformation	2240 °F	2360 °F
Softening (H=W)	2260 °F	2380 °F
Softening (H=1/2W)	2280 °F	2400 °F
Fluid	2300 °F	2420 °F

HARDGROVE GRINDABILITY INDEX = 48.4 at 3.29 % Moisture

% EQUILIBRIUM MOISTURE = 7.42

FREE SWELLING INDEX = xxxxx

LWT/Mc /bn

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

L. W. Taylor

L.W. TAYLOR, Western Division Manager

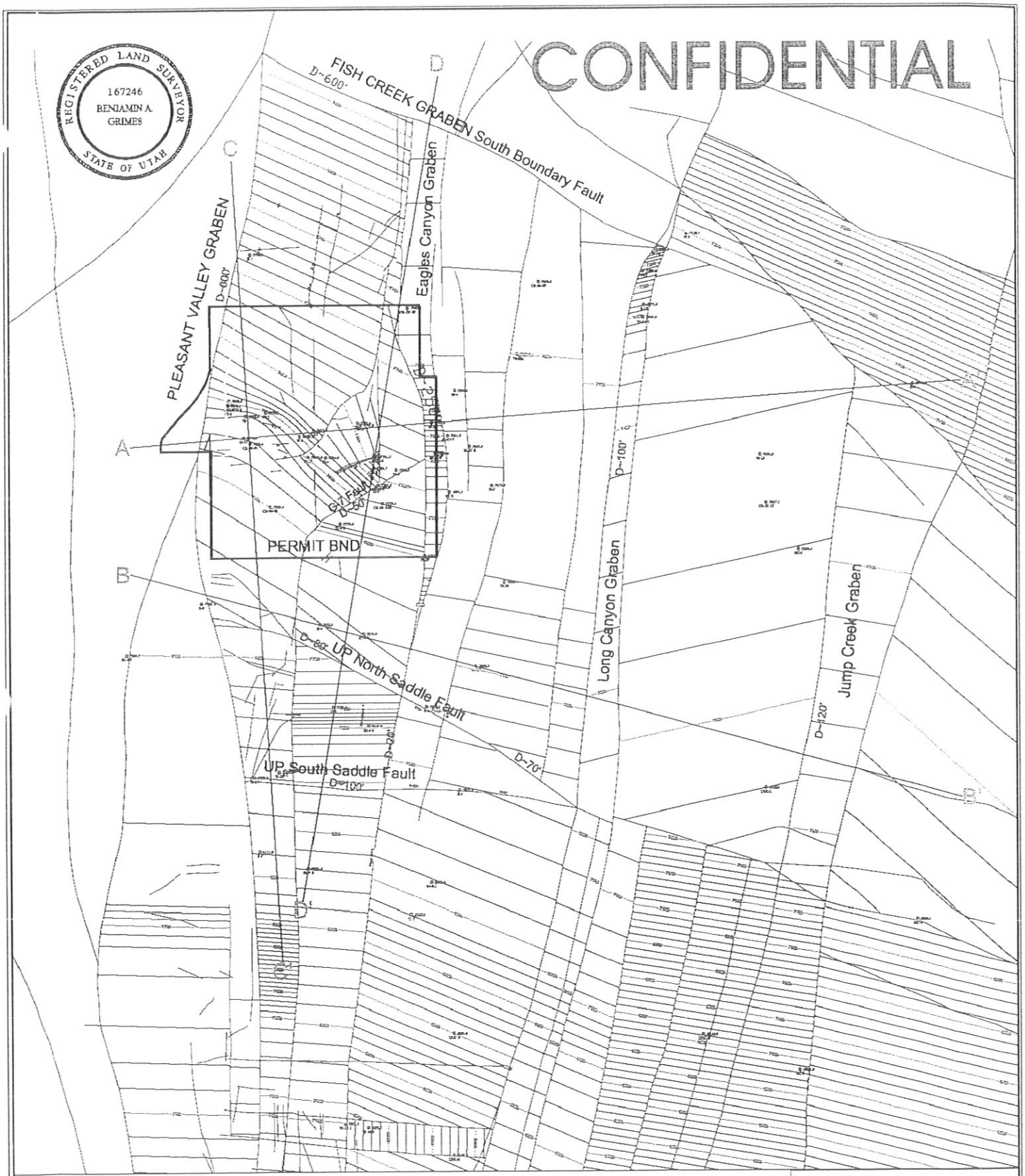
Charter Member

Exhibit 2.1.2.2-1

Confidential Information

2.1.2.2-1 Confidential Information

This material held as confidential. DOGM has only copy.



LEGEND

FAULT @ Hiawatha Seam W/ Approximate Throw — D~50

Elevation Contours on Top of Hiawatha Seam

5 ft. Contour

50 ft. Index Contour — 7900

Structure X-Section — A — A'

Regional
Hiawtha Top Structure
& X-Section Lines

N

0 2,500 ft

SCALE: 1:30,000 or 1" = 2,500'

This map is in the Kinney Coordinate System (NAD83). It was projected from State Plane NAD83 to a vertical datum of 6,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then multiply by the CF.

Carbon Resources LLC

KINNEY NO. 2 MINE

FIGURE 3.6-4

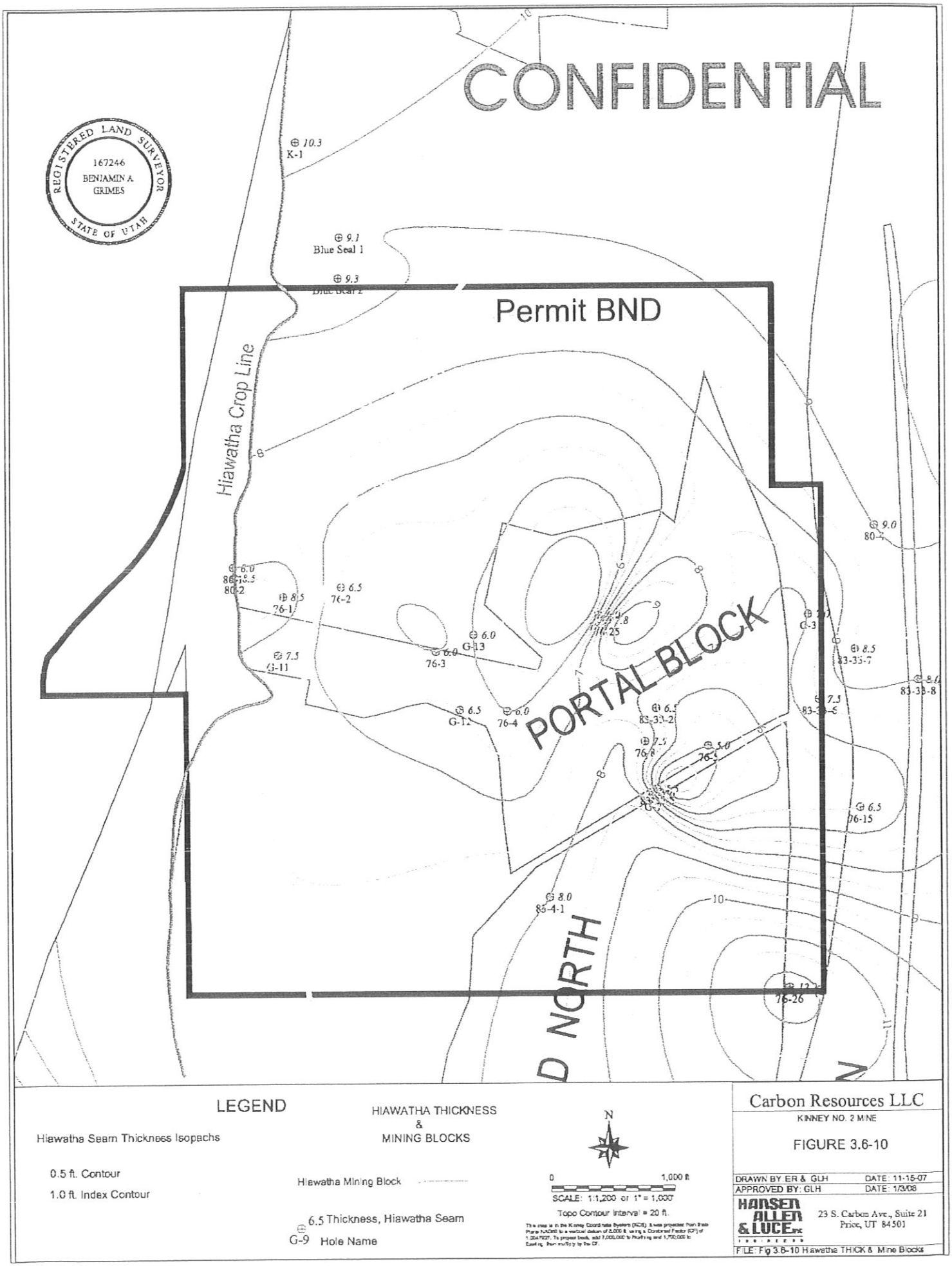
DRAWN BY: Eric Robeck DATE: 5/2/07

APPROVED BY: Gregory Hunt DATE: 5/3/2007

HANSEN ALLEN & LUCE INC ENGINEERS

23 S. Carbon Ave., Suite 21
Price, UT 84501

FILE: Hiawatha Regional Structure


CONFIDENTIAL
REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
STATE OF UTAH
Permit BND
Hiawatha Crop Line
PORTAL BLOCK
D NORTH
10.3
K-1
9.1
Blue Seal 1
9.3
9.0
80-4
6.0
80-2
6.5
76-2
8.5
76-1
7.5
G-11
6.0
G-13
6.0
76-3
6.5
G-12
6.0
76-4
7.5
G-3
8.5
83-33-7
8.1
83-33-8
7.5
83-33-5
6.5
83-33-2
7.5
76-6
5.0
76-5
6.5
76-15
8.0
85-4-1
10
12
76-26
LEGEND
Hiawatha Seam Thickness Isopachs
0.5 ft. Contour
1.0 ft. Index Contour
HIAWATHA THICKNESS
&
MINING BLOCKS
Hiawatha Mining Block
6.5 Thickness, Hiawatha Seam
G-9 Hole Name
N
0
1,000 ft
SCALE: 1:1,200 or 1" = 1,000'
Topo Contour Interval = 20 ft.
Carbon Resources LLC
KINNEY NO. 2 MINE
FIGURE 3.6-10
DRAWN BY ER & GLH
DATE: 11-15-07
APPROVED BY: GLH
DATE: 1/3/08
HANSEN ALLEN & LUCE, INC.
23 S. Carbon Ave., Suite 21
Price, UT 84501
FILE: Fig 3.6-10 Hiawatha THICK & Mine Blocks

Cultural Resource Inventory of Carbon Resources Kinney 2 Mine, (T 12S, R 7E, Sections 32 AND 33), Carbon County, Utah

By:
Montgomery Archaeological Consultants

MONTGOMERY
ARCHAEOLOGICAL
CONSULTANTS
P.O. Box 219 322 East 100 South Moab, Utah 84532 (435) 259-5704 Fax (435) 259-5605

June 11, 2007

Mr. Gregory Hunt
16577 Columbine Lane
Cedaredge, CO 81413

Dear Mr. Hunt:

Enclosed please find three copies of the report entitled "Cultural Resource Inventory of Carbon Resources Kinney 2 Mine (T 12S, R7E, Sections 32 and 33), Carbon County, Utah." The inventory resulted in the location of one previously documented site (42Cb2436), the documentation of three previously recorded sites (42Cb477, 42Cb479, and 42Cb1032), and the documentation of five new sites (42Cb2622 through 42Cb2626). Three of these sites (42Cb477, 42Cb479, and 42Cb1032) are recommended as eligible to the NRHP and the remaining six sites (42Cb2436, and 42Cb2622-42Cb2626) are recommended as not eligible to the NRHP. Sites 42Cb477 (Jones Mine), 42Cb479 (Kinney Mine) and 42Cb1032 (Utah & Pleasant Valley Railway) are evaluated as eligible the NRHP under Criterion A (associated with significant events in regional history). Therefore, the proposed undertaking will not diminish the integrity of these properties which deems them eligible under Criterion A. Based on the findings archaeological clearance is recommended for this project.

If you have any questions or comments, please contact me.

Sincerely,

Keith R. Montgomery

Keith R. Montgomery
Principal Investigator

CULTURAL RESOURCE INVENTORY OF CARBON RESOURCES KINNEY 2 MINE (T 12S, R 7E, SECTIONS 32 AND 33) CARBON COUNTY, UTAH

Patricia Stavish

CULTURAL RESOURCE INVENTORY OF CARBON RESOURCES KINNEY 2 MINE (T 12S, R 7E, SECTIONS 32 AND 33) CARBON COUNTY, UTAH

By:

Patricia Stavish

Prepared For:

Division of Oil, Gas, and Mining
Salt Lake City, Utah

Prepared Under Contract With:

GEO-Hunt Consulting LLC
16577 Columbine Lane
Cedaredge, Colorado 81413

Prepared By:

Montgomery Archaeological Consultants, Inc.
P.O. Box 219
Moab, Utah 84532

MOAC Report No. 07-172

June 8, 2007

United States Department of Interior (FLPMA)
Permit No. 07-UT-60122

State of Utah Antiquities Project (Survey)
Permit No. U-07-MQ-0612p

ABSTRACT

A cultural resource inventory was conducted by Montgomery Archaeological Consultants Inc. (MOAC) in May 2007 for Carbon Resources LLC's proposed Kinney 2 mine location. The project area is located on the Wasatch Plateau, east of Scofield Reservior, and north east of the town of Scofield in Carbon County, Utah. The survey was implemented at the request of Mr. Greg Hunt, Geo-Hunt Consulting, Cedaredge, Colorado. Land status is private property.

The inventory resulted in the location of one previously documented site (42Cb2436), the documentation of three previously recorded sites (42Cb477, 42Cb479, and 42Cb1032), and the documentation of five new sites (42Cb2622 through 42Cb2626). Three of these sites (42Cb477, 42Cb479, and 42Cb1032) are recommended as eligible to the NRHP. Site 42Cb477, the Jones Mine, was originally documented by Desert West Research in 1985, at which time the site consisted of a visible mine portal and four standing structures. The only structural feature presently onsite is the fan house. Site 42Cb477 is evaluated as eligible to the NRHP under Criterion A because of its importance to the history of the area. Site 42Cb479, the Kinney Coal Mine, was in operation from 1920 to 1956 and consists of twelve structural features. Though there is little artifactual debris, the standing structures represent the remains of an early coal mining complex. The site is evaluated to the NRHP under Criterion A since it has played an important role in the area's economic and community development, in particular the early mining industry. Site 42Cb1032, a branch of the Utah and Pleasant Valley Railway, is evaluated as to the NRHP because of the important role the Utah & Pleasant Valley Railway played in the area's economic and community development as well as in the regional mining history (Criterion A). The remaining six sites (42Cb2436, and 42Cb2622-42Cb2626) are recommended as not eligible to the NRHP. Sites 42Cb2436 and 42Cb2625 are historic corrals, site 42Cb2622 is a historic trash scatter, 42Cb2623 and 42Cb2624 are historic aspen art sites, and 42Cb2626 consists of several sheep grazing salt troughs. These sites are common historic site types that cannot be linked to any significant event(s) or person(s) (Criteria A and B). These sites do not represent a type, period, or method of construction or the work of a master (Criterion C). Additionally, these sites fail to have the potential to yield information important to the history of the area (Criterion D).

The inventory of Carbon Resources LLC's proposed Kinney 2 mine resulted in the location of one previously documented site (42Cb2436), the documentation of three previously recorded sites (42Cb477, 42Cb479, and 42Cb1032), and the documentation of five new sites (42Cb2622 through 42Cb2626). Three of these sites (42Cb477, 42Cb479, and 42Cb1032) are recommended as eligible to the NRHP and the remaining six sites (42Cb2436, and 42Cb2622-42Cb2626) are recommended as not eligible to the NRHP. Sites 42Cb477 (Jones Mine), 42Cb479 (Kinney Mine) and 42Cb1032 (Utah & Pleasant Valley Railway) are evaluated as eligible the NRHP under Criterion A (associated with significant events in regional history). Therefore, the proposed undertaking will not diminish the integrity of these properties which deems them eligible under Criterion A. Based on the findings archaeological clearance is recommended for this project.

TABLE OF CONTENTS

ABSTRACT i
TABLE OF CONTENTS ii
LIST OF TABLES ii
LIST OF FIGURES ii
INTRODUCTION 1
DESCRIPTION OF PROJECT AREA 2
Environmental Setting 2
Cultural-Historical Overview 2
SURVEY METHODOLOGY 4
INVENTORY RESULTS 5
Archaeological Sites 5
NATIONAL REGISTER OF HISTORIC PLACES EVALUATION 9
CONCLUSION AND RECOMMENDATIONS 10
REFERENCES CITED 11
APPENDIX A: INTERMOUNTAIN ANTIQUITIES COMPUTER SYSTEM (IMACS) SITE FORMS 12

LIST OF FIGURES

1. Inventory Area of Carbon Resources LLC's Proposed Kinney 2 Mine Location, Carbon County, Utah. 3

INTRODUCTION

A cultural resource inventory was conducted by Montgomery Archaeological Consultants Inc. (MOAC) in May 2007 for Carbon Resources LLC's proposed Kinney 2 mine location. The project area is located on the Wasatch Plateau, east of Scofield Reservior, and north east of the town of Scofield in Carbon County, Utah. The survey was implemented at the request of Mr. Greg Hunt, Geo-Hunt Consulting, Cedaredge, Colorado. Land status is private property.

The objectives of the inventory were to locate, document, and evaluate any cultural resources within the project area in accordance with Section 106 of 36 CFR 800, the National Historic Preservation Act of 1966 (as amended). Also, the inventory was implemented to attain compliance with a number of federal and state mandates, including the National Environmental and Historic Preservation Act of 1969, the Archaeological and Historic Conservation Act of 1972, the Archaeological Resources Protection Act of 1979, and the American Indian Religious Freedom Act of 1978.

The fieldwork was conducted between May 16 and 25 by Keith R. Montgomery (Principal Investigator), Patricia Stavish (Field Supervisor) and assisted by Adam Thomas. The inventory was conducted under the auspices of U.S.D.I. (FLPMA) Permit No. 07-UT-60122 and State of Utah Antiquities Permit (Survey) No. U-07-MQ-0612p issued to MOAC, Moab, Utah.

A file search for previous cultural resource inventories and archaeological sites was conducted by Marty Thomas at the Division of State History, Salt Lake City on May 15, 2007. This consultation indicated that several archaeological surveys have been completed in the area.

In 1981, New World Research completed a Class II cultural resource inventory of the Central Coal II project in selected portions of Carbon, Emery, and Sevier Counties, Utah; resulting in the documentation of 166 new archaeological sites and 17 previously recorded sites (Thomas et al. 1981; Report U-81-NG-0454b). None of these sites are located in the current project area.

In 1985, Desert West Research completed an archaeological evaluation of several historic coal mining sites in Carbon County including Spring Canyon, Bear Canyon, Scofield, and Gordon Creek areas (Desert West Research 1985; Report No. U-84-DF-0396). This inventory resulted in the documentation of several mines including sites 42Cb477, 42Cb478, and 42Cb479 that are located in the current project area. Site 42Cb477 is the Jones Mine that was evaluated as eligible to the NRHP and was redocumented for the current inventory. Site 42Cb478 is the Columbine Mine that was described as a relatively modern conveyor, shaker, and tipple system that was evaluated as not eligible to the NRHP. This site could not be relocated for the current inventory and all structures and materials were likely reclaimed. Site 42Cb479 is the Kinney Mine that consists of twelve structural features that was evaluated as not eligible to the NRHP. 42Cb479 was redocumented for the current inventory and was re-evaluated for eligibility to the NRHP.

In 1995, Baseline Data, Inc. conducted a cultural and paleontological resource inventory for a proposed Central Utah telephone fiber-optic line in Carbon and Utah Counties; resulting in the documentation of eleven archaeological sites, six isolated finds of artifacts, and five paleontological sites (Allison et al. 1995; Report No. U-95-Bs-0344f,s,p). Site 42Cb1032 is a segment of the historic Utah and Pleasant Valley Railway that is recommended as eligible to the NRHP. This segment occurs just north of the current project area; however, a new segment of 42Cb1032 was recorded for the current inventory.

In 2005, MOAC conducted a cultural resource inventory of Western Reserve Mining Company's coal seam drill sites near Scofield; resulting in the documentation of one new archaeological site, 42Cb2436 (Jolley and Montgomery 2005; Report No. U-05-MQ-0552p). Site 42Cb2436 is a historic corral and trough that was evaluated as eligible to the NRHP. This site is located in the current project area and was relocated for the current project.

DESCRIPTION OF PROJECT AREA

The project area is located on the Wasatch Plateau, east of Scofield Reservior, and north east of the town of Scofield in Carbon County, Utah (Figure 1). The legal description is Township 12 South, Range 7 East, Sections 32 and 33. A total of 394.7 acres was inventoried on private lands.

Environmental Setting

The project area occurs within the Wasatch Plateau subsection of the Basin and Range-Colorado Plateau Transition province (Stokes 1986: 247). Outcrops of Cretaceous and Paleocene sandstones characterize much of the Wasatch Plateau. Many of the formations from these periods include substantial deposits of coal, making them some of the most important energy resources in Utah (Stokes 1986: 140-142). These coal-bearing deposits, namely the Black Hawk group and the Lower North Horn formation, overlay a thick Mancos Shale deposit, which dominates the lowlands to the south and east (Stokes 1986). The Wasatch Plateau contains numerous mountain passages and peaks that reach substantial elevations of over 11,000 feet. During the Quaternary (1.6 mya to roughly 11,600 years ago), glaciers retreated and surged up and down high mountain valleys resulting in a landscape containing cirques, moraines, eskers, and other common glacial landscape features. Where glaciers were unable to form, erosional processes resulting from wind, rain, and gravity shaped the plateau into a series of V-shaped valleys separated by mountain ridges reaching elevations between 7,000 and 10,000 feet above sea level.

The dendritic drainage pattern of the Wasatch Plateau feeds numerous permanent creeks and rivers including Muddy Creek, Ivy Creek, Huntington Creek, Ferron Creek, and the Price River. Numerous reservoirs serve the water needs of many small communities on and around the plateau. Elevation ranges between 7680 feet and 8800 feet. The relatively abundant precipitation, the moderate to high elevations, and the varying aspects and slopes of the plateau make for a mosaic of vegetation patches across the plateau. Mostly situated in the Canadian Vegetation zone, the dominant vegetation consists of various tree species including aspen, spruce, and fir. Lower elevations along the plateau contain sagebrush and steppe vegetation communities except along more permanent water courses where typical riparian vegetation dominates.

Cultural-Historical Overview

The earliest recorded visit by Europeans to Utah was the Dominguez-Escalante expedition, which moved through the areas north and west of Castle Valley in 1776-1777. Throughout the first half of the nineteenth century, explorers, surveyors, and trappers moved in small parties through the region, up and down the Old Spanish Trail. The main branch of the Spanish Trail veered northwest from Green River and wound through the San Rafael Swell via Cottonwood Creek and Buckhorn Flat, emerging into Castle Valley near the Red Seeps east of Castle Dale (Finken 1977). It is not until much later that more permanent settlers begin to arrive in the Wasatch Plateau region.

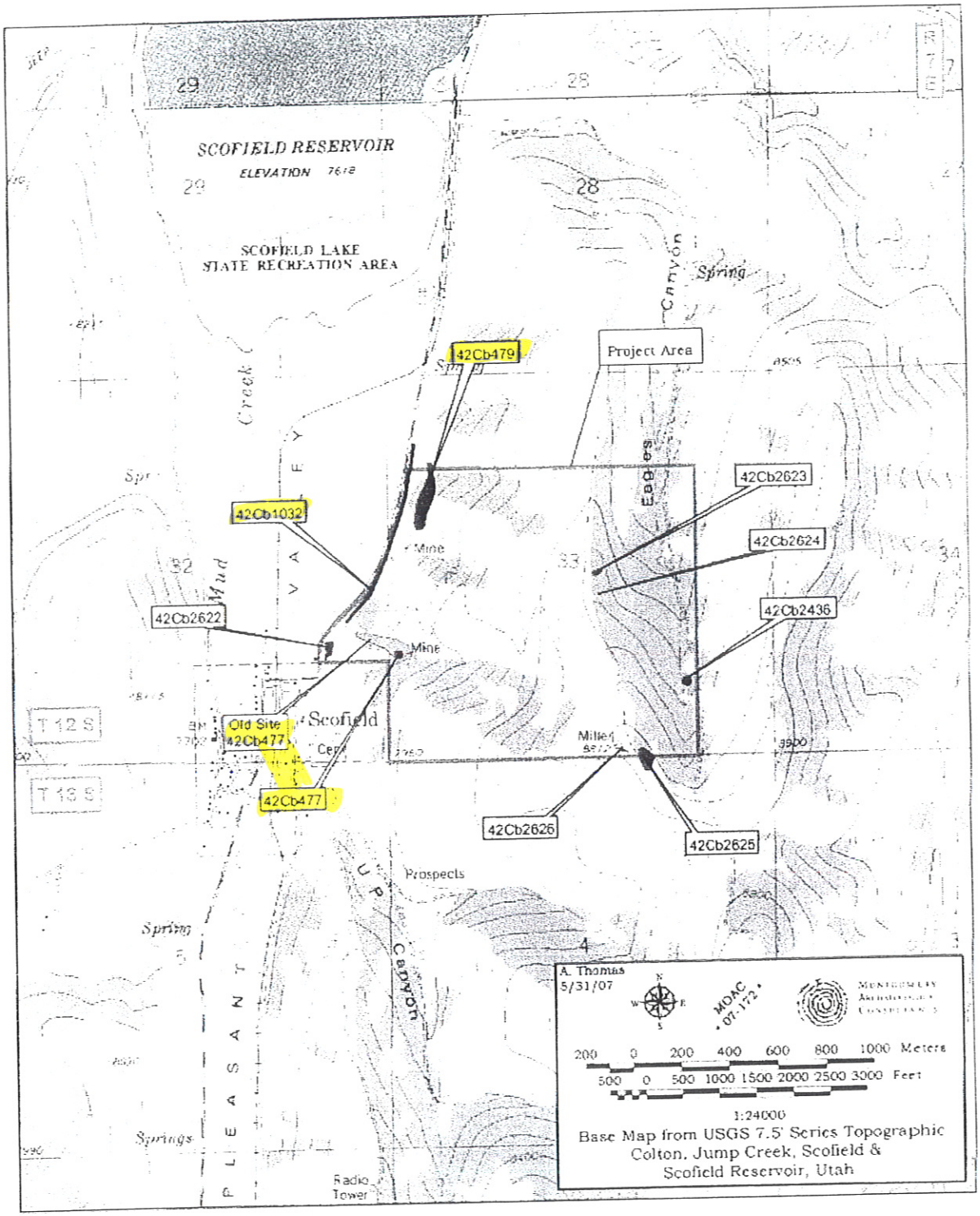


Figure 1. Inventory Area of Carbon Resources LLC's Proposed Kinney 2 Mine Location, Carbon County, Utah

The more modern history of the Scofield/upper Pleasant Valley area is diverse and dramatic, despite the fact that Europeans did not firmly establish themselves until the early 1870s (Madsen 1947). The earliest settlers in Pleasant Valley came not for coal, but the abundant grasses that covered the valley floor, with which they grazed herds of cattle. Timber was another early resource found in the area, and by the early 1880s numerous mills were in operation. However, neither of these industries brought as many people to the valley, however, as coal mining. Coal deposits in the region were recognized by the Beckwith-Gunnison Expedition as early as 1853 (Powell 1976). Mining on the Wasatch Plateau began in earnest by the mid-1870s. Near Scofield, at least one mine was in operation as early as 1877 and several others began operations during the first few years of the 1880's (Madsen 1947).

A narrow-gauge railroad between Pleasant Valley and Springville, started in 1877, was completed in 1879; the Utah and Pleasant Valley Railway made the transportation of coal much more cost-effective than hauling the material by wagon (Carr and Edwards 1989). In 1881 the Denver and Rio Grand Western purchased the Utah and Pleasant Valley Railway, which helped to break Union Pacific's monopoly on railroad transportation to and within Utah (Watt 1997). In 1877, Peter Morgan located the Winter Quarters Mine near Scofield. Until 1900, coal mining was extremely prosperous in the Scofield area and the small town prospered. The coal mining industry's demand for labor required the recruitment of men from outside the state and resulted in the emigration of varied nationalities including Italians, Greeks, Chinese, Finns, Japanese, Mexicans, and Yugoslavians (Watt 1997). Labor conflicts and strikes were recurrent after the turn of the century, with the largest occurring in 1901, 1902-1903, 1922, and 1933. Unionization attempts and strikes during this period attracted the attention and support of Charles DeMolli and Mother Mary Jones, prominent American labor and community organizers (Watt 1997). A recurrent labor demand was for safer working conditions.

The most deadly mining accident in Carbon County occurred at the Winter Quarters Mine. On May 1, 1900 a coal mine explosion commonly referred to as the Scofield Mine Disaster occurred. In Number 4 Mine of the Winter Quarters Mine, a spark ignited coal dust, ultimately resulting in the death of 200 miners (Madsen 1947, O'Neil 1981, Watt 1997). After the May 1st mine accident, coal mining began a series of boom and bust cycles resulting from political and economic factors in an ever-shrinking world market. Boom cycles occurred in conjunction with World War I, World War II, and to a smaller degree the Korean War. Coal production has fallen dramatically since the 1950s as natural gas and oil began to fulfill the nation's energy needs.

SURVEY METHODOLOGY

An intensive pedestrian survey was performed for this project which is considered 100% coverage. The project area was examined for cultural resources by the archaeologists walking parallel transects spaced no more than 10 m (30 ft) apart. Ground visibility was considered fair to good. A total of 394.7 acres was inventoried on private lands.

Cultural resources were recorded as archaeological sites or isolated finds of artifacts. Archaeological sites are defined as spatially definable areas with ten or more artifacts and/or features. Sites were documented by the archaeologists walking transects across the site, spaced no more than 3 m (10 ft) apart and marking the locations of cultural materials with pinflags. This procedure allowed clear definition of site boundaries and artifact concentrations. At the completion of the surface inspection, a handheld GEO XT Trimble GPS unit was employed to point-provenance

diagnostic artifacts and other relevant features in reference to the site datum, a steel rebar stamped with a temporary site number. A judgmental lithic analysis sample unit (a 2x2 meter count grid) was utilized for archaeological sites with dense lithic debitage assemblages. Also, where lithic densities were variable within the site, judgmental sample units were employed to reflect such density changes. Archaeological sites were plotted on a 7.5' USGS quadrangle, photographed, and documented with site data entered on an Intermountain Antiquities Computer System (IMACS, 1990 version) inventory form (Appendix A).

INVENTORY RESULTS

The inventory of Carbon Resources LLC's proposed Kinney 2 mine resulted in the location of one previously documented site(42Cb2436), the documentation of three previously recorded sites (42Cb477, 42Cb479, and 42Cb1032), and the documentation of five new sites (42Cb2622 through 42Cb2626).

Smithsonian Site No.: 42Cb477
Site Type: Jones Coal Mine
NRHP Eligibility: Eligible, Criterion A
Description: This is a historic mine named the Jones Mine that is located east of the town of Scofield, Utah. An HAER report of the Jones Mine (HAER No. UT-43) that the earliest development of the site may have been in the 1930s as a truck and wagon mine. Primary construction of the mine was in 1952 by John Marshall and Dan McAlpice and it was abandoned in 1957. The site was originally documented in 1985 by Desert West Research, at which time the site consisted of a visible mine portal (Feature 1), a wooden square frame building with tin roof (Feature 2), a wooden hopper structure (Feature 3), a wood frame tipple (Feature 4), and a stone and wood fan house (Feature 5). During the current recordation of the site, Features 2, 3, and 4 could not be located and it appears that these structures have been reclaimed. The only features that could be documented are Feature 1 and Feature 5. Feature 1 is the remains of a collapsed coal mine portal. The feature has collapsed and is covered with soils and heavy vegetation. Only a vague earthen depression remains. Feature 5 is a stone and log one room mining building that was appears to have been a fan house with a possible mine portal. The building measures 8 ft (east-west) by 21 ft 1 inch (north-south) and is built into the hillside (east elevation). The mining building is constructed of sandstone block walls with a concrete mortar along the north, east and west walls and has a log roof and log constructed south wall. The logs have been squared and measure 96 inches (length) by 7 inches (width) by 9 inches (height). The height of the building above the ground surface ranges between 6 ft 6 inches and 7 ft 2 inches. The northern wall of the building has a large fan opening that measures 62 inches in diameter and the western wall has a large log encased entrance (6ft 8 inches tall by 4 ft wide) through which one can view a possible mine portal that has been filled or collapsed. Detailed architectural drawings of this build can be found in HAER Report No. UT-43.

Smithsonian Site No.: 42Cb479
Site Type: Kinney Coal Mine
NRHP Eligibility: Eligible, Criterion A
Description: The site is the Kinney Coal mine located northeast of the town of Scofield, Utah. The UMSH database of coal mines in Utah states that the Union Pacific Coal Co. opened the mine in 1920 and the mine closed in 1956 (http://geology.utah.gov/databases/umsh). The site was originally documented in 1985 by Desert West Research, at which time the site consisted of twelve structural features relating to coal mining activities and the site was recommended as not eligible to the NRHP. The current recordation includes additional description of the features, photos, and

a scaled site map and site location map. The Kinney coal mine consists of one standing concrete powder house (Feature 1), seven stone or stone/concrete wall that are associated with the location of collapsed mine portals (Features 3, 4, 5, 6, 8, 9, and 10), a concrete and stone retaining wall (Feature 11), and two concrete foundations (Features 2 and 12) that likely represent a weigh scale and tipple, respectively. No artifacts were documented at the site.

Smithsonian Site No.: 42Cb1032
Site Type: Utah and Pleasant Valley Railway
NRHP Eligibility: Eligible. Criteria A
Description. The site is a branch of the Utah and Pleasant Valley Railway, built to access the coal mines around Sulphur Springs, located just north of the town of Scofield. The spur was most likely constructed between 1890 and 1920 after the railway was converted to a standard-gauge and mines operated by the Union Pacific Coal Co., such as Kinney 2 Mine (42Cb479), were opened. This section of the railway was employed into the early-1970s when the last of the coal mines (e.g. Columbine Mine) closed.

This documented railroad branch extends 0.5 miles (805 m) along the east side of SR-96. It consists of the railroad grade, in-situ ties, and rails. Portions of this segment have been covered with shallow alluvial sediments most likely preserving the structural elements of the railroad. The standard gauge rails are spaced approximately 61 inches apart and the ties are 8 ft wide. The ties measure 8 ft by 9 inches by 6 inches. Along most of the recorded length of the segment, the railroad bed consists of an angular gravel with coal inclusions or spoil. Along the northern end of the segment, the railroad bed is approximately 2 ft above the surrounding ground surface. However, the southern portion of the segment is level with the surrounding ground surface. Another track was documented towards the middle of the recorded segment (at UTM 486838 E 4397898 N) extending for 56 ft (17 m) and may have functioned as a locomotive pull-out or storage bed.

Smithsonian Site No.: 42Cb2436
Temporary Site No.: MOAC 05-195-1
Site Type: Corral with watering trough
NRHP Eligibility: Not Eligible
Description: This site consists of a corral, watering trough, and a small clean water reservoir located in the bottom of Eagle Canyon approximately one mile east of Scofield, Utah. This area is accessed by narrow switch-back dirt roads from town. The corral is situated in the bottom of Eagle Canyon so that the drainage channel of the canyon runs through the corral, supplying water during wet weather. The corral is roughly oval in plan view with maximum dimensions of 36 m (east-west) and 41 m (north-south). It is constructed of axe cut horizontally stacked aspen poles up to 15 cm in diameter stacked between pairs of vertical juniper posts. At the top of each pair of juniper posts galvanized steel wire is wrapped and twisted to keep the posts from spreading apart. No nails or spikes were observed anywhere in this construction. The horizontal poles that remain in position are close enough to have contained sheep. At the north (down slope) end of the corral is a steel box, 3 ft on each side, with a hinged lid. Threaded pipe connections are located on both the up and down stream side of the box. It could represent a small reservoir of clean water that could be dipped from without being fouled by animals. Also in this area a 1 inch I. D. black plastic pipe comes out of the ground and proceeds north to the watering trough where it connects to the south end of the trough. The trough is located ca. 15 m north of the corral and is comprised of three galvanized oval shaped tanks piped together. Each tank is 2 ft by 8 ft in sized and 2 ft deep. They are connected with short pieces of galvanized pipe to form a trough system ca. 10 m in length. A

system of horizontal aspen poles is supported over both sides of the trough by six pairs of vertical juniper posts, presumably to limit access of large animals. The trough was holding water and the black plastic pipe is assumed to tap into a spring beneath the corral area.

The corral is tight enough to have held sheep but horses and cattle could also have been corralled here. The corral and trough do not appear to be very old; the only indication of an early date is the condition of the aspen poles, they appear to be more than 50 years old. In addition, the troughs have been up-graded with the black plastic pipe. The troughs may still be used though the corral itself is not in usable condition and has not been repaired in the near past.

Smithsonian Site No.: 42Cb2622
Temporary Site No.: 07-172-PS1
Site Type: Trash Scatter
NRHP Eligibility: Not Eligible

Description: The site is a historic trash scatter located on a low knoll along the eastern edge of Pleasant Valley, just east of SR-96. No features or structures were documented at the site. The site consists of various historic trash that dates between 1925 and 1983, with the majority of artifacts dating to the 1940s to 1950s. The artifacts documented at the site include numerous fragments of ceramics, glass fragments and bottles, tin cans, screw top jar lids, saw cut animal bone, wire, barbed wire, approximately 20 lumber boards averaging in size of 77 inches long and 2 ½ inch by ½ inch wide, and a green Hemingray No. 9 glass insulator (dating from 1890s to 1940s). The ceramics include fragments of a white ceramic representing several vessel forms, fragments of a yellow paste white glazed ceramic, fragments of a coarse yellow ceramic with a yellow glaze and blue sponge decoration from a mixing bowl, fragments of a yellow ceramic mixing bowl with a yellow glaze with blue strips along the rim and scalloped sides, fragments of a porcelain item of unknown function, fragments of a white plate with the W.H. Grindley and Co. Ltd. trademark that dates from 1925 to the present, and fragments of a yellow ceramic plate or saucer with a yellow glaze. The glass artifacts include clear and brown beverage bottles with the Owens-Illinois Glass Company trademarks, a clear glass medicine bottle with the Owens-Illinois trademark and embossed on the shoulders with "The Bayer Company Div," a clear liquor bottle with the Fairmount Glass Works trademark and embossed "Federal Law Prohibits Sale or Reuse of this Bottle," a clear liquor bottle embossed "Federal Law Prohibits..." with an unknown trademark, one clear beverage bottle with the Glass Containers, Inc. trademark, one clear liquor bottle embossed "Federal Law Prohibits...," one mold made clear cosmetic bottle, one mold made liquor bottle with scalloped edges, and one lip fragment of an aqua bottle with a hand finished lip. Fragmented glass artifacts documented at the site include at least 200 fragments of clear glass, at least 200 fragments of brown glass, three fragments of light green glass, eight fragments of cobalt glass, eleven aqua glass fragments, at least 25 fragments of amethyst glass, six fragments of milk glass (opaque white), and four fragments of clear window or pane glass. The tin cans include church key opened beverage cans, key strip coffee cans, a rectangular key wind meat tin, a crushed hole-in-top milk can, cut-around opened sanitary food cans, and an external friction hinged-lid tobacco tin.

Smithsonian Site No.: 42Cb2623
Temporary Site No. 07-172-K7
Site Type: Aspen Art
NRHP Eligibility: Not Eligible
Description: The site consists of four aspen art features located on the top of a ridge, above Pleasant Valley. These aspen art features likely relate to sheep grazing in the upper elevations around Pleasant Valley from the 1890s to the 1960s. Feature A is an aspen art panel that consists of two inscriptions, one over the other, that partially wrap around the aspen tree. The inscription reads (in script) "Clark Ninteria / June 4 / 1941" and below that reads (in block letters) "JV / 1956." Feature B is an aspen art panel that consist of a single inscription that reads (in script) "Clark Ninteria / July 4, 1941." Feature C is an aspen art panel that consists of a single inscription that reads (in script) "Elmo Velasq_ _ _ / 1945 / Aug 15 - 37 / ELMO / Velasquez." Feature D is an aspen art panel that consists of an inscription that reads (in a block-script) "A.M. / AM / Oct / 1. 1911." No historic artifacts or other features were documented at the site.

Smithsonian Site No.: 42Cb2624
Temporary Site No.: 07-172-K8
Site Type: Aspen Art
NRHP Eligibility: Not Eligible
Description: The site consists of three aspen art features located on the top of a ridge, above Pleasant Valley. These aspen art features likely relate to sheep grazing in the upper elevations around Pleasant Valley from the 1890s to the 1960s. Feature A is an aspen art panel that consist of a single inscription that reads (in block) "F.S. / 1910." Feature B has two aspen art panels, Panel 1 and Panel 2. Panel 1 consist of a single inscription over a line drawing of a horse. The inscription reads (in block) "ADELANDO / MANZANABES." Panel 2 consist of two inscriptions, one over the other, that read (in block) "N A _ / NHA." Feature C is an aspen art panel that consist of a single inscription that reads (in block) "HRW / M _ / M." No historic artifacts or other features were documented at the site.

Smithsonian Site No.: 42Cb2625
Temporary Site No.: 07-172-K9
Site Type: Corral
NRHP Eligibility: Not Eligible
Description: The site is a corral complex located on the top of a ridge, east of Pleasant Valley. The artifacts documented at the site consist of a single crushed galvanized metal bucket, wire nails, a brown glass medical bottle embossed "Franklin Products 1845," and one metal utility gas or kerosene can. Feature A is a corral complex that consists of an exterior corral fence (post-and-rail construction) with three interior fences that divide the corral into four pens. There are two types of construction: Method A - post-and-rail; and Method B - post with nailed lumber rails. Method A is the most prominent construction method at the corral and consists of a pair of upright log posts wired together at the top and bottom to support the four to six log rails. The log posts are (on average) 70 inches high, 4 to 5 inches in diameter, and spaced between 10 ft 6 inches and 13 ft 6 inches apart. The log rails measure, on average, 10 to 13 ft long and 5 inches in diameter. The log posts and rails appear to be axe-cut and no wire nails were evident. Method B is used along one interior fence and consists of single log posts with nailed lumber rails. Though many of the rails have been removed from the posts, wire nails are present along the entire length of the post. The posts range in height between 34 inches and 75 inches and the post diameter is between 4 and 5 inches. The posts are spaced between 4 and 8 ft apart. The lumber rails are fragmentary with pieces measuring between 3 to 6 ft in length, 4 to 7 inches wide, and ½ inch thick. The corral is in retains minimal structural integrity.

Smithsonian Site No.: 42Cb2626
Temporary Site No.: 07-172-K10
Site Type: Salt Troughs
NRHP Eligibility: Not Eligible
Description: The site consists of five salt troughs that are located on the southwest facing slope of a ridge overlooking Pleasant Valley. These five features (A through E) are salt troughs that consist of aspen logs, which have a hollowed out v-shape. The feature was likely a salt trough and used to provide salt for grazing sheep. Feature A measures 21 ft 6 inches long and has a maximum diameter of 6 inches. The salt trough is oriented to 310 degrees and possibly has axe-cut ends. Feature B measures 22 ft 10 inches long and has a maximum diameter of 11 inches. The salt trough is oriented to 300 degrees and possibly has axe-cut ends. Feature C measures 13 ft 4 inches long and has a maximum diameter of 7 inches. The salt trough is oriented to 310 degrees and has possibly axe-cut ends. Feature D measures 9 ft 8 inches long and has a maximum diameter of 5 inches. The log is oriented to 62 degrees. Feature E measures 18 ft 6 inches and has a maximum diameter of 7 inches. The log is oriented to 290 degrees. No artifacts were documented at the site.

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION

The National Register Criteria for Evaluation of Significance and procedures for nominating cultural resources to the National Register of Historic Places (NRHP) are outlined in 36 CFR 60.4 as follows:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, material, workmanship, feeling, and association, and that they:

a)...are associated with events that have made a significant contribution to the broad patterns of our history; or

b)...are associated with the lives of persons significant to our past; or

c)...embody the distinctive characteristics of a type, period, or method of construction; or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d)...have yielded or may be likely to yield information important in prehistory or history.

The inventory resulted in the location of one previously documented site (42Cb2436), the documentation of three previously recorded sites (42Cb477, 42Cb479, and 42Cb1032), and the documentation of five new sites (42Cb2622 through 42Cb2626). Three of these sites (42Cb477, 42Cb479, and 42Cb1032) are recommended as eligible to the NRHP. Site 42Cb477, the Jones Mine, was originally documented by Desert West Research in 1985, at which time the site consisted of a visible mine portal and four standing structures. Only the fan house remains standing; and the site is evaluated as eligible to the NRHP under Criterion A. Site 42Cb479, the Kinney Coal Mine, was in operation from 1920 to 1956 and consists of twelve structural features. Though there is little artifactual debris, the standing structures represent the remains of an early coal mining complex. The site is recommended as eligible to the NRHP under Criterion A, as the Kinney Coal Mine is associated with events that have made a significant contribution to the broad patterns of our history.

WHAT?: I SAW BLOG? SEE PG 6

Furthermore, the site has played an important role in the area's economic and community development, as well as regional mining history. Site 42Cb1032, a segment of the Utah and Pleasant Valley Railway, is evaluated as eligible to the NRHP because of the important role the Utah & Pleasant Valley Railway played in the area's economic and community development, especially Utah's mining history from 1876 to the 1930s (Criterion A). The grade (with in-situ rails and ties) recorded herein has been refurbished since the 1890s and was employed until the 1970s, after its use of historical importance. No other unique structural elements such as bridges, trestles, or tunnels occur along this segment of the railway. Hence, other than the railroad tracks, a common engineering characteristic of all railways, 42Cb1032 fails to be strongly associated with a distinctive engineering pattern, style or type Criterion C). Additionally, the site is not associated with the lives of persons significant to our past (Criterion B) and is unlikely to yield further informative significant to the history of the area (Criterion D).

The remaining six sites (42Cb2436, and 42Cb2622-42Cb2626) are recommended as not eligible to the NRHP. Sites 42Cb2436 and 42Cb2625 are historic corrals, 42Cb2622 is a historic trash scatter, 42Cb2623 and 42Cb2624 are historic aspen art sites, and 42Cb2626 consists of several sheep grazing salt troughs. These sites are common historic site types that cannot be linked to any significant event(s) or person(s) (Criteria A and B). These sites do not represent a type, period, or method of construction or the work of a master (Criterion C). Additionally, these sites fail to have the potential to yield information important to the history of the area (Criterion D).

CONCLUSION AND RECOMMENDATIONS

The inventory of Carbon Resources LLC's proposed Kinney 2 mine resulted in the location of one previously documented site(42Cb2436), the documentation of three previously recorded sites (42Cb477, 42Cb479, and 42Cb1032), and the documentation of five new sites (42Cb2622 through 42Cb2626). Three of these sites (42Cb477, 42Cb479, and 42Cb1032) are recommended as eligible to the NRHP and the remaining six sites (42Cb2436, and 42Cb2622-42Cb2626) are recommended as not eligible to the NRHP. Sites 42Cb477 (Jones Mine), 42Cb479 (Kinney Mine) and 42Cb1032 (Utah & Pleasant Valley Railway) are evaluated as eligible the NRHP under Criterion A (associated with significant events in regional history). Therefore, the proposed undertaking will not diminish the integrity of these properties which deems them eligible under Criterion A. Based on the findings archaeological clearance is recommended for this project.

REFERENCES CITED

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1997 *A History of Carbon County*. Salt Lake City: Utah State Historical Society.

APPENDIX A:

INTERMOUNTAIN ANTIQUITIES COMPUTER SYSTEM SITE FORMS (IMACS)
(42Cb477, 42Cb479, 42Cb1032,
and 42Cb2622-42Cb2626)

On file at the Utah Division of State History

COVER PAGE
Must Accompany All Project Reports
Submitted to Utah SHPO

Project Name: Cultural Resource Inventory of Carbon Resources Kinney 2 Mine, (T 12S, R 7E, Sections 32 and 33), Carbon County, Utah.

State Project No.: U-07-MQ-0612p

Report Date: June 8, 2007

County (ies): Carbon County, Utah

Principal Investigator: Keith R. Montgomery

Field Supervisor: Patricia Stavish

Acreage Surveyed
Intensive: 394.7 acres
Recon/Intuitive:

7.5' Series USGS Map Reference(s): Scofield, Utah

Sites Reported	Count	Smithsonian Site Numbers
Archaeological Sites		
Revisits (no inventory form update):	1	42Cb2436
Revisits (updated IMACS form attached):	3	42Cb477, 42Cb479, 42Un1032
New recordings (IMACS form attached):	5	42Cb2622,42Cb2623,42Cb2624 42Cb2625, 42Cb2626
Total Count of Archaeological Sites:	9	
Historic Structures (USHS 106 form attached):	0	
Total National Register Eligible Sites:	3	42Cb477, 42Cb479, 42Un1032

Checklist of Required Items

1. X One Copy of the Final Report.

2. X Copy of 7.5' Series USGS Map With Surveyed/Excavated Area Clearly Identified.

3. Completed IMACS Site Inventory Forms, Including,
   - X Parts A and B or C,
   - X The IMACS Encoding Form,
   - X Site Sketch Map,
   - X Photographs, and
   - X Copy of the Appropriate 7.5' Series USGS Map with the Site Location Clearly Marked with the Smithsonian Site Number.

4. X Completed "Cover Sheet" Accompanying Final Report and Survey Materials.

IMACS SITE FORM

PART A - ADMINISTRATIVE DATA

1. **STATE NO.:** 42Cb477 Update
2. **AGENCY NO.:**
3. **TEMP NO.:**
4. **STATE:** Utah (42) **COUNTY:** Carbon (Cb)
5. **PROJECT:** : CRI of Carbon Resources Kinney 2 Mine, Carbon County, Utah
6. **REPORT NO.:** U-07-MQ-0612p
7. **SITE NAME/PROPERTY NAME:** Jones Mine
8. **CLASS:** [ ] **PREHISTORIC** [X] **HISTORIC** [ ] **PALEONTOLOGIC** [ ] **ETHNOGRAPHIC**
9. **SITE TYPE:** Coal Mine
10. **ELEVATION:** 7816 ft.
11. **UTM GRID: Zone** [12] [486904] **E** [4397545] **N**
12. [SW 1/4] **of** [NW 1/4] **of** [SW 1/4] **of Section** [33] **Township** [12S] **Range** [7E].
13. **MERIDIAN:** Salt Lake (1)
14. **MAP REFERENCE:** USGS 7.5' Series Scofield, Utah 1979
15. **AERIAL PHOTO:** N/A
16. **LOCATION AND ACCESS:** From SR-96 in Scofield, Utah drive north for approximately 0.2 miles to a two track road. Turn right (east) onto the two track road and continue for approximately 0.25 miles. The site datum is located approximately 20 meters southeast of this location. Follow a GPS unit to the above stated UTM coordinates to locate the site.
17. **LAND OWNER:** Private (PR)
18. **FEDERAL ADMIN. UNITS:** N/A
19. **LOCATION OF CURATED MATERIALS:** N/A
20. **SITE DESCRIPTION:** The site is a historic mine named the Jones Mine that is located east of the town of Scofield, Utah. An HAER report of the Jones Mine (HAER No. UT-43) indicates that the earliest development of the site may have been in the 1930s as a truck and wagon mine. Primary construction of the mine was in 1952 by John Marshall and Dan McAlpice and it was abandoned in 1957. The site was originally documented in 1985 by Desert West Research, at which time the site consisted of a visible mine portal (Feature 1), a wooden square frame building with tin roof (Feature 2), a wooden hopper structure (Feature 3), a wood frame tipple (Feature 4), and a stone and wood fan house (Feature 5). During the current recordation of the site, Features 2, 3, and 4 could not be located and it appears that these structures have been reclaimed. At present the only visible structural remains are Features 1 and 5. Feature 1 is the remains of a collapsed coal mine portal. The feature has collapsed and is covered with soils and heavy vegetation. Only a vague earthen depression remains. Feature 5 is a stone and log one room mining building that was appears to have been a fan house with a possible mine portal. The building measures 8 ft (east-west) by 21 ft 1 inch (north-south) and is built into the hillside (east elevation). The mining building is constructed of sandstone block walls with a concrete mortar along the north, east and west walls and has a log roof and log constructed south wall. The logs have been squared and measure 96 inches (length) by 7 inches (width) by 9 inches (height). The height of the building above the ground surface ranges between 6 ft 6 inches and 7 ft 2 inches. The northern wall of the building has a large fan opening that measures 62 inches in diameter and the western wall has a large log encased entrance (6ft 8 inches tall by 4 ft wide) through which one can view a possible mine portal that has been filled or collapsed. Detailed architectural drawings of this build can be found in HAER Report No. UT-43 (attached).

IMACS SITE FORM: 42Cb477 Update

SITE CONDITION: [ ] EXCELLENT [ ] GOOD [X] FAIR [ ] POOR

22. IMPACT AGENT(S): Structural Decay (SD), Dismantling (DM)
23. NAT. REGISTER STATUS: [X] SIGNIFICANT [ ] NON-SIGNIFICANT [ ] UNEVALUATED
JUSTIFY: 42Cb477 has been evaluated as eligible to the NRHP under Criterion A because of its importance as of the mining district around Scofield.
24. PHOTOS: Roll 07-172:2 Exp. 10-11
25. RECORDED BY: Patricia Stavish
26. SURVEY ORGANIZATION: Montgomery Archaeological Consultants
27. ASSISTING CREW MEMBERS: Adam Thomas
28. SURVEY DATE: May 25, 2007
LIST OF ATTACHMENTS: [ ] PART B [X] PART C
[X] TOPO MAP [X] SITE MAP
[X] PHOTOS [ ] OTHER
[ ] ARTIFACT/FEATURE SKETCH

PART A - ENVIRONMENTAL DATA

29. SLOPE: [98] (Degrees) [998] ASPECT (Degrees)
DISTANCE TO PERMANENT WATER: [18] X 100 METERS
TYPE OF WATER SOURCE: [ ] SPRING/SEEP [ ] STREAM/RIVER
[X] LAKE [ ] OTHER
NAME OF WATER SOURCE: Scofield Reservior
31. GEOGRAPHIC UNIT: Wasatch Plateau (TDA)
32. TOPOGRAPHIC LOCATION
PRIMARY LANDFORM: Hill (B)
SECONDARY LANDFORM: Slope (Q)
DESCRIBE: The site is loacted at the base of the slope of a hill.
33. ON-SITE DEPOSITIONAL CONTEXT: Colluvium (I)
DESCRIPTION OF SOIL: The soil is a brown silty sand with gravels.
34. VEGETATION
A. LIFE ZONE: Canadian (C)
B. COMMUNITY
PRIMARY ON-SITE: Aspen (A)
SECONDARY ON-SITE: Grassland (M)
SURROUNDING SITE: Low Sagebrush (Q)
DESCRIBE: The vegetation includes aspen, bunch grasses, cheat grass, and lov sagebrush.
MISCELLANEOUS TEXT:
36. COMMENTS/CONTINUATIONS:

IMACS SITE FORM: 42Cb477 Update

PART C - HISTORIC SITES

1. **SITE TYPE:** Coal Mine
2. **HISTORIC THEME(s):** Mining/Mineral Extraction (MN)
3. **CULTURE:**

CULTURAL AFFILIATION	DATING METHOD
European/American (EA)	Historical Record (I)

DESCRIBE: European-Americans began settling the area in the 19th century participating in farming, ranching, and timber industries. Mining activities became prevalent at the turn of the 20th century.

4. **OLDEST DATE:** 1930s **RECENT DATE:** 1957
HOW DETERMINED: An HAER report of the Jones Mine (HAER No. UT-43) indicates that the earliest development of the site may have been in the 1930s as a truck and wagon mine. Primary construction of the mine was in 1952 by John Marshall and Dan McAlpice and it was abandoned in 1957.
5. **SITE DIMENSIONS:** [42] **M by** [12] **M**
Area [504] **Sq. M**
6. **SURFACE COLLECTION/METHOD:** None (A)
SAMPLING METHOD: N/A
7. **ESTIMATED DEPTH OF CULTURAL FILL:** Surface (A)
How estimated (If tested, show location on map): The remaining features of the mine are surface features.
8. **EXCAVATION STATUS:** [ ] **EXCAVATED** [ ] **TESTED** [X] **UNEXCAVATED**
TESTING METHOD: N/A
9. **SUMMARY OF ARTIFACTS AND DEBRIS:** None
DESCRIBE: No artifacts were documented in association with the site.
10. **CERAMIC ARTIFACTS:** None

PASTE	GLAZE/SLIP	DECORATION	PATTERN	VESSEL	#

ESTIMATED NUMBER OF CERAMIC TRADEMARKS: [0]
DESCRIBE: N/A
11. **GLASS:** None

#	MANUFACTURE	COLOR	FUNCTION	TRADEMARK	DECORATION

DESCRIBE: N/A
12. **MAXIMUM DENSITY #/SQ. M (glass and ceramics):** 0/sq. m.
13. **TIN CANS:** None

TYPE	OPENING	SIZE	MODIFIED	LABEL/MARK	FUNCTION

DESCRIBE: N/A
LANDSCAPE AND CONSTRUCTED FEATURES (locate on site map): 1 Mine Portal (MN
DESCRIBE: Feature 1 is the remains of a collapsed coal mine portal. The feature has collapsed and is covered with soils and heavy vegetation. Only a vague earthen depression remains.

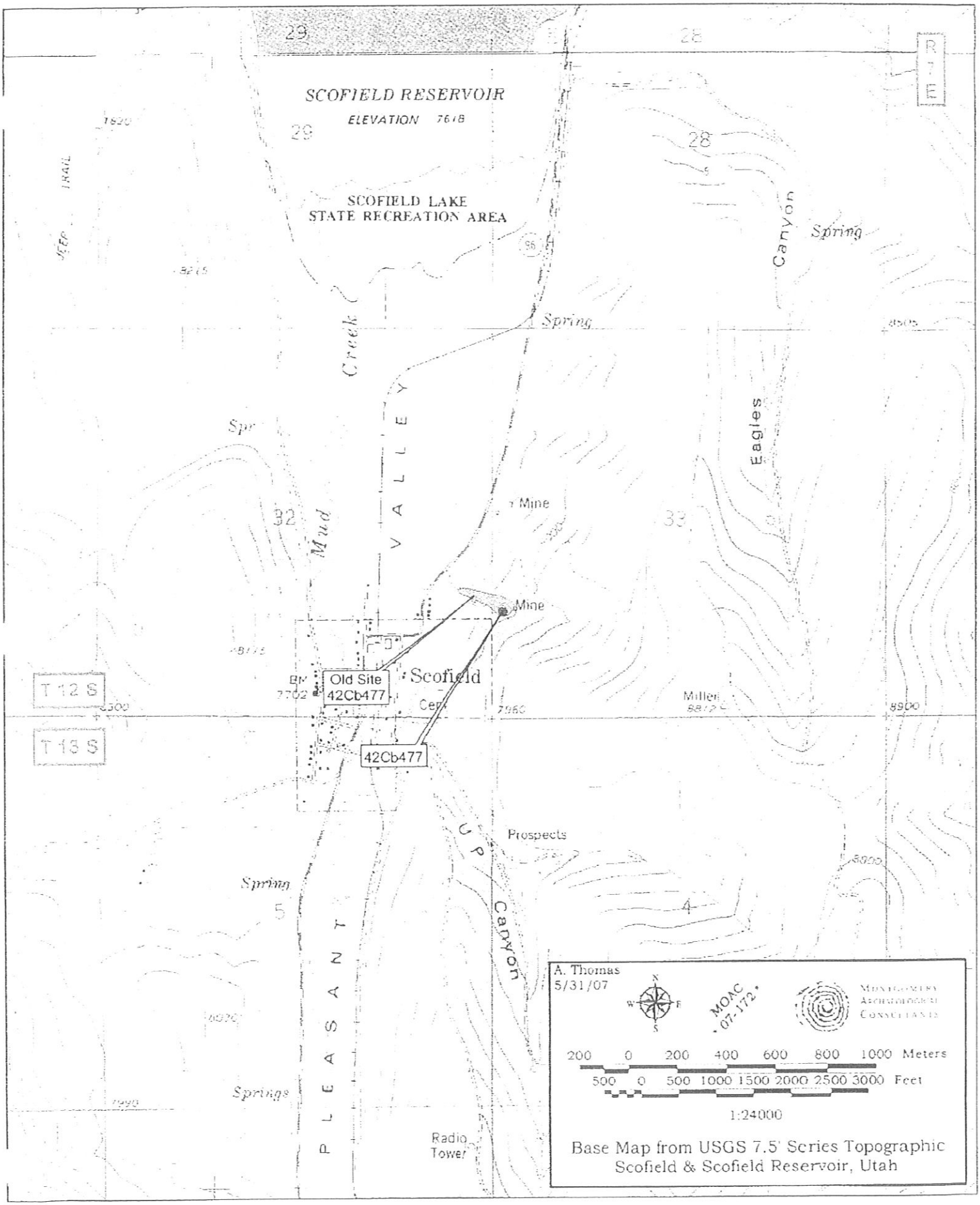
IMACS SITE FORM: 42Cb477 Update, PART C

15. **BUILDINGS AND STRUCTURES (locate on site map):**

#	MATERIAL	TYPE
1	Combination (W)	Mining Building (DO)

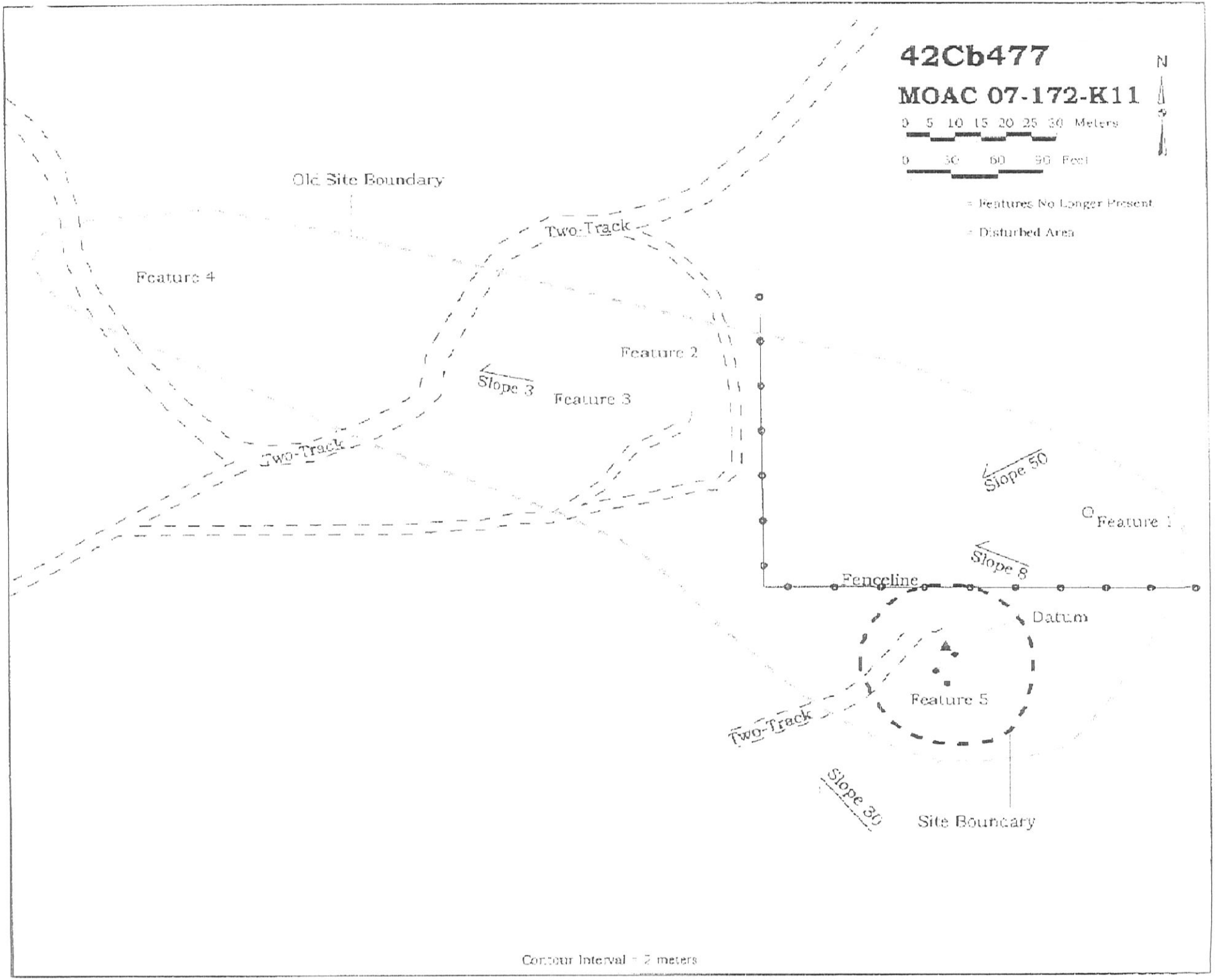
DESCRIBE: Feature 5 is a stone and log one room mining building that was appears to have been a fan house with a possible mine portal. The building measures 8 ft (east-west by 21 ft 1 inch (north-south) and is built into the hillside (east elevation). The mining building is constructed of sandstone block walls with a concrete mortar along the north, east and west walls and has a log roof and log constructed south wall. The logs have been squared and measure 96 inches (length) by 7 inches (width) by 9 inches (height). The height of the building above the ground surface ranges between 6 ft 6 inches and 7 ft 2 inches. The northern wall of the building has a large fan opening that measures 62 inches in diameter and the western wall has a large log encased entrance (6ft 8 inches tall by 4 ft wide) through which one can view a possible mine portal that has been filled or collapsed. Detailed architectural drawings of this build can be found in HAER Report No. UT-43 (attached).

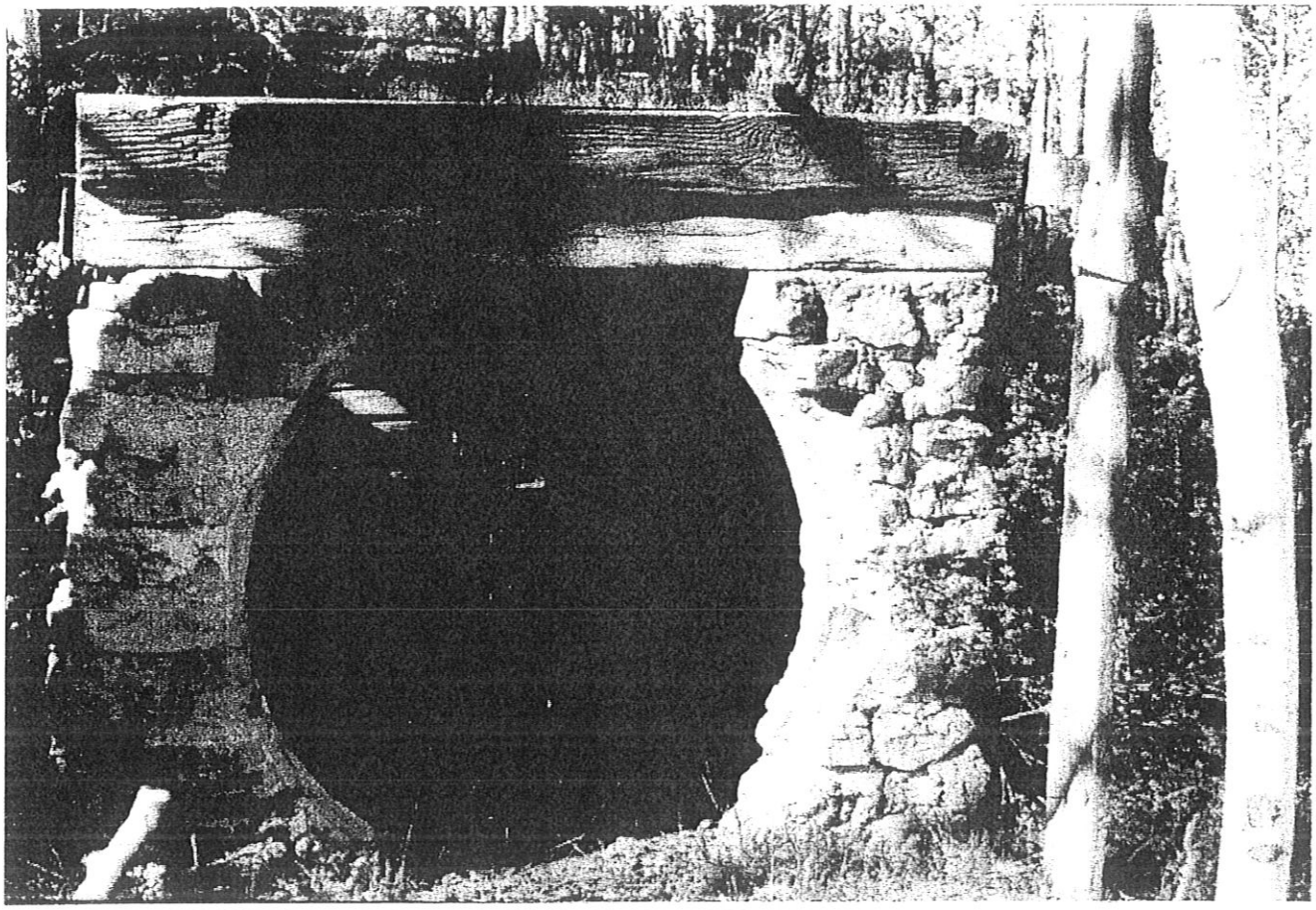
16. **COMMENTS/CONTINUATIONS:**



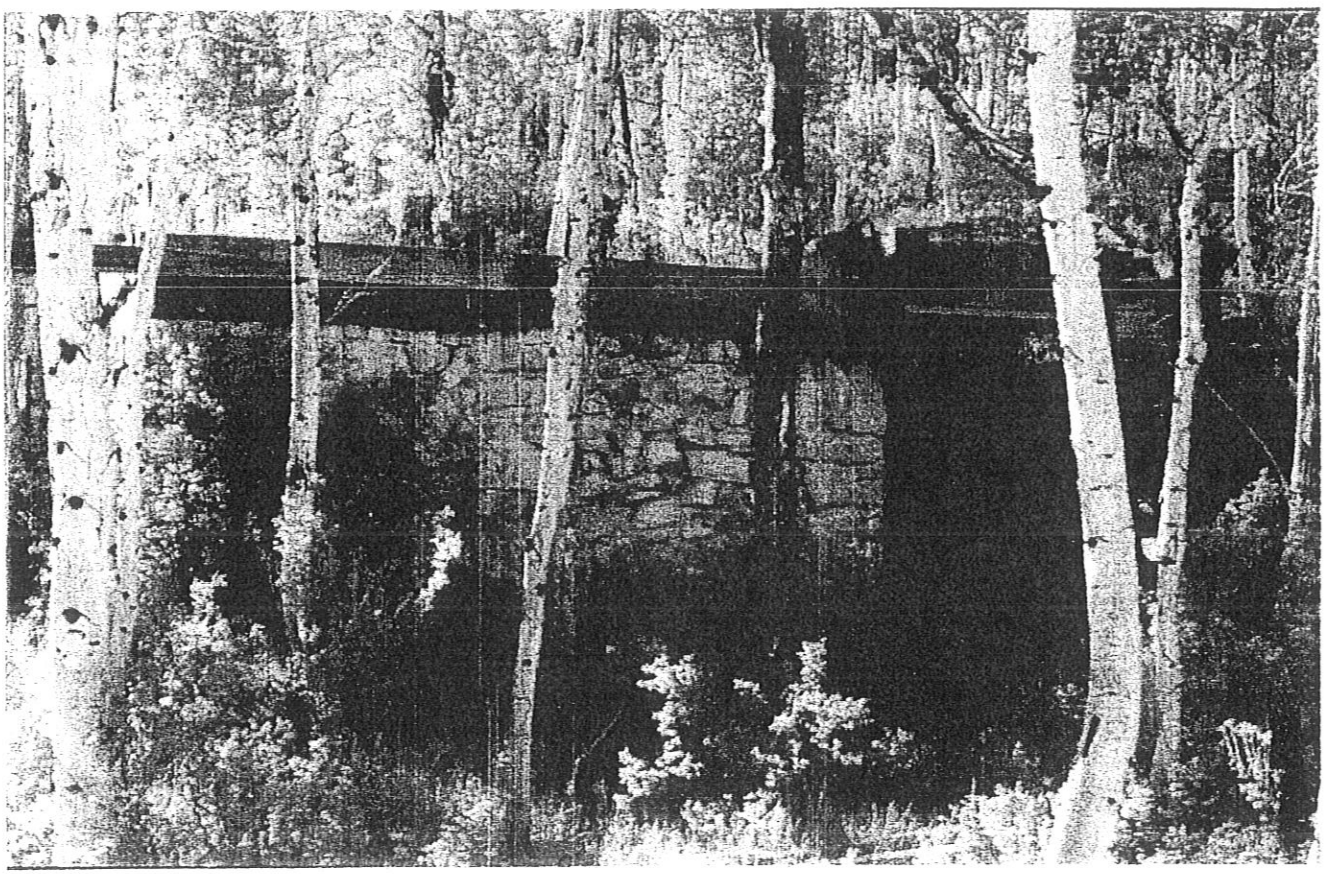
42Cb477 Update. Site Location Map.

42Cb477 Update. Site Sketch Map.





42Cb477 Update. The north wall of Feature 5, a fan house, facing south. Roll 07-172:2 Exp. 10.



42Cb477 Update. The west side of Feature 5, facing east. Roll 07-172:2 Exp. 11.

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name: Darren Johnston

A

1 State Site Number: 42 - CB - UPDATE 477
2 Agency Site Number:
6 Agency Report Number: 07MS2612
10 Elevation: 7810
11 Zone: 12 Easting: 486994 Northing: 4397545
12 1/4: SW 1/4: NW 1/4: SW Sec.: 33 T.: 12 S R.: 007 E
13 Merid.: 1
14 USGS Map: SCOFIELD, UTAH 1979
17 Owner: PR
18 Forest: Dist./Park:
19 Loc. Curated Materials:
21 Cond.: C
22 Impacts: SD DM
23 N.R.: C
26 Organ.: MQ
29 Survey Date: 05 - 25 - 97
29 Slope: 98 Aspect: 998
30 Water: distance/type: 018 C
31 Geog. Unit: TDA
32 Topographic Location: 1st: B 2nd: S
33 Dep.: I
34 Vegetation: 1: C 2: AMS 3:
35 Misc. Text, Site Name:

B

2 Culture/Dating Method:
3 Area:
4 Collect:
5 Depth:
6 Excav. Status:
7 Prehistoric Artifacts:
8 Lithic Tools: # / type:
9 #: Rating Stages:
11 Ceramics: # / type:
13 Features: # / type:
14 Architecture: # / material / type:

C

2 Historic Theme: MN
3 Cultures / Dating Method: EAI
4 Dates: 1830 1957
5 Area: 504
6 Collect.:
7 Depth: A
8 Excav. Status:
9 Artifacts:
14 Features: # / type: 1 MN
15 Architecture: # / material / type: 1 WDO

IMACS SITE FORM

PART A - ADMINISTRATIVE DATA

1. **STATE NO.:** 42Cb479 Update
2. **AGENCY NO.:**
3. **TEMP NO.:**
4. **STATE:** Utah (42) **COUNTY:** Carbon (Cb)
5. **PROJECT:** CRI of Carbon Resources Kinney 2 Mine, Carbon County, Utah
6. **REPORT NO.:** U-07-MQ-0612p
7. **SITE NAME/PROPERTY NAME:** Kinney Mine
8. **CLASS:** [ ] PREHISTORIC [X] HISTORIC [ ] PALEONTOLOGIC [ ] ETHNOGRAPHI
9. **SITE TYPE:** Coal Mine
10. **ELEVATION:** 7758 ft.
11. **UTM GRID:** Zone [12] [486996] E [4398156] N
12. [SW 1/4] of [NW 1/4] of [NW 1/4] of Section [33] Township [12S] Range [7E].
    [SE 1/4] of [NW 1/4] of [NW 1/4] of Section [33] Township [12S] Range [7E].
    [N 1/2] of [SW 1/4] of [NW 1/4] of Section [33] Township [12S] Range [7E].
    [SW 1/4] of [SW 1/4] of [NW 1/4] of Section [33] Township [12S] Range [7E].
13. **MERIDIAN:** Salt Lake (1)
14. **MAP REFERENCE:** USGS 7.5' Series Scofield, Utah 1979
15. **AERIAL PHOTO:** N/A
1. **LOCATION AND ACCESS:** From SR-96 in Scofield, Utah drive north for approximately 0 miles to a two track road. Turn right (east) onto the two track road and continue f approximately 0.1 miles to an intersection with a two track road and turn north (lef Continue on this two track for approximately 0.3 miles. The site datum is locate approximately 10 meters east of this location. Follow a GPS unit to the above stated UT coordinates to locate the site.
17. **LAND OWNER:** Private (PR)
18. **FEDERAL ADMIN. UNITS:** N/A
19. **LOCATION OF CURATED MATERIALS:** N/A
20. **SITE DESCRIPTION:** The site is the Kinney Coal mine located northeast of the town Scofield, Utah. The UMSH database of coal mines in Utah states that the Union Pacif Coal Co. opened the mine in 1920 and the mine closed in 19[illegible] (http://geology.utah.gov/databases/umsh). The site was originally documented in 1985 b Desert West Research, at which time the site consisted of twelve structural features relatir to coal mining activities and the site was recommended as not eligible to the NRHP. Th current recordation includes additional description of the features, photos, and a scaled si map and site location map. The Kinney coal mine consists of one standing concre powder house (Feature 1), seven stone or stone/concrete wall that are associated with th location of collapsed mine portals (Features 3, 4, 5, 6, 8, 9, and 10), a concrete and stor retaining wall (Feature 11), and two concrete foundations (Features 2 and 12) that like represent a weigh scale and tipple, respectively. No artifacts were documented at the sit
21. **SITE CONDITION:** [ ] EXCELLENT [ ] GOOD [X] FAIR [ ] POOR
22. **IMPACT AGENT(S):** Structural Decay (SD), Dismantling (DM)

IMACS SITE FORM: 42Cb479 Update

23. NAT. REGISTER STATUS: [X] SIGNIFICANT [ ] NON-SIGNIFICANT [ ] UNEVALUATED
JUSTIFY: The site is the Kinney Coal mine located near Scofield, Utah. The site was in operation from 1920 to 1956 and consists of twelve structural features. Though there is little artifactual debris, the standing structures represent the remains of an early coal mining complex. This mine dates to the boom and bust cycles that were prevalent in the coal mining industry during the first half of the 20th century. The site is not associated with the lives of persons significant to our past (Criterion B); nor does the site embody the distinctive characteristics of a type, period, or method of construction or represent the work of a master. Additionally, as the site lacks informative artifactual debris, the site is unlikely to yield further information (Criterion D). The site is recommended as eligible to the NRHP under Criterion A, as the Kinney Coal Mine is associated with events that have made a significant contribution to the broad patterns of our history. Furthermore, the site has played an important role in the area's economic and community development, as well as regional mining history.
24. PHOTOS: Roll 07-172:2 Exp. 12-23 and Roll 07-172:3 Exp. 1
25. RECORDED BY: Patricia Stavish
26. SURVEY ORGANIZATION: Montgomery Archaeological Consultants
27. ASSISTING CREW MEMBERS: Adam Thomas
28. SURVEY DATE: May 25, 2007

LIST OF ATTACHMENTS:

[ ] PART B	[X] PART C
[X] TOPO MAP	[X] SITE MAP
[X] PHOTOS	[ ] OTHER
[ ] ARTIFACT/FEATURE SKETCH	

IMACS SITE FORM: 42Cb479 Update

PART A - ENVIRONMENTAL DATA

29. SLOPE: [98] (Degrees) [998] ASPECT (Degrees)
30. DISTANCE TO PERMANENT WATER: [11] X 100 METERS
    TYPE OF WATER SOURCE: [ ] SPRING/SEEP [ ] STREAM/RIVER
    [X] LAKE [ ] OTHER
    NAME OF WATER SOURCE: Scofield Reservior
31. GEOGRAPHIC UNIT: Wasatch Plateau (TDA)
32. TOPOGRAPHIC LOCATION
    PRIMARY LANDFORM: Hill (B)
    SECONDARY LANDFORM: Slope (Q)
    DESCRIBE: The site is located on the slope of a hill, northeast of the town of Scofield, Utah.
33. ON-SITE DEPOSITIONAL CONTEXT: Colluvium (I)
    DESCRIPTION OF SOIL: The soil is a brown sandy silt with shale and sandstone gravels.
34. VEGETATION
    A. LIFE ZONE: Canadian (C)
    B. COMMUNITY
    PRIMARY ON-SITE: Aspen (A)
    SECONDARY ON-SITE: Low Sagebrush (Q)
    SURROUNDING SITE: Aspen (A)
    DESCRIBE: The vegetation includes aspen, low sagebrush, various shrubs, and grasses.
35. MISCELLANEOUS TEXT:
36. COMMENTS/CONTINUATIONS:

IMACS SITE FORM: 42Cb479 Update

PART C - HISTORIC SITES

1. SITE TYPE: Coal Mine
2. HISTORIC THEME(s): Mining/Mineral Extraction (MN)
3. CULTURE:

CULTURAL AFFILIATION	DATING METHOD
European/American (EA)	Historical Record (I)

DESCRIBE: European-Americans began settling the area in the 19th century participating in farming, ranching, and timber industries. Mining activities became prevalent at the turn of the 20th century.

4. OLDEST DATE: 1920 RECENT DATE: 1956
HOW DETERMINED: The UMSH database of coal mines in Utah states that the Union Pacific Coal Co. opened the mine in 1920 and the mine closed in 1956 (http://geology.utah.gov/databases/umsh).
5. SITE DIMENSIONS: [285] M by [65] M
Area [18525] Sq. M
6. SURFACE COLLECTION/METHOD: None (A)
SAMPLING METHOD: N/A
7. ESTIMATED DEPTH OF CULTURAL FILL: Surface (A)
How estimated (If tested, show location on map): The features of the mine are surface features.
8. EXCAVATION STATUS: [ ] EXCAVATED [ ] TESTED [X] UNEXCAVATED
TESTING METHOD: N/A
9. SUMMARY OF ARTIFACTS AND DEBRIS: None
DESCRIBE: No artifacts were documented in association with the site.
10. CERAMIC ARTIFACTS: None

PASTE	GLAZE/SLIP	DECORATION	PATTERN	VESSEL	#

ESTIMATED NUMBER OF CERAMIC TRADEMARKS: [0]
DESCRIBE: N/A
11. GLASS: None

#	MANUFACTURE	COLOR	FUNCTION	TRADEMARK	DECORATION

DESCRIBE: N/A
12. MAXIMUM DENSITY #/SQ. M (glass and ceramics): 0/sq. m.
13. TIN CANS: None

TYPE	OPENING	SIZE	MODIFIED	LABEL/MARK	FUNCTION

DESCRIBE: N/A
14. LANDSCAPE AND CONSTRUCTED FEATURES (locate on site map): None
DESCRIBE: N/A
15. BUILDINGS AND STRUCTURES (locate on site map):

#	MATERIAL	TYPE
1	Concrete (F)	Mining Building (DO)
3	Concrete (F)	Foundations (BY)
6	Stone (B)	Wall (BG)
2	Combination (W)	Wall (BG)

IMACS SITE FORM: 42Cb479 Update

PART C - HISTORIC SITES

1. SITE TYPE: Coal Mine
2. HISTORIC THEME(s): Mining/Mineral Extraction (MN)
3. CULTURE:

CULTURAL AFFILIATION	DATING METHOD
European/American (EA)	Historical Record (I)

DESCRIBE: European-Americans began settling the area in the 19th century participating in farming, ranching, and timber industries. Mining activities became prevalent at the turn of the 20th century.

4. OLDEST DATE: 1920 RECENT DATE: 1956
HOW DETERMINED: The UMSH database of coal mines in Utah states that the Union Pacific Coal Co. opened the mine in 1920 and the mine closed in 1956 (http://geology.utah.gov/databases/umsh).
5. SITE DIMENSIONS: [285] M by [65] M
Area [18525] Sq. M
6. SURFACE COLLECTION/METHOD: None (A)
SAMPLING METHOD: N/A
7. ESTIMATED DEPTH OF CULTURAL FILL: Surface (A)
How estimated (If tested, show location on map): The features of the mine are surface features.
8. EXCAVATION STATUS: [ ] EXCAVATED [ ] TESTED [X] UNEXCAVATED
TESTING METHOD: N/A
9. SUMMARY OF ARTIFACTS AND DEBRIS: None
DESCRIBE: No artifacts were documented in association with the site.
10. CERAMIC ARTIFACTS: None

PASTE	GLAZE/SLIP	DECORATION	PATTERN	VESSEL	#

ESTIMATED NUMBER OF CERAMIC TRADEMARKS: [0]
DESCRIBE: N/A
11. GLASS: None

#	MANUFACTURE	COLOR	FUNCTION	TRADEMARK	DECORATION

DESCRIBE: N/A
12. MAXIMUM DENSITY #/SQ. M (glass and ceramics): 0/sq. m.
13. TIN CANS: None

TYPE	OPENING	SIZE	MODIFIED	LABEL/MARK	FUNCTION

DESCRIBE: N/A
14. LANDSCAPE AND CONSTRUCTED FEATURES (locate on site map): None
DESCRIBE: N/A
15. BUILDINGS AND STRUCTURES (locate on site map):

#	MATERIAL	TYPE
1	Concrete (F)	Mining Building (DO)
3	Concrete (F)	Foundations (BY)
6	Stone (B)	Wall (BG)
2	Combination (W)	Wall (BG)

DESCRIBE: Feature 1 is a single room powder house constructed of concrete that located at the south end of the site. The structure measures 16 ft 2 inches (east-west) 12 ft 2 inches (north-south) and is 9 ft 8 inches in height. The west wall of the structure h a single doorway that is lined in wood and has an opening measuring 3 ft 2 inches wide 6 ft 10 inches tall. A small square hole is located above the door and measures 7 inch by 10 inches. The roof of the structure consists of what appears to be lengths of metal pi (oriented east-west) that are overlain with a thin slab of concrete. There is a collaps lumber pen (or lean-to) located next to the structure that measures 9 ft 6 inches long a is approximately 4 ft 6 inches in height. The lumber measures, on average, 8 ft 7 inch by 7 ½ inches by 5/8 inch. There are several pieces of sheet metal in the collapsed lumb pen.

Feature 2 is an unknown concrete structure located at the northern most end of the si The feature consists of two concrete slabs or foundations that measure approximately ft (western most) and 26 ft (eastern most) in length and are oriented in a north-sou direction. The concrete slabs measure approximately 12 inches in width and are of unknown depth. Early documentation describes this feature as a possible foundation a scale.

Feature 3 is a sandstone masonry wall that is associated with the location of a collaps mine portal. The wall is constructed into the slope of the hill and is constructed of cru undressed sandstone rocks that are dry-laid. The wall measures 3 ft 10 inches in heig (3 stone courses) and appears to be two stone courses thick (12 inches are exposed). T average size of the sandstone stones is 11 by 9 by 4 inches. Much of the wall is heav covered in vegetation.

Feature 4 is a sandstone masonry wall that is associated with the location of a collaps mine portal. The wall is constructed in the slope of the hill and appears to form a sligh squared u-shape. The wall is partially collapsed in two sections. The wall is construct of crude undressed sandstone rocks that are dry-laid. The wall measures 4 ft 5 inches height (17 stone courses) and has an exposed thickness of 24 inches. The two standi portions of the wall measure 6 ft, northern most portion, and the southern most porti measures 8 ft 10 inches north-south then curves to the east and measures 7 ft 4 inche The sandstone blocks are irregularly shaped with an average size of 10 by 8 by 10 inche Much of the wall is heavily covered in vegetation.

Feature 5 consists of two sandstone masonry walls that are associated with the location a collapsed mine portal. The walls are constructed into the slopes of the hill on either si of the mine portal and are built with crude undressed and dry laid sandstone blocks. T walls are oriented, roughly, north-south. The walls are spaced approximately 8 feet apa The northern most wall measures approximately 29 ft in length, with a maximum height 5 ft (12 stone courses), and an exposed thickness of 12 inches. The southern most w measures approximately 12 ft 6 inches in length, with a maximum height of 4 ft 2 inches (stone courses), and an exposed thickness of 12 inches. The irregular sandstones have average size of 12 by 6 by 10 inches.

Feature 6 consists of two poured concrete walls that are associated with the location of a collapsed mine portal. The walls are constructed into the slopes of the hill on either side of the mine portal. The walls are oriented, roughly, north-south and are spaced approximately 8 ft 10 inches apart. The northern most wall measures 21 ft 6 inches in length, with a maximum height of 24 inches, and a partially exposed width of 16 inches. The southern most wall is constructed of poured concrete walls with a small section of sandstone masonry wall toward the west end. The entire length of the wall 19 ft 2 inches. The concrete portion of the wall measures 11 ft 2 inches in length, with a maximum height of 19 inches, and an exposed width of 7 inches. The masonry portion of the wall is partially collapsed and is constructed of irregularly shaped sandstone stones that are dry laid. The wall measures 8 ft in length, with a maximum height of 24 inches, and an exposed width of 13 inches.

Feature 7 is a concrete slab foundation that likely represents the remains of a tipple. The poured concrete slab measures 10 feet (north-south) by 4 feet (east-west) and stands approximately 16 inches above the modern ground surface. The slab has eight vertically places metal posts with threaded tops that measure 1 3/8 inches in diameter. The concrete is in poor condition and is heavily degraded around all of the edges.

Feature 8 is a sandstone masonry wall that marks the location of a collapsed mine portal. The wall is constructed into the slope at the base of the hill and is constructed of crude undressed sandstone rocks that are dry-laid. The wall measures 8 ft 2 inches in length, with a maximum height of 34 inches (five stone courses), and an exposed width of 12 inches. The irregularly shaped sandstone stones range in size between 6 by 4 inches and 20 by 6 inches.

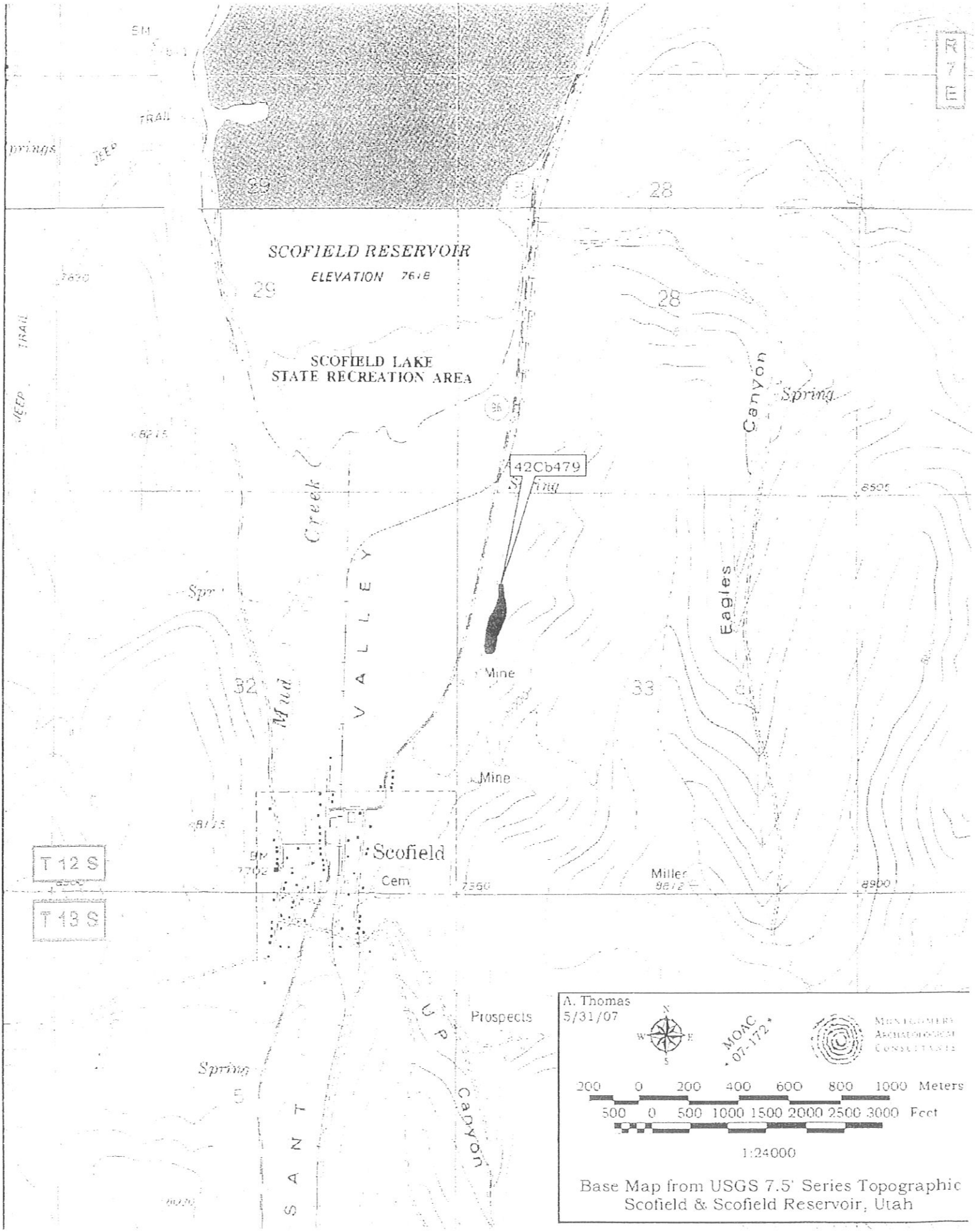
Feature 9 is a sandstone masonry wall that marks the location of a collapsed mine portal. The wall is constructed into the slope at the base of the hill and is constructed of crude undressed sandstone rocks that are dry-laid. The wall measures 18 ft 6 inches in length, with a maximum height of 2 ft 2 inches (eight stone courses), and an exposed width of 18 inches. The irregularly shaped sandstone stones range in size between 6 by 4 inches and 20 by 6 inches. A piece of wood has been placed near the middle of the stone wall.

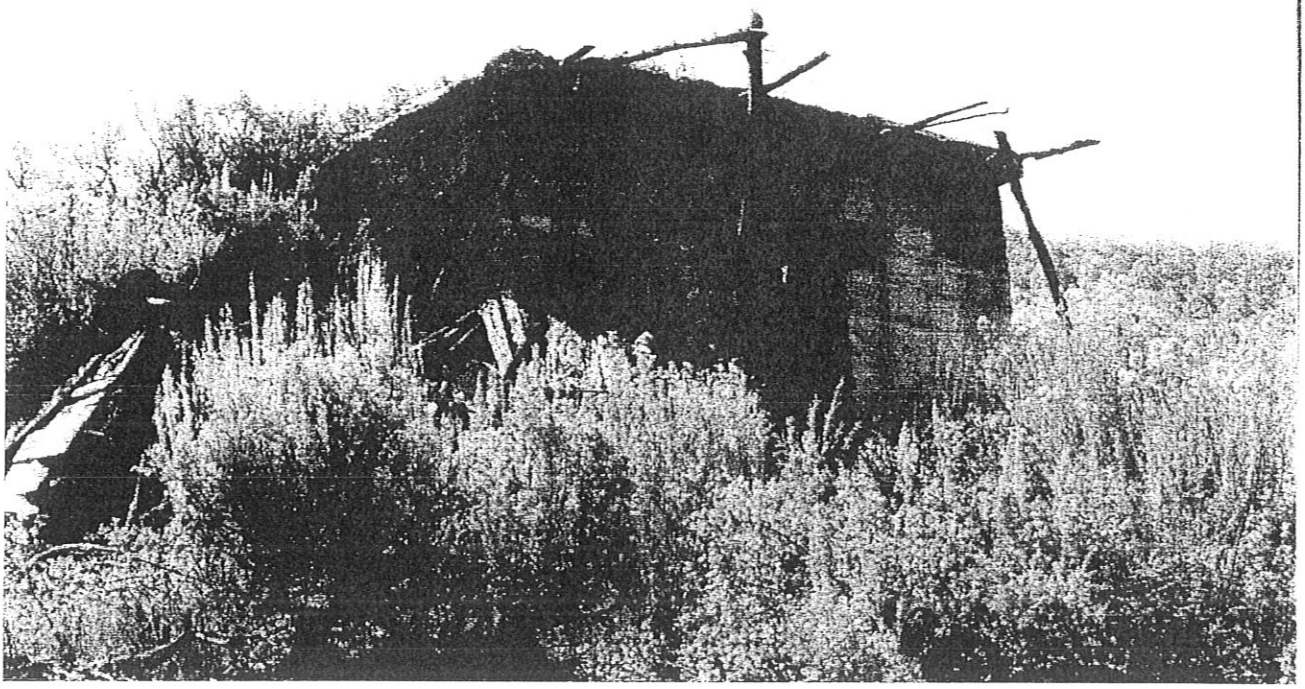
Feature 10 is a sandstone masonry wall that marks the location of a collapsed mine portal. The wall is constructed into the slope at the base of the hill and is constructed of crude undressed sandstone rocks that are dry-laid. The wall measures 4 ft 2 inches in length, with a maximum height of 2 ft 10 inches (six stone courses), and an exposed width of 12 inches. The irregularly shaped sandstone stones range in size between 6 by 4 inches and 20 by 6 inches.

Feature 11 is a concrete and masonry stone retaining wall located on the slope of the hill and was likely constructed to prevent erosion of the slope or to hold the weight of coal spoil piles placed up-slope. The wall has broken half way across and part of the wall has shifted down slope. Th full length of the retaining wall is 20 ft 4 inches, with a maximum height of 36 inches (six stone courses), and a width of 26 inches. The stones are block shaped and range in size between 13 by 4 inches and 16 by 5 inches.

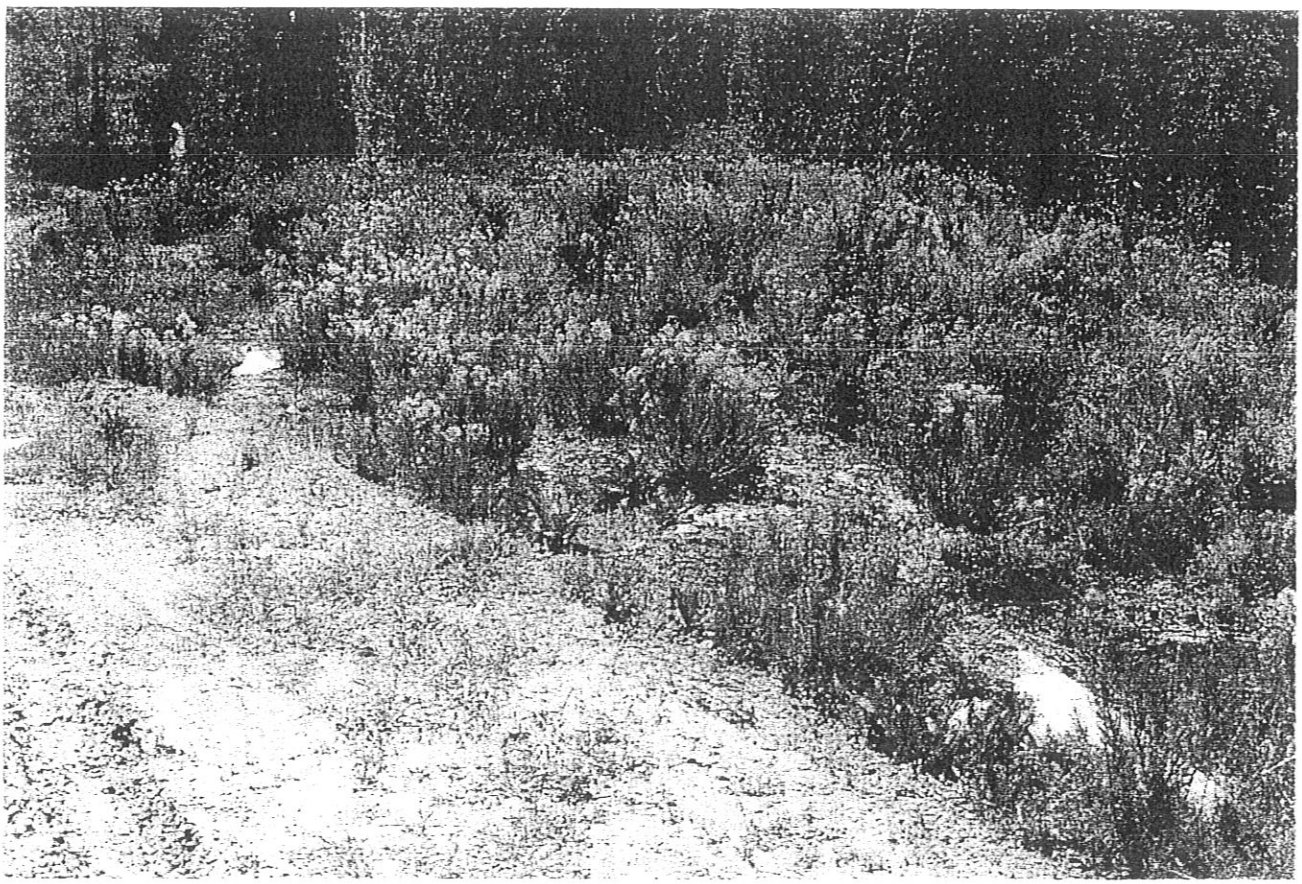
Feature 12 is a concrete slab located along the two track road that crosses the site. The concrete slab measures 24 feet (north-south) by 30 inches (east-west) and is 6 inches thick above the ground surface. A metal post with a threaded end is located in the concrete slab and has been bent over. The concrete is degraded along the edges.

16. COMMENTS/CONTINUATIONS:

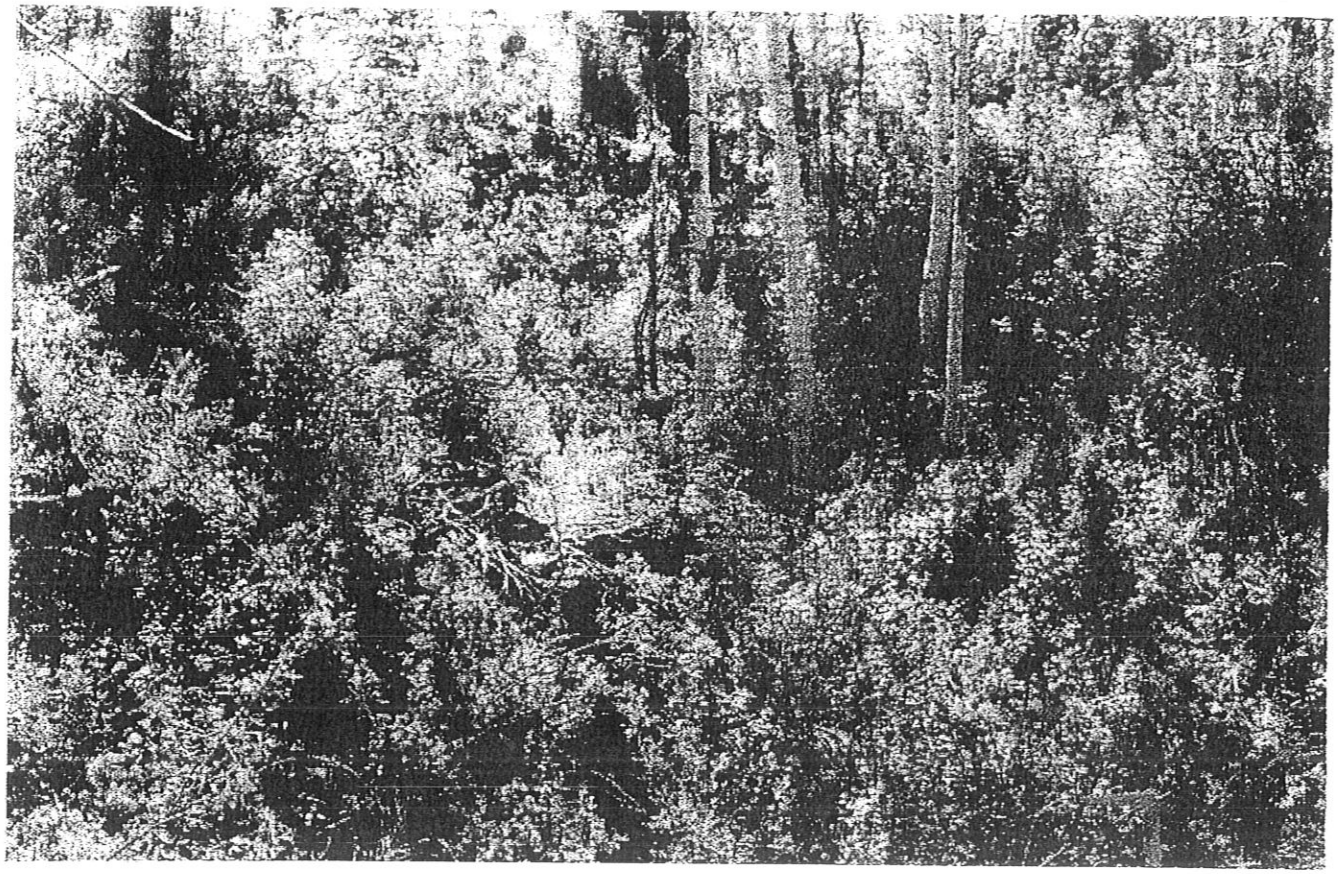

SCOFIELD RESERVOIR
ELEVATION 7618
SCOFIELD LAKE
STATE RECREATION AREA
42Cb479
Spring
Mine
Mine
Scofield
Cem
Prospects
Spring
Eagles Canyon
Mud Creek
VALLEY
SANTAQUIN
T 12 S
T 13 S
R 7 E
29
28
32
33
5
A. Thomas
5/31/07
MOAC
07-172
Montgomery Archaeological Consultants
200 0 200 400 600 800 1000 Meters
500 0 500 1000 1500 2000 2500 3000 Feet
1:24000
Base Map from USGS 7.5' Series Topographic
Scofield & Scofield Reservoir, Utah



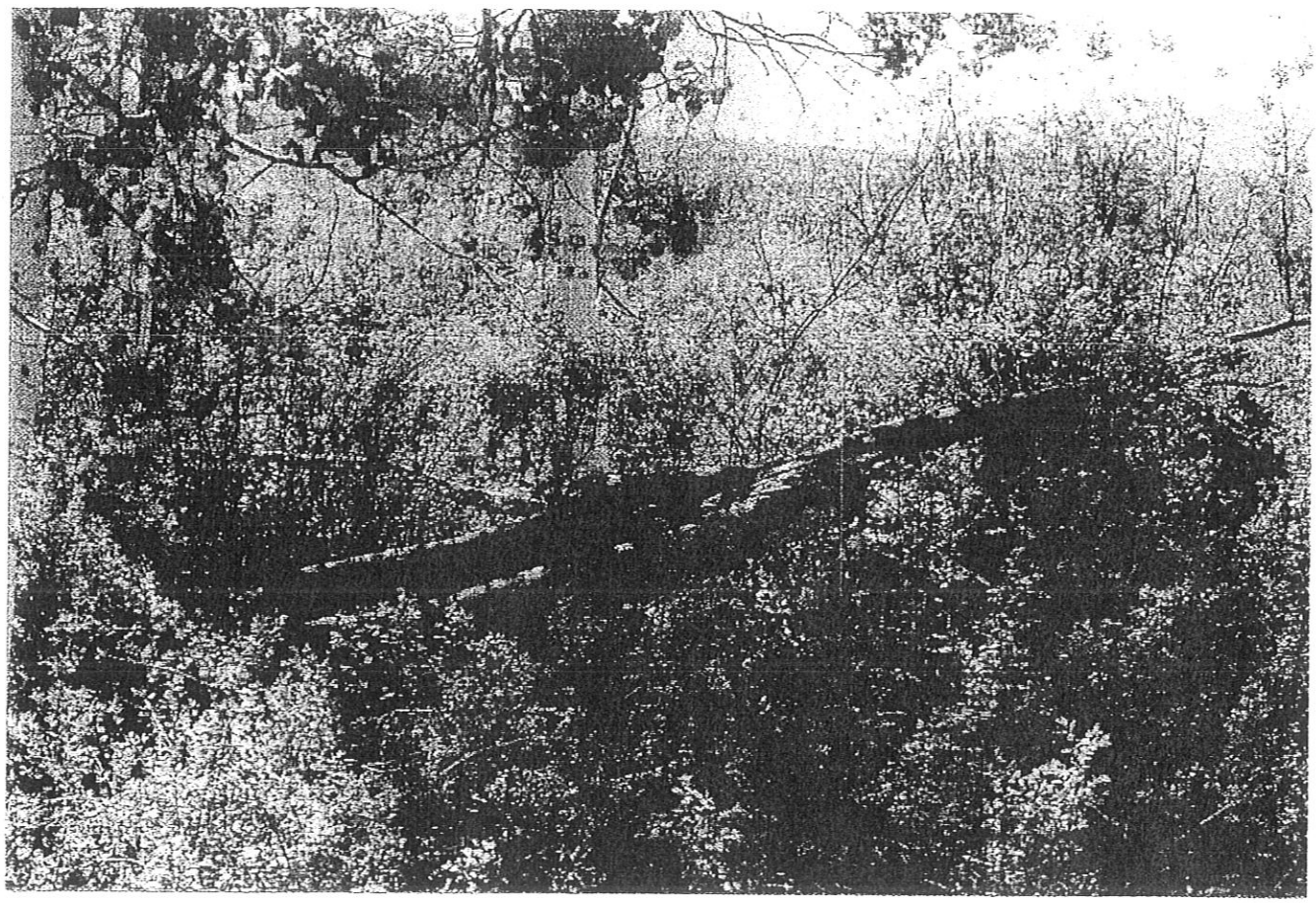
42Cb479. Feature 1, a concrete powder house, facing southeast. Roll 07-172:2 Exp. 12.



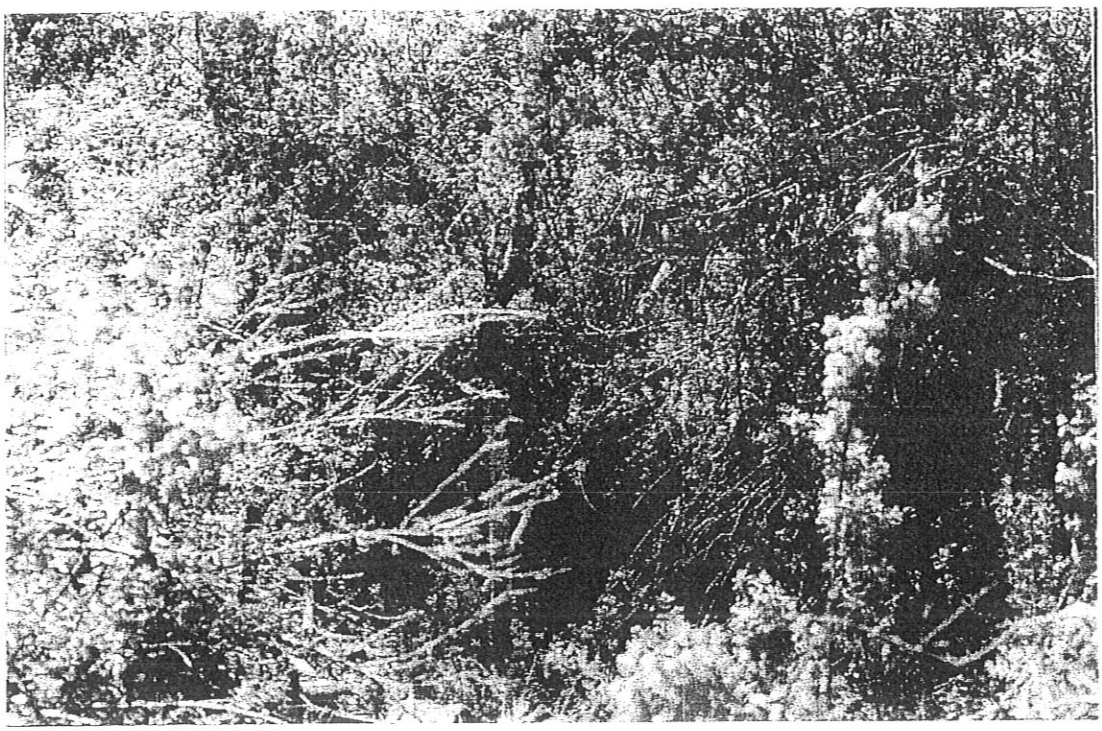
42Cb479. Feature 2, concrete foundations and possible scale, facing south. Roll 07-172:3 Exp. 2.



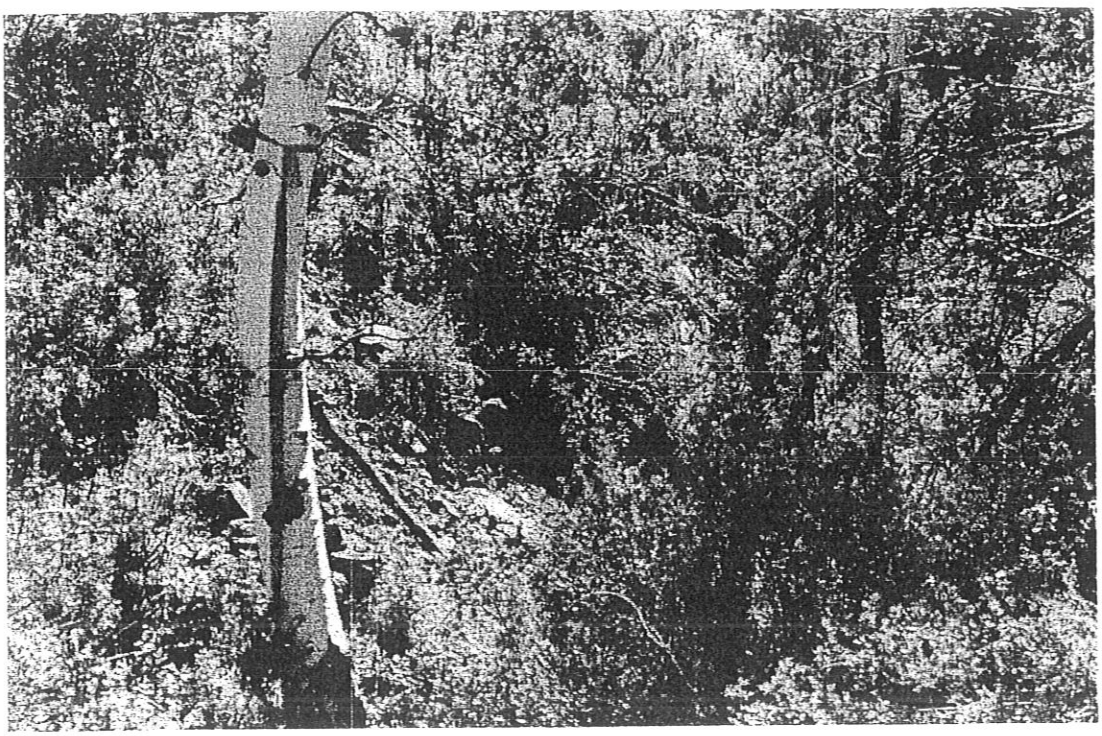
42Cb479. Feature 3, a sandstone masonry wall, and location of collapsed mine portal; facing east. Roll 07-172:2 Exp. 18.



42Cb479. Feature 4, a sandstone masonry wall, and location of collapsed mine portal; facing east. Roll 07-172:2 Exp. 17.

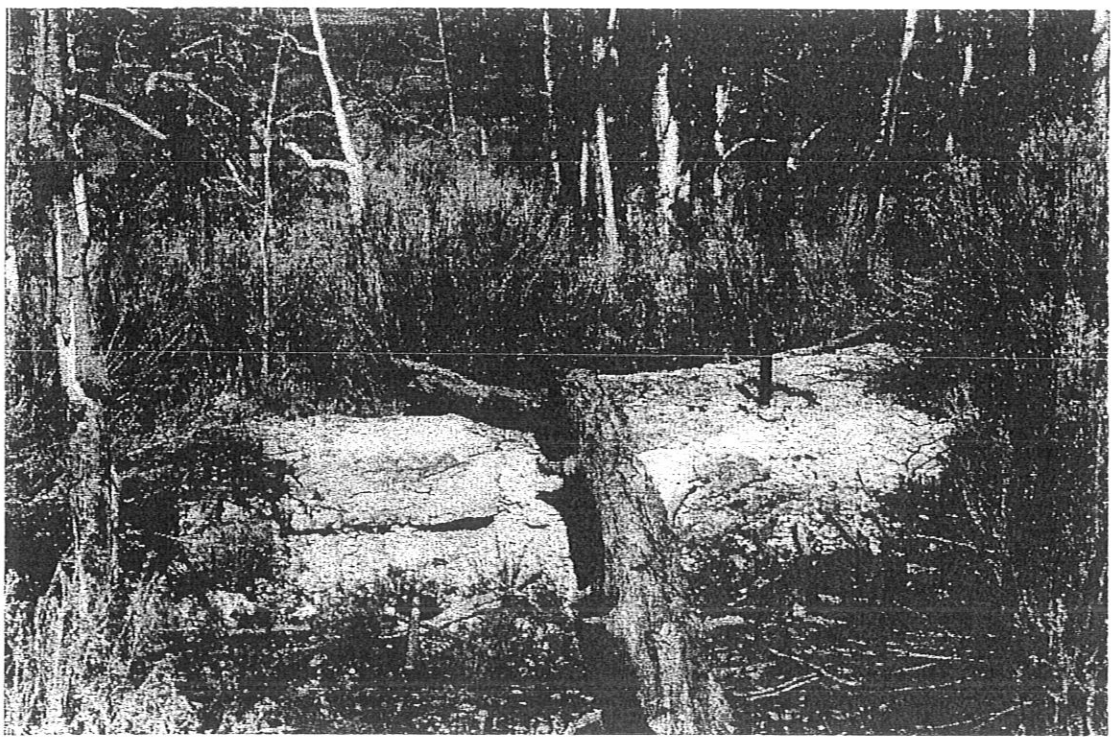


42Cb479. Feature 5, the south masonry wall, and location of collapsed mine portal; facing east-southeast. Roll 07-172:2 Exp. 16.

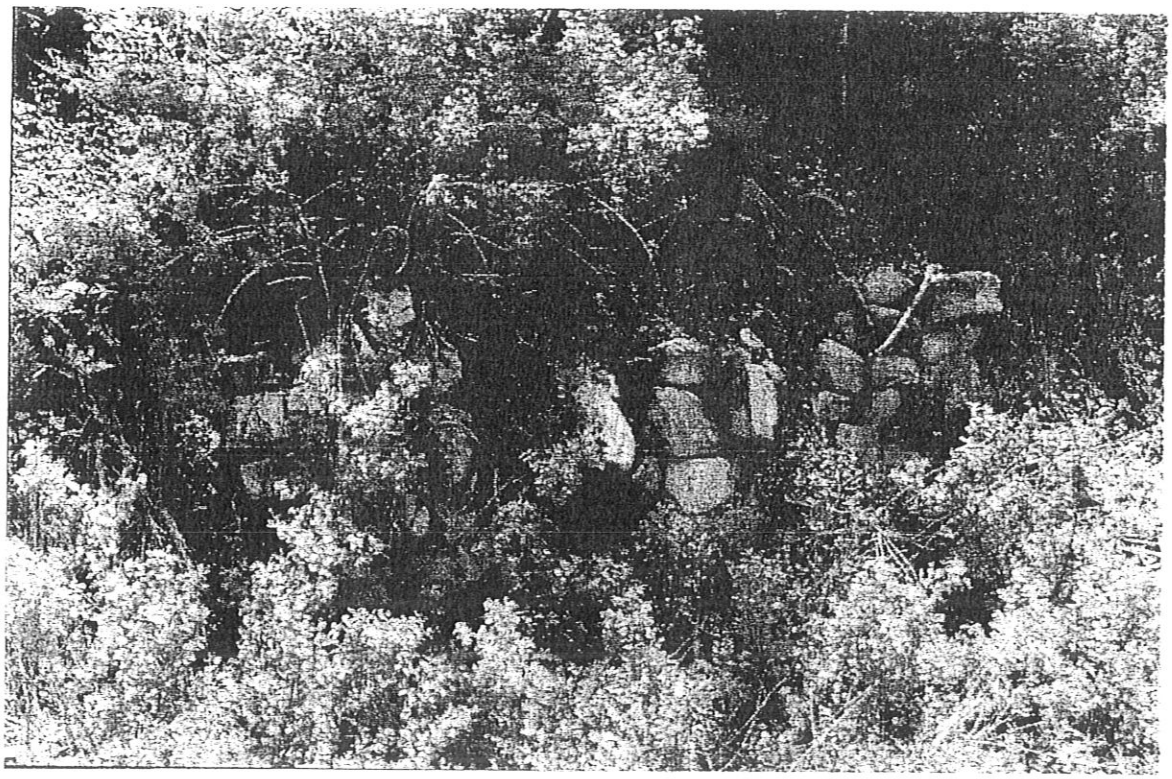


42Cb479. Feature 5, the north masonry stone wall, and location of collapsed mine portal; facing east-northeast. Roll 07-172:2 Exp. 15.

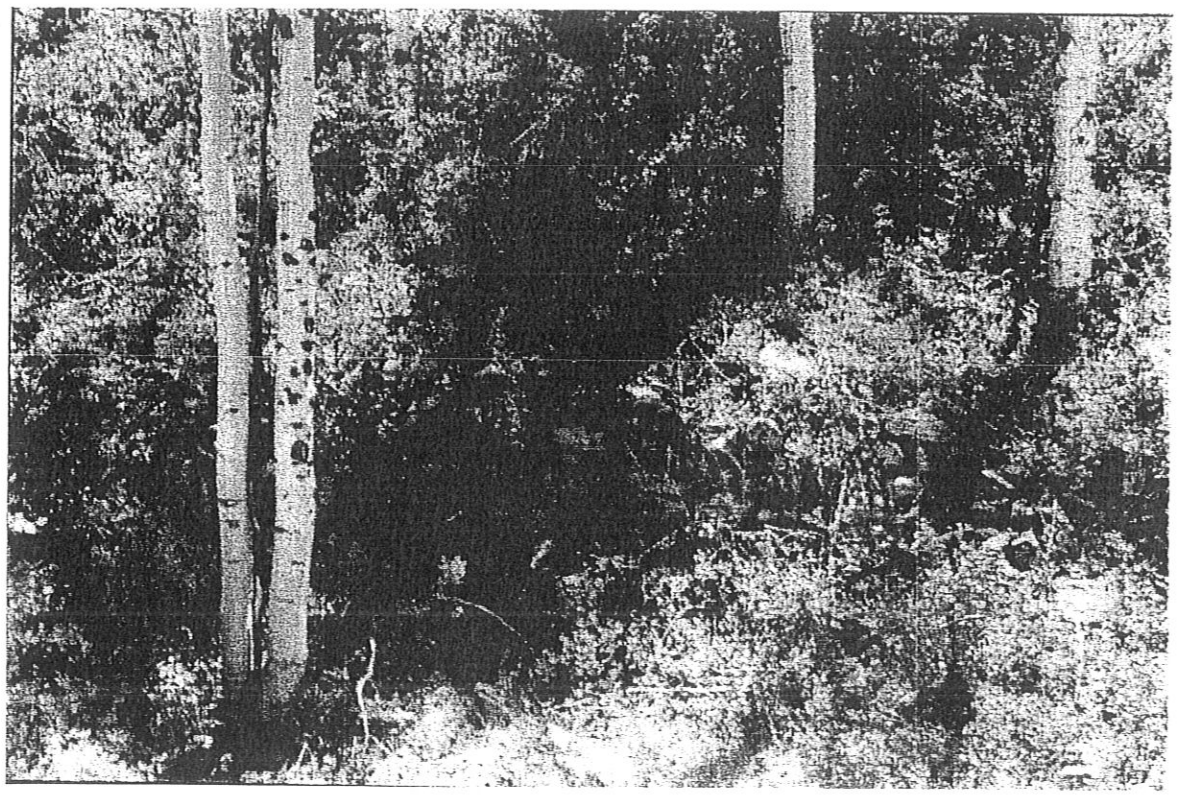
42Cb479. Feature 6, two concrete walls, and the location of a collapsed mine portal; facing east. Roll 07-172:2 Exp. 14.



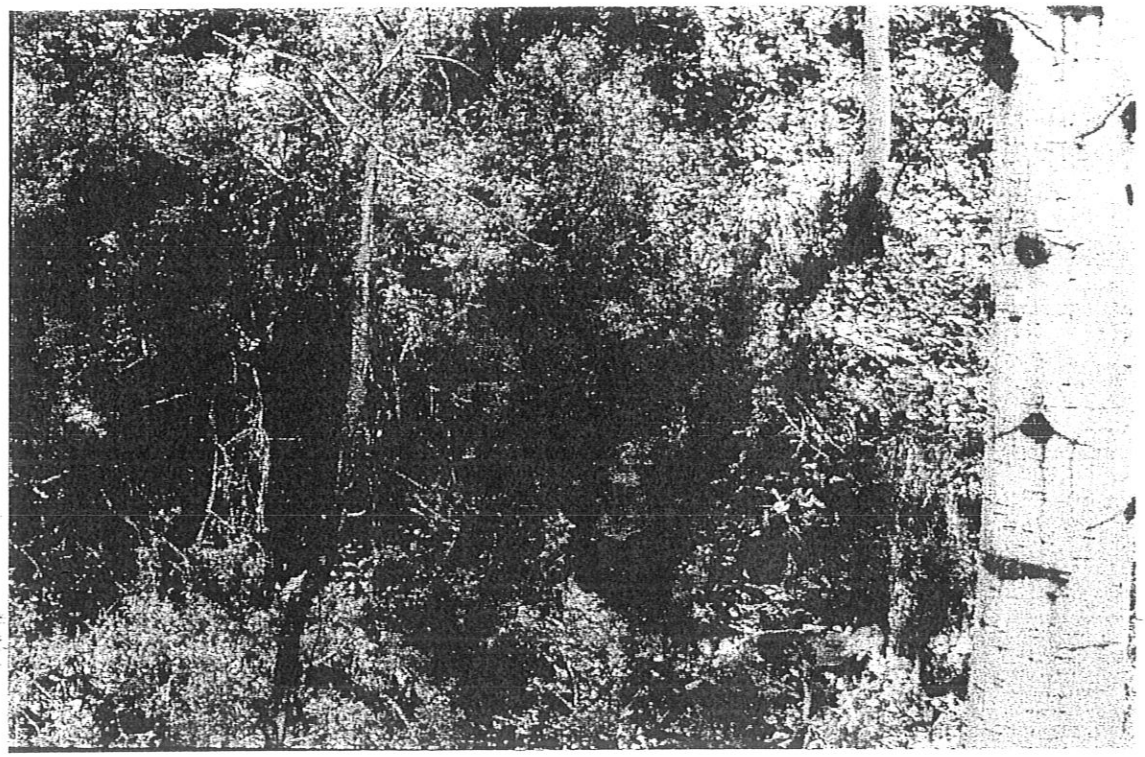
42Cb479. Feature 7, concrete slab foundation that is likely the remains of a tipple. facing west. Roll 07-172:2 Exp.13.



42Cb479. Feature 8, a sandstone masonry wall, and location of collapsed mine portal; facing southeast. Roll 07-172:2 Exp. 23.

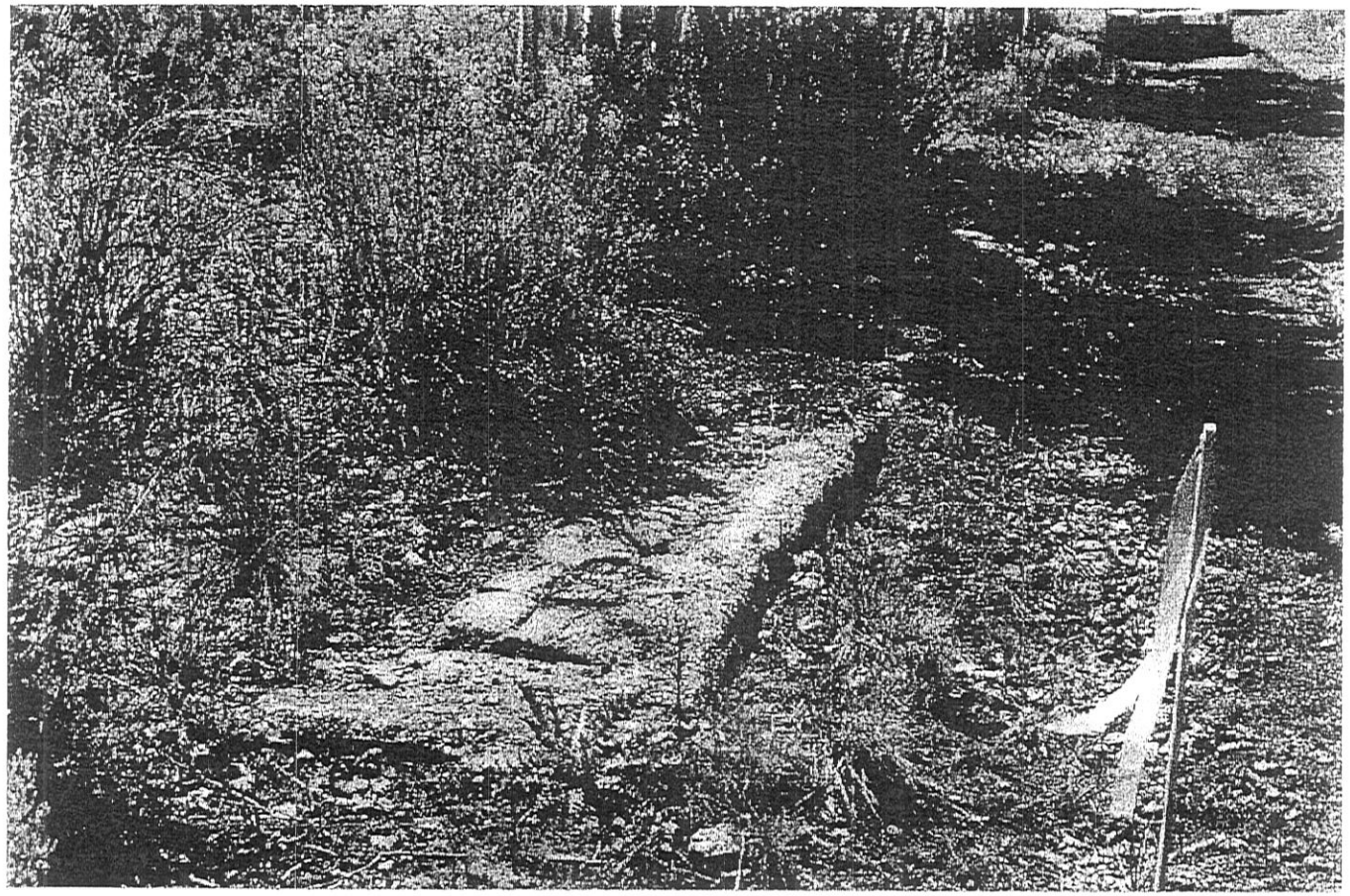


42Cb479. Feature 9, a sandstone masonry wall, and location of collapsed mine portal; facing east. Roll 07-172:2 Exp. 22.

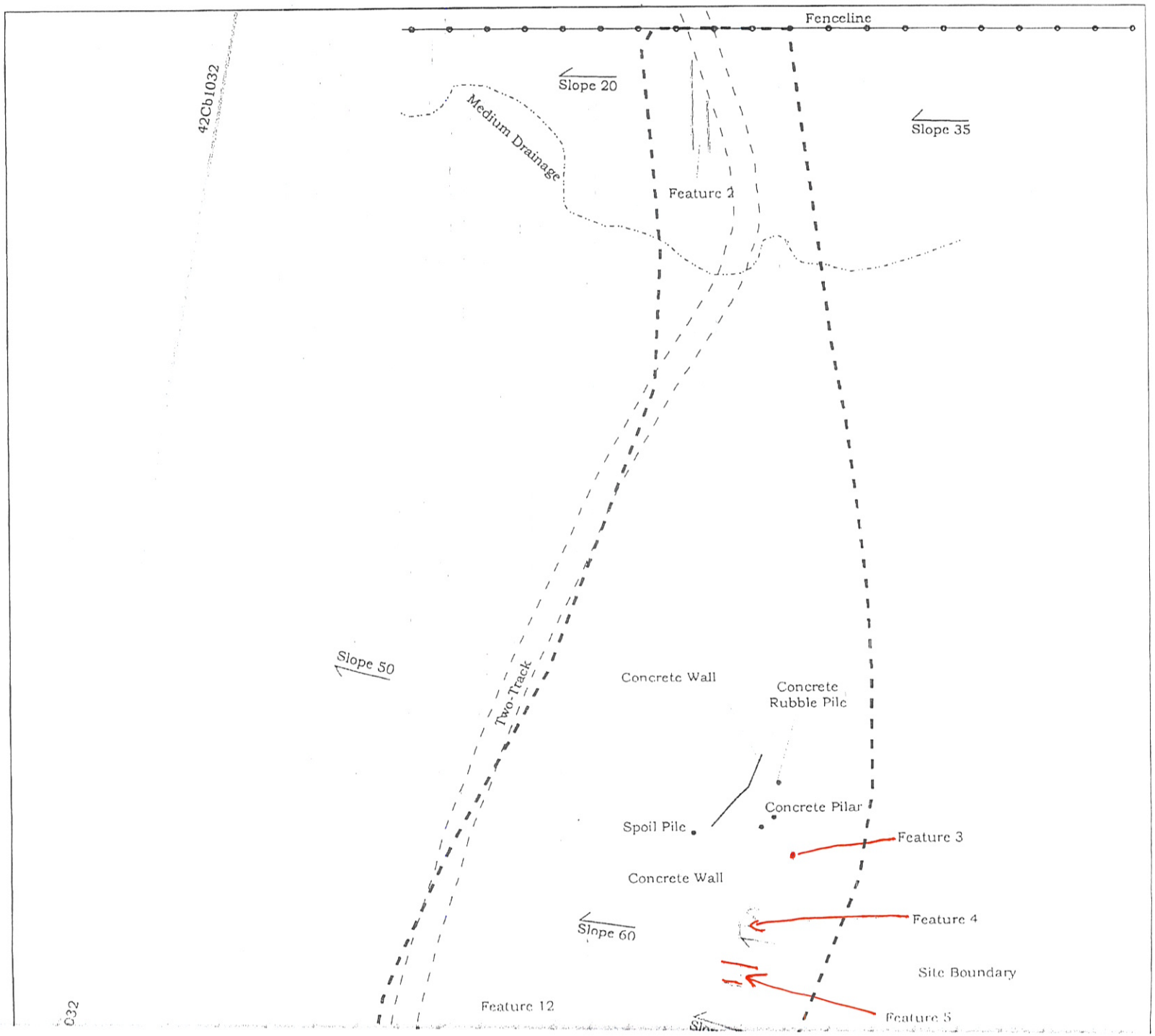


42Cb479. Feature 10, sandstone masonry wall, and location of collapsed mine portal; facing east. Roll 07-172:2 Exp. 21.

42Cb479. Feature 11, concrete and masonry retaining wall, facing east. Roll 07-172:2 Exp. 20.



42Cb479. Feature 12, a concrete slab, facing south. Roll 07-172:2 Exp. 19.


Fenceline
42Cb1032
Slope 20
Medium Drainage
Feature 2
Slope 35
Slope 50
Two-Track
Concrete Wall
Concrete
Rubble Pile
Concrete Pilar
Spoil Pile
Feature 3
Concrete Wall
Slope 60
Feature 4
Site Boundary
Feature 12
Feature 5

Concrete Pilar
Spoil Pile
Feature 3
Concrete Wall
Slope 60
Feature 4
Site Boundary
42Cb1032
Feature 12
Feature 5
Slope 40
Feature 11
Slope 40
Feature 10
Datum
Slope 75
Slope 35
Feature 6
Feature 9
Spoil Pile
Slope 50
Feature 8
Slope 30
Feature 7
Slope 60
Two-Track
Slope 25
Feature 1
Wood Pile 1
Slope 25
Contour Interval = 2 meters
42Cb479
MOAC 07-172-K1-6
0 5 10 15 20 Meters
0 20 40 60 Feet
N

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name: Darrah Johnston

A

1 State Site Number: 42-Cl0- UPDATE 479
2 Agency Site Number:
6 Agency Report Number: 07MQ0012
10 Elevation: 7758
11 Zone: 12 Easting: 481699.6 Northing: 4398156

12	1/4	1/4	1/4	Sec.	T.		PL	
	SW	NW	NW	33	12	S	0070	E
	SE	NW	NW	33	12	S	0070	E
	N	SW	NW	33	12	S	0070	E
	SW	SW	NW	33	12	S	0070	E

13 Merid.: 1
14 USGS Map: SCOFIELD UTAH NW7A
17 Owner: PR
18 Forest Dist./Park:
19 Loc. Curated Materials:
21 Cond.: C
22 Impacts: SD DM
23 N.R.: C
26 Organ.: MQ
28 Survey Date: 05-25-07
29 Slope: 98 Aspect: 998
30 Water: distance/type: 01 C
31 Geog. Unit: TDA
32 Topographic Location: 1st R 2nd Q
33 Dep.: I
34 Vegetation: 1 C 2 A 3 QA
35 Misc. Text, Site Name:

B

2 Culture/Dating Method:
3 Area:
4 Collect:
5 Depth:
6 Excav. Status:
7 Prehistoric Artifacts:
8 Lithic Tools: # / type:
9 # Flaking Stages:
11 Ceramics: # / type:
13 Features: # / type:
14 Architecture: # / material / type:

C

2 Historic Themes: MN
3 Cultures / Dating Method: EAI
4 Dates: 1920 1960
5 Area: 18525
6 Collect.:
7 Depth: A
8 Excav. Status:
9 Artifacts:
14 Features: # / type:
15 Architecture: # / material / type: 1FDO 3FBN 6BBG 2WBG

IMACS SITE FORM

PART A - ADMINISTRATIVE DATA

1. **STATE NO.:** 42Cb1032 Update
2. **AGENCY NO.:**
3. **TEMP NO.:**
4. **STATE:** Utah (42) **COUNTY:** Carbon (Cb)
5. **PROJECT:** CRI of Carbon Resources Kinney 2 Mine, Carbon County, Utah
6. **REPORT NO.:** U-07-MQ-0612p
7. **SITE NAME/PROPERTY NAME:** Utah and Pleasant Valley Railway
8. **CLASS:** [ ] PREHISTORIC [X] HISTORIC [ ] PALEONTOLOGIC [ ] ETHNOGRAPHIC
9. **SITE TYPE:** Railroad Branch
10. **ELEVATION:** 7698 ft
11. **UTM GRID:** Zone [12] **North End:** [486978] E [4398413] N
    North End: [486686] E [4397675] N
12. [SW 1/4] of [NW 1/4] of [NW 1/4] of Section [33] Township [12S] Range [7E].
    [W 1/2] of [SW 1/4] of [NW 1/4] of Section [33] Township [12S] Range [7E].
    [SE 1/4] of [SE 1/4] of [NE 1/4] of Section [32] Township [12S] Range [7E].
    [E 1/2] of [NE 1/4] of [SE 1/4] of Section [32] Township [12S] Range [7E].
13. **MERIDIAN:** Salt Lake (1)
14. **MAP REFERENCE:** USGS 7.5' Series Scofield, Utah 1979
15. **AERIAL PHOTO:** N/A
16. **LOCATION AND ACCESS:** From SR-96 in Scofield, Utah drive north for approximately 0.3 miles. The site is located on the east side of SR-96, approximately 30 ft east of the road, and extends for 0.5 miles (805 meters) to the north. Follow a GPS unit to the above stated UTM coordinates to locate the site.
17. **LAND OWNER:** Private (PR)
18. **FEDERAL ADMIN. UNITS:** N/A
19. **LOCATION OF CURATED MATERIALS:** N/A
20. **SITE DESCRIPTION:** The site is a branch of the Utah and Pleasant Valley Railway, built to access the coal mines around Sulphur Springs, located just north of the town of Scofield. The spur was most likely constructed between 1890 and 1920 after the railway was converted to a standard-gauge and mines operated by the Union Pacific Coal Co., such as Kinney 2 Mine (42Cb479), were opened. This section of the railway was employed into the 1970s when the last of the coal mines (e.g. Columbine Mine) closed.

This documented railroad branch extends 0.5 miles (805 m) along the east side of SR-96. It consists of the railroad grade, in-situ ties, and rails. Portions of this segment have been covered with shallow alluvial sediments most likely preserving the structural elements of the railroad. The standard gauge rails are spaced approximately 61 inches apart and the ties are 8 ft wide. The ties measure 8 ft by 9 inches by 6 inches. Along most of the recorded length of the segment, the railroad bed consists of an angular gravel with coal inclusions or spoil. Along the northern end of the segment, the railroad bed is approximately 2 ft above the surrounding ground surface. However, the southern portion of the segment is level with the surrounding ground surface. Another track was documented towards the middle of the recorded segment (at UTM 486838 E 4397898 N) extending for 56 ft (17 m) and may have functioned as a locomotive pull-out or storage bed.

IMACS SITE FORM: 42Cb1032 Update

21. SITE CONDITION: [ ] EXCELLENT [X] GOOD [ ] FAIR [ ] POOR
22. IMPACT AGENT(S): Erosion (ER) Alluvial soils have been deposited over portions of the recorded segment.
23. NAT. REGISTER STATUS: [X] SIGNIFICANT [ ] NON-SIGNIFICANT [ ] UNEVALUATED
JUSTIFY: The site was determined eligible to the NRHP after its original documentation because of the important role the Utah & Pleasant Valley Railway played in the area's economic and community development, especially Utah's mining history (Criterion A). The grade (with in-situ rails and ties) recorded herein has been refurbished since the 1890s, and no other structural elements such as bridges or trestles were observed. Hence, other than the railroad tracks, a common engineering features of all railways, site 42Cb1032 fails to be strongly associated with a distinctive engineering pattern, style or type (Criterion C). Additionally, the site is not associated with the lives of persons significant to our past (Criterion B) and it is unlikely to yield further information significant to the history of the area (Criterion D).
24. PHOTOS: Roll 07-172:3 Exp. 2-5
25. RECORDED BY: Patricia Stavish
26. SURVEY ORGANIZATION: Montgomery Archaeological Consultants
27. ASSISTING CREW MEMBERS: Adam Thomas
28. SURVEY DATE: May 25, 2007

LIST OF ATTACHMENTS:

[ ] PART B	[X] PART C
[X] TOPO MAP	[X] SITE MAP
[X] PHOTOS	[ ] OTHER
[ ] ARTIFACT/FEATURE SKETCH	

IMACS SITE FORM: 42Cb1032 Update

PART A - ENVIRONMENTAL DATA

29. SLOPE: [3] (Degrees) [0] ASPECT (Degrees)
30. DISTANCE TO PERMANENT WATER: [10] X 100 METERS
    TYPE OF WATER SOURCE: [ ] SPRING/SEEP [ ] STREAM/RIVER
    [X] LAKE [ ] OTHER
    NAME OF WATER SOURCE: Scofield Reservoir
31. GEOGRAPHIC UNIT: Wasatch Plateau (TDA)
32. TOPOGRAPHIC LOCATION
    PRIMARY LANDFORM: Valley (E)
    SECONDARY LANDFORM: Valley (W)
    DESCRIBE: The site is located along the eastern edge of Pleasant Valley.
33. ON-SITE DEPOSITIONAL CONTEXT: Alluvial (H)
    DESCRIPTION OF SOIL: The soil is a light brown sandy silt.
34. VEGETATION
    A. LIFE ZONE: Canadian (C)
    B. COMMUNITY
    PRIMARY ON-SITE: Low Sagebrush (Q)
    SECONDARY ON-SITE: Grassland (M)
    SURROUNDING SITE: Low Sagebrush (Q)
    DESCRIBE: The vegetation includes low sagebrush, bunch grasses, annual forbs, and rabbit brush.
35. MISCELLANEOUS TEXT:
36. COMMENTS/CONTINUATIONS:

IMACS SITE FORM: 42Cb1032 Update

PART C - HISTORIC SITES

1. SITE TYPE: Railroad
2. HISTORIC THEME(s): Railroad (RR)
3. CULTURE:

CULTURAL AFFILIATION	DATING METHOD
European/American (ER)	Historical Record (I)

DESCRIBE: The railroad was built and operated by Euro-American companies.

4. OLDEST DATE: 1890 RECENT DATE: 1973
HOW DETERMINED: This is a standard-gauge branch of the Utah and Pleasant Valley Railway dating between 1890 and around 1973. The railroad was employed up until the mines closed in the area of Sulphur Springs (1973).
5. SITE DIMENSIONS: [805] M by [3] M
Area [2415] Sq. M
6. SURFACE COLLECTION/METHOD: None (A)
SAMPLING METHOD: N/A
7. ESTIMATED DEPTH OF CULTURAL FILL: Surface (A)
How estimated (If tested, show location on map): The site is a surface feature, though some portions of the railway have been covered over by alluvial soils (less than 5 cm of alluvial deposition).
8. EXCAVATION STATUS: [ ] EXCAVATED [ ] TESTED [X] UNEXCAVATED
TESTING METHOD: N/A
9. SUMMARY OF ARTIFACTS AND DEBRIS: None
DESCRIBE: No artifacts were documented in association with the railroad segment.
10. CERAMIC ARTIFACTS: None

PASTE	GLAZE/SLIP	DECORATION	PATTERN	VESSEL	#

ESTIMATED NUMBER OF CERAMIC TRADEMARKS: [0]
DESCRIBE: N/A
11. GLASS: None

#	MANUFACTURE	COLOR	FUNCTION	TRADEMARK	DECORATION

DESCRIBE: N/A
12. MAXIMUM DENSITY #/SQ. M (glass and ceramics): 0/sq. m.
13. TIN CANS: None

TYPE	OPENING	SIZE	MODIFIED	LABEL/MARK	FUNCTION

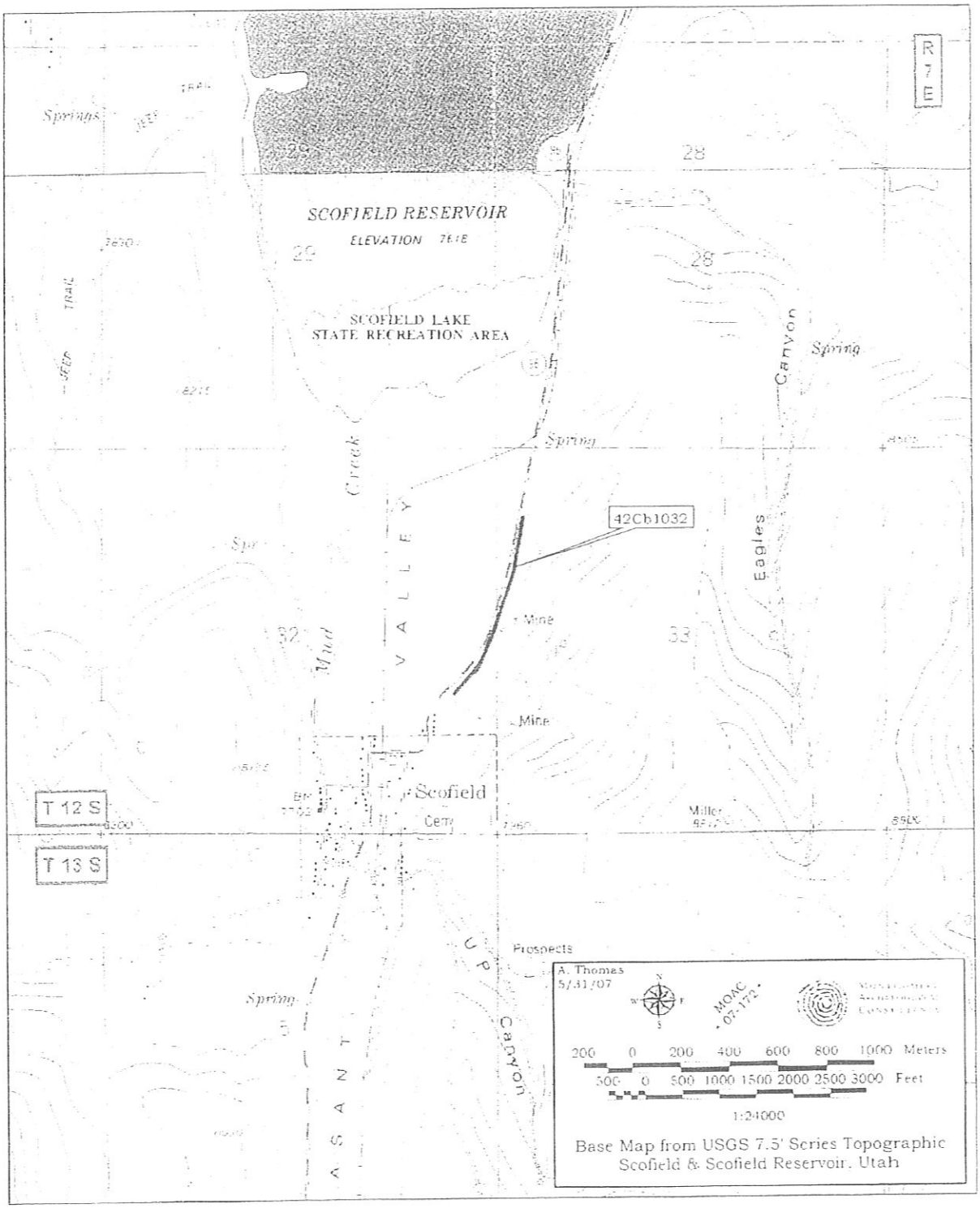
DESCRIBE: N/A
14. LANDSCAPE AND CONSTRUCTED FEATURES (locate on site map): None
DESCRIBE: N/A
15. BUILDINGS AND STRUCTURES (locate on site map):

#	MATERIAL	TYPE
1	Combination (W)	Railroad Tracks (BU)

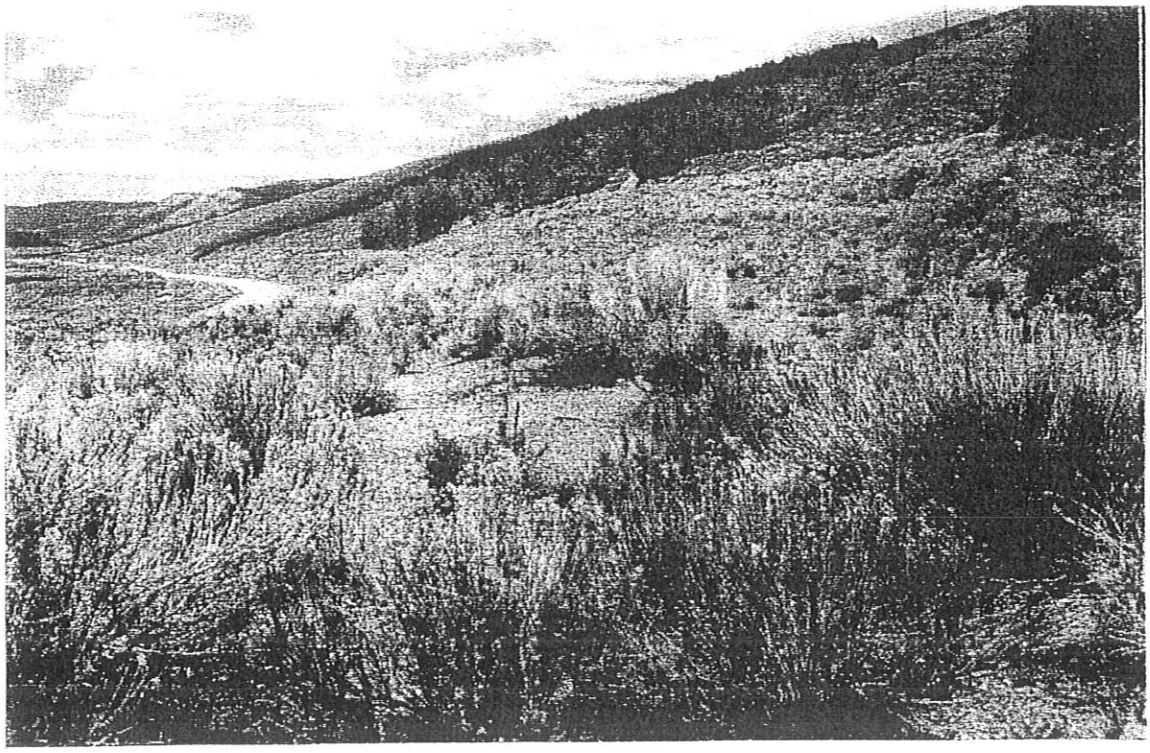
DESCRIBE: This is a branch of the Utah and Pleasant Valley Railway located just north of Scofield and extending 0.5 miles (805 m) along the east side of SR-96. This segment of the railroad consists of the railroad grade, in-situ ties, and rails. Portions of this segment have been covered over with alluvial soils; however these soils are shallow and ties and rails are located underneath. The standard gauge rails are spaced approximately 61 inches apart and the ties are 8 ft wide. The ties measure 8 ft by 9 inches by 6 inches. Along most of the

recorded length of the segment, the railroad bed consists of an angular gravel with coal inclusions or spoil. Along the northern end of the segment, the railroad bed is approximately 2 ft above the surrounding ground surface. However, the southern portion of the segment is level with the surrounding ground surface. Several historic coal mines (42Cb477 and 42Cb479) are located west of this railroad segment. Another track was documented towards the middle of the recorded segment (at UTM 486838 E 4397898 N) extending for 56 ft (17 m) and may have functioned as a locomotive pull-out or storage bed.

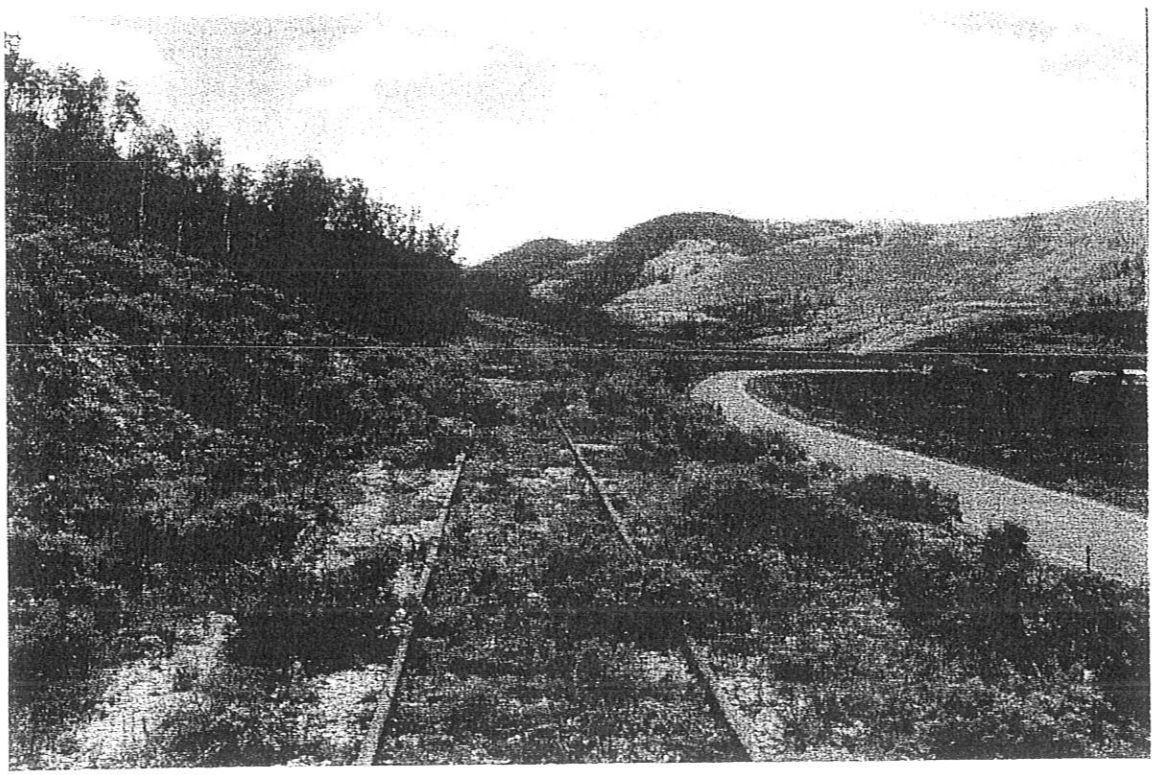
16. COMMENTS/CONTINUATIONS:



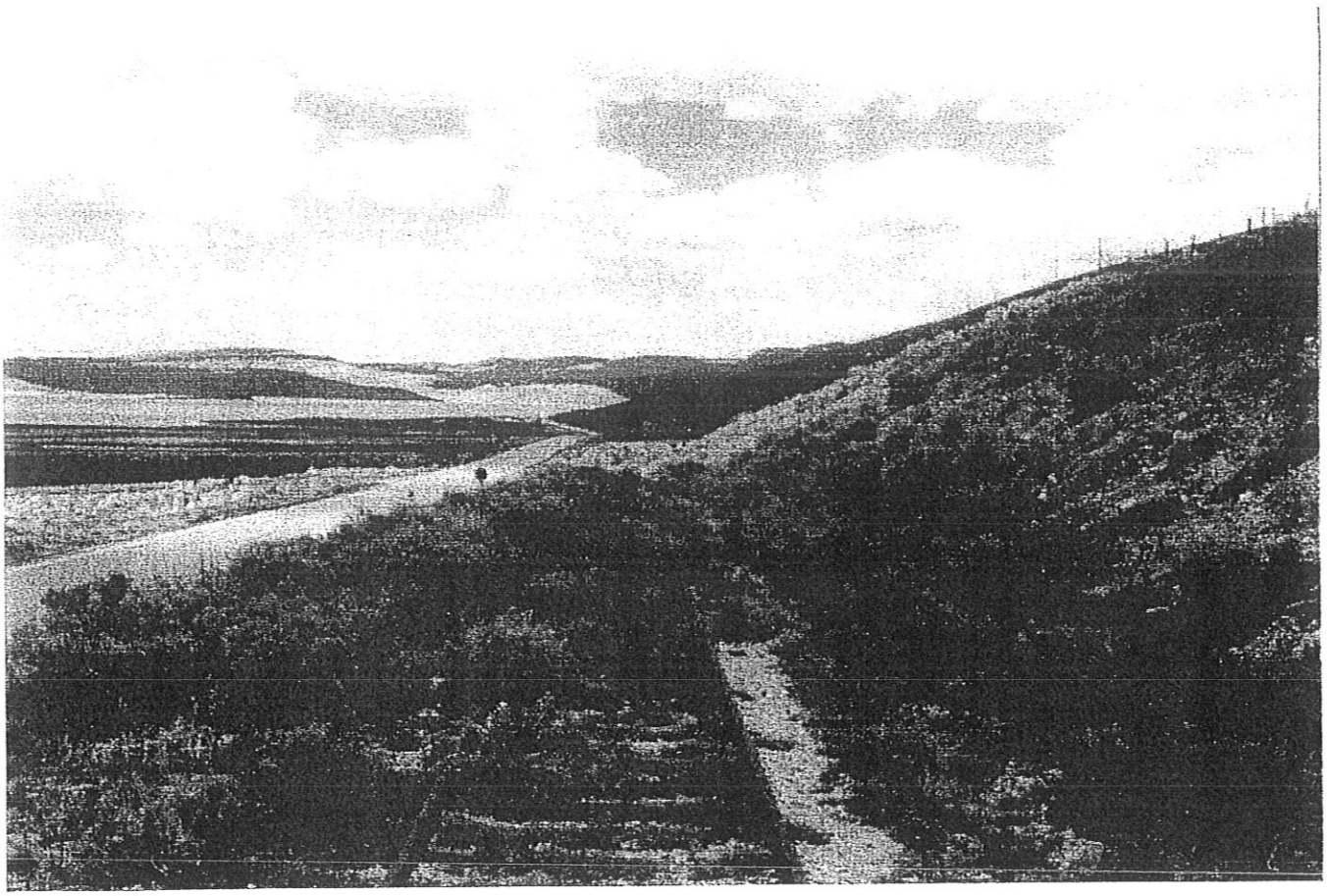
42Cb1032 Update. Segment Location Map.



42Cb1032. Segment of the Utah and Pleasant Valley Railway facing north. Much of the railroad is covered in vegetation. Roll 07-172:3 Exp. 2.



42Cb1032. Segment of the Utah and Pleasant Valley Railway, from northern end of segment facing south. Roll 07-172:3 Exp. 4.



42Cb1032. Segment of the Utah and Pleasant Valley Railway, from northern end of recorded segment facing north. Roll 07-172:3 Exp. 5.

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name: Darrah Johnston

A

1 42 - Cb - UPDATE 1032 (State Site Number)
2 (Agency Site Number)
6 07MQ0612 (Agency Report Number)
10 7698 (Elevation)
11 Zone: 12 / 12; Easting: 488978 / 488688; Northing: 4398413 / 4397675

12

1/4	1/4	1/4	Sec.	T.		R.	
SW	NW	NW	33	12	S	007	E
W	SW	NW	33	12	S	007	E
SE	SE	NE	32	12	S	007	E
E	NE	SE	32	12	S	007	E

13 1 (Merid.)
14 SCOFIELD, UTAH 1979 (USGS Map)
17 PR (Owner)
18 (Forest / Dist./Park)
19 (Loc. Curated Materials)
21 C (Cond.)
22 ER (Impacts)
23 C (N.R.)
26 MQ (Organ.)
28 05-25-07 (Survey Date)
29 03 (Slope)
000 (Aspect)
30 010 C (Water: distance/type)
31 TDA (Geog. Unit)
32 E W (1st / 2nd Topographic Location)
33 H (Dep.)
34 C QMQ (1 2 3 Vegetation)
35 (Misc. Text, Site Name)

B

2 (Culture/Dating Method)
3 (Area)
4 (Collect)
5 (Depth)
6 (Excav. Status)
7 (Prehistoric Artifacts)
8 (Lithic Tools: # / type)
9 (# Flaking Stages)
11 (Ceramics: # / type)
13 (Features: # / type)
14 1 (Architecture: # / material / type)

C

2 RR (Historic Themes)
3 ERI (Cultures / Dating Method)
4 1890 1973 (Dates)
5 2415 (Area)
6 (Collect.)
7 A (Depth)
8 (Excav. Status)
9 (Artifacts)
14 (Features: # / type)
15 1 WBU (Architecture: # / material / type)

IMACS SITE FORM

PART A - ADMINISTRATIVE DATA

1. **STATE NO.:** 42Cb2622
2. **AGENCY NO.:**
3. **TEMP NO.:** MOAC 07-172-PS1
4. **STATE:** Utah (42) **COUNTY:** Carbon (Cb)
5. **PROJECT:** CRI of Carbon Resources Kinney 2 Mine, Carbon County, Utah
6. **REPORT NO.:** U-07-MQ-0612p
7. **SITE NAME/PROPERTY NAME:**
8. **CLASS:** [ ] PREHISTORIC [X] HISTORIC [ ] PALEONTOLOGIC [ ] ETHNOGRAPHIC
9. **SITE TYPE:** Trash Scatter
10. **ELEVATION:** 7673 ft
11. **UTM GRID:** Zone [12] [486616] E [4397584] N
12. [SW 1/4] of [NE 1/4] of [SE 1/4] of Section [32] Township [12S] Range [7E].
13. **MERIDIAN:** Salt Lake (1)
14. **MAP REFERENCE:** USGS 7.5' Series Scofield, Utah 1979
15. **AERIAL PHOTO:** N/A
16. **LOCATION AND ACCESS:** From SR-96 in Scofield, Utah drive north for approximately 0.1 miles. The site is located on the east side of SR-96, approximately 50 ft east of the road. Follow a GPS unit to the above stated UTM coordinates to locate the site. The site datum consists of a rebar and cap stamped with the temporary site number.
17. **LAND OWNER:** Private (PR)
18. **FEDERAL ADMIN. UNITS:**
19. **LOCATION OF CURATED MATERIALS:** N/A
20. **SITE DESCRIPTION:** The site is a historic trash scatter located on a low knoll along the eastern edge of Pleasant Valley, just east of SR-96. No features or structures were documented at the site. The site consists of a various historic trash that dates between 1925 and 1983, with the majority of artifacts dating in to the 1940s to 1950s. The artifacts documented at the site include numerous fragments of ceramics, glass fragments and bottles, tin cans, screw top jar lids, saw cut animal bone, wire, barbed wire, approximately 20 lumber boards averaging in size of 77 inches long and 2 ½ by ½ inches, and a green Hemingray No. 9 glass insulator (dating from 1890s to 1940s). The ceramics include fragments of a white ceramic representing several vessel forms, fragments of a yellow paste white glazed ceramic, fragments of a coarse yellow ceramic with a yellow glaze and blue sponge decoration from a mixing bowl, fragments of a yellow ceramic mixing bowl with a yellow glaze with blue strips along the rim and scalloped sides, fragments of a porcelain item of unknown function, fragments of a white plate with the W.H. Grindley and Co. Ltd. trademark that dates from 1925 to the present, and fragments of a yellow ceramic plate or saucer with a yellow glaze. The glass artifacts include clear and brown beverage bottles with the Owens-Illinois Glass Company trademarks, a clear glass medicine bottle with the Owens-Illinois trademark and embossed on the shoulders with "The Bayer Company Div." a clear liquor bottle with the Fairmount Glass Works trademark and embossed "Federal Law Prohibits Sale or Reuse of this Bottle," a clear liquor bottle embossed "Federal Law Prohibits..." with an unknown trademark, one clear beverage bottle with the Glass Containers, Inc. trademark, one clear liquor bottle embossed "Federal Law Prohibits...," one mold made clear cosmetic bottle, one mold made liquor bottle with scalloped edges, and one lip fragment of an aqua bottle with a hand finished lip. Fragmented glass artifacts

documented at the site include at least 200 fragments of clear glass, at least 200 fragments of brown glass, three fragments of a light green, eight fragments of cobalt glass, eleven aqua glass fragments, at least 25 fragments of amethyst glass, six fragments of milk glass (opaque white), and four fragments of clear window or pane glass. The tin cans include church key opened beverage cans, key strip coffee cans, a rectangular key wind meat tin, a crushed hole-in-top milk can, cut-around opened sanitary food cans, and an external friction hinged-lid tobacco tin.

21. SITE CONDITION: [ ] EXCELLENT [ ] GOOD [ ] FAIR [X] POOR
22. IMPACT AGENT(S): Erosion (ER)
23. NAT. REGISTER STATUS: [ ] SIGNIFICANT [X] NON-SIGNIFICANT [ ] UNEVALUATED

JUSTIFY: The site is a historic trash scatter located on a low knoll along the eastern edge of SR-96. This is a common historic site type with common artifact types that retain minimal physical integrity. This site cannot be linked to any significant event(s) or person(s) (Criteria A and B); does not represent a type or the work of a master (Criterion C); and fails to have the potential to yield information important to the history of the area (Criterion D). Therefore, site 42Cb2622 is not recommended eligible to the NRHP.

24. PHOTOS: Roll 07-172:2 Exp. 7-10
25. RECORDED BY: Patricia Stavish
26. SURVEY ORGANIZATION: Montgomery Archaeological Consultants
27. ASSISTING CREW MEMBERS: Adam Thomas
28. SURVEY DATE: May 24, 2007

LIST OF ATTACHMENTS:

[ ] PART B	[X] PART C
[X] TOPO MAP	[X] SITE MAP
[X] PHOTOS	[ ] OTHER
[ ] ARTIFACT/FEATURE SKETCH	

IMACS SITE FORM: 42Cb2622

PART A - ENVIRONMENTAL DATA

29. SLOPE: [15] (Degrees) [998] ASPECT (Degrees)
30. DISTANCE TO PERMANENT WATER: [17] X 100 METERS
    TYPE OF WATER SOURCE: [ ] SPRING/SEEP [ ] STREAM/RIVER
    [X] LAKE [ ] OTHER
    NAME OF WATER SOURCE: Scofield Reservoir
31. GEOGRAPHIC UNIT: Wasatch Plateau (TDA)
32. TOPOGRAPHIC LOCATION
    PRIMARY LANDFORM: Valley (E)
    SECONDARY LANDFORM: Knoll (P)
    DESCRIBE: The site is located on a low knoll along the eastern edge of Pleasant Valley.
33. ON-SITE DEPOSITIONAL CONTEXT: Alluvial (H)
    DESCRIPTION OF SOIL: The soil is a brown slightly silty sand with small gravels.
34. VEGETATION
    A. LIFE ZONE: Canadian (C)
    B. COMMUNITY
    PRIMARY ON-SITE: Low Sagebrush (Q)
    SECONDARY ON-SITE: Grassland (M)
    SURROUNDING SITE: Low Sagebrush (Q)
    DESCRIBE: The vegetation includes low sagebrush, various bunch grasses, and annual forbs. Agricultural fields are located further west of the site.
35. MISCELLANEOUS TEXT:
36. COMMENTS/CONTINUATIONS:

IMACS SITE FORM: 42Cb2622

PART C - HISTORIC SITES

1. **SITE TYPE:** Trash Scatter
2. **HISTORIC THEME(s):**
3. **CULTURE:**

CULTURAL AFFILIATION	DATING METHOD
European/American (EA)	Diagnostic Artifacts (F)

DESCRIBE:

4. **OLDEST DATE:** 1925 **RECENT DATE:** 1983
HOW DETERMINED: Dates are based on glass and ceramic manufacture's trademarks.
5. **SITE DIMENSIONS:** [30] M by [70] M
Area [2100] Sq. M
6. **SURFACE COLLECTION/METHOD:** None
SAMPLING METHOD: N/A
7. **ESTIMATED DEPTH OF CULTURAL FILL:** Surface (A)
How estimated (If tested, show location on map): Visual observation at the site indicated that the site was surficial in nature.
8. **EXCAVATION STATUS:** [ ] EXCAVATED [ ] TESTED [X] UNEXCAVATED
TESTING METHOD: N/A
9. **SUMMARY OF ARTIFACTS AND DEBRIS:** Beer Bottle (GE), Other Alcoholic Bottle (GJ), Undetermined Beverage Bottle (G8), Drug Store Bottle (GK), Cosmetic (GM), Mixing Bowl (VJ), Plate (VE), Saucer (VD), Coffee Cup (VC), Wood (WD), Barbed Wire (WF), Wire (WI), Coffee Can (CE), Tobacco Tin (TO), Tin Cans - Hole in top (TD), Tin Cans - Sanitary (TC), Meat Can (MA)
DESCRIBE: The artifacts documented at the site include numerous fragments of ceramics, glass fragments and bottles, tin cans, screw top jar lids, saw cut animal bone, wire, barbed wire, approximately 20 lumber boards averaging in size of 77 inches long and 2 ½ by ½ inches, and a green Hemingray No. 9 glass insulator (dating from 1890s to 1940s). The ceramics include fragments of a white ceramic representing several vessel forms, fragments of a yellow paste white glazed ceramic, fragments of a coarse yellow ceramic with a yellow glaze and blue sponge decoration from a mixing bowl, fragments of a yellow ceramic mixing bowl with a yellow glaze with blue strips along the rim and scalloped sides, fragments of a porcelain item of unknown function, fragments of a white plate with the W.H. Grindley and Co. Ltd. trademark that dates from 1925 to the present, and fragments of a yellow ceramic plate or saucer with a yellow glaze. The glass artifacts include clear and brown beverage bottles with the Owens-Illinois Glass Company trademarks, a clear glass medicine bottle with the Owens-Illinois trademark and embossed on the shoulders with "The Bayer Company Div," a clear liquor bottle with the Fairmount Glass Works trademark and embossed "Federal Law Prohibits Sale or Reuse of this Bottle," a clear liquor bottle embossed "Federal Law Prohibits..." with an unknown trademark, one clear beverage bottle with the Glass Containers, Inc. trademark, one clear liquor bottle embossed "Federal Law Prohibits...," one mold made clear cosmetic bottle, one mold made liquor bottle with scalloped edges, and one lip fragment of an aqua bottle with a hand finished lip. Fragmented glass artifacts documented at the site include at least 200 fragments of clear glass, at least 200 fragments of brown glass, three fragments of a light green, eight fragments of cobalt glass, eleven aqua glass fragments, at least 25 fragments of amethyst glass, six fragments of milk glass (opaque white), and four fragments of clear window or pane glass. The tin cans include church key opened beverage cans, key strip coffee cans, a rectangular key wind meat tin, a crushed hole-in-top milk can, cut-around opened sanitary food cans, and an external friction hinged-lid tobacco tin.

10. CERAMIC ARTIFACTS:

PASTE	GLAZE/SLIP	DECORATION	PATTERN	VESSEL	#
white/fine	white	unknown	n/a	various	25+ frag
yellow/fine	white	none	n/a	various	5 frag
yellow/coarse	yellow	blue sponge	n/a	mixing bowl	2 frag
yellow/fine	yellow	blue stipes on rim with scalloped sides		mixing bowl	2 frag
porcelain	unglazed	unknown	n/a	unknown	2 frag
white/fine	white	unknown	n/a	plate	2 frag
yellow/fine	yellow	unknown	n/a	plate/saucer	3 frag

ESTIMATED NUMBER OF CERAMIC TRADEMARKS: [1]

DESCRIBE: The ceramics documented at the site include at least 25 fragments of a white ceramic represent several vessel forms, five fragments of a yellow paste white glazed ceramic, two fragments of a coarse yellow ceramic with a yellow glaze and blue sponge decoration from a mixing bowl, two fragments of a yellow ceramic mixing bowl with a yellow glaze with blue strips along the rim and scalloped sides, two fragments of a porcelain item of unknown function, two fragments of a white plate with the W.H. Grindley and Co. Ltd. trademark that dates from 1925 to the present, and three fragments of a yellow ceramic plate or saucer with a yellow glaze.

11. GLASS:

#	MANUFACTURE	COLOR	FUNCTION	TRADEMARK	DECORATION
1 base	automatic	clear	bottle	Owens-Illinois	scalloped sides
1 frag	automatic	clear	liquor	n/a	"Federal Law..."
1 base	automatic	brown	beer	Owens-Illinois Duraglas I-Way	
1	automatic	clear	liquor	Fairmount	"Federal Law..."
1 base	automatic	brown	bottle	Owens-Illinois	none
1	mold	clear	cosmetic	none	none
1	mold	clear	liquor	none	scalloped sides
1	automatic	clear	liquor	C in a diamond	"Federal Law..."
1 base	automatic	clear	bottle	Glass Containers, Inc.	none
2 base	automatic	brown	beer	Owens-Illinois Duraglas I-Way	
1 base	automatic	clear	bottle	Owens-Illinois	none
1 base	automatic	brown	beer	Owens-Illinois	none
1 base	automatic	light green	bottle	Owens-Illinois Duraglas	
1 base	automatic	clear	liquor	Owens-Illinois	none
1	automatic	clear	drug store	Owens-Illinois "The Bayer Comp."	
1 base	automatic	brown	beer	Owens-Illinois	none
1 base	automatic	clear	bottle	Owens-Illinois	none
1 lip	mold	aqua	bottle	n/a	hand finished lip
200+ frag	n/a	clear	unknown	n/a	none
200+ frag	n/a	brown	unknown	n/a	none
3 frag	n/a	light green	bottle	n/a	none
8 frag	n/a	cobalt	unknown	n/a	none
11 frag	n/a	aqua	unknown	n/a	none
25+ frag	n/a	amethyst	unknown	n/a	none
6 frag	n/a	opaque white	unknown	n/a	none
4 frag	n/a	clear	window/pane	n/a	none

DESCRIBE: The glass artifacts documented at the site include eleven clear and brown beverage bottles with the Owens-Illinois Glass Company trademarks (diamond I-O and I inside O; dating from 1936 to1957), one clear glass medicine bottle with the Owens-Illinois trademark (I inside O; dating to 1957) and embossed on the shoulders with "The Bayer Company Div," one clear liquor bottle with the Fairmount Glass Works trademark (F in a hexagon) and embossed "Federal Law Prohibits Sale or Reuse of this Bottle" (dating from 1933 to 1964), one clear liquor bottle embossed "Federal Law Prohibits..." (dating from 1932 to 1964) with an unknown trademark (C in a diamond), one clear beverage bottle with the

Glass Containers, Inc. trademark (dating from 1933 to 1983), one clear liquor bottle embossed "Federal Law Prohibits..." (dating from 1933 to 1983), one mold made clear cosmetic bottle, one mold made liquor bottle with scalloped edges, and one lip fragment of an aqua bottle with a hand finished lip. Fragmented glass artifacts documented at the site include at least 200 fragments of clear glass, at least 200 fragments of brown glass, three fragments of a light green, eight fragments of cobalt glass, eleven aqua glass fragments, at least 25 fragments of amethyst glass, six fragments of milk glass (opaque white), and four fragments of clear window or pane glass.

12. MAXIMUM DENSITY #/SQ. M (glass and ceramics): 20 fragments/sq. m.

13. TIN CANS:

TYPE	OPENING	SIZE	MODIFIED	LABEL/MARK	FUNCTION
Beverage (5)	church key	crushed	no	none	beer
Coffee (2)	key strip	crushed	no	none	coffee
Meat Tin (1)	key wind	crushed-rect.	no	none	meat
Hole-in-top (1)	unknown	crushed	no	none	milk
Sanitary (2)	cut around	3 ½ x 4 9/16	no	none	food/commodity
Tobacco Tin(1)	hinged lid	crushed	no	none	tobacco

DESCRIBE: The tin cans documented at the site include five church key opened beverage cans, two key strip coffee cans, one rectangular key wind meat tin, one crushed hole-in-top milk can, two cut-around opened sanitary food cans, and one external friction hinged-lid tobacco tin.

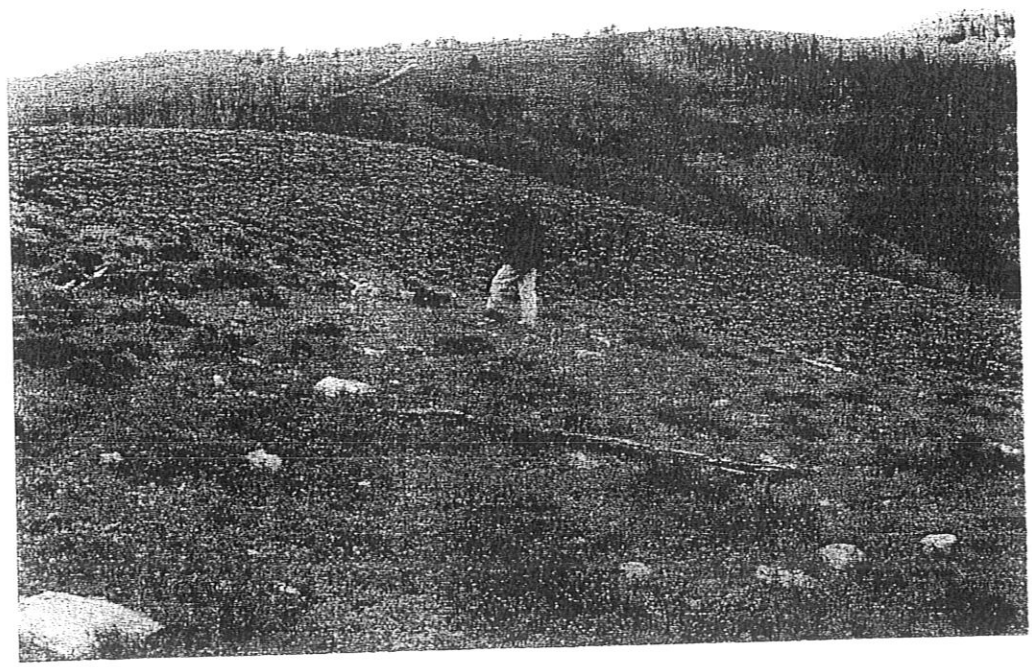
14. LANDSCAPE AND CONSTRUCTED FEATURES (locate on site map): None
DESCRIBE: N/A

15. BUILDINGS AND STRUCTURES (locate on site map): None

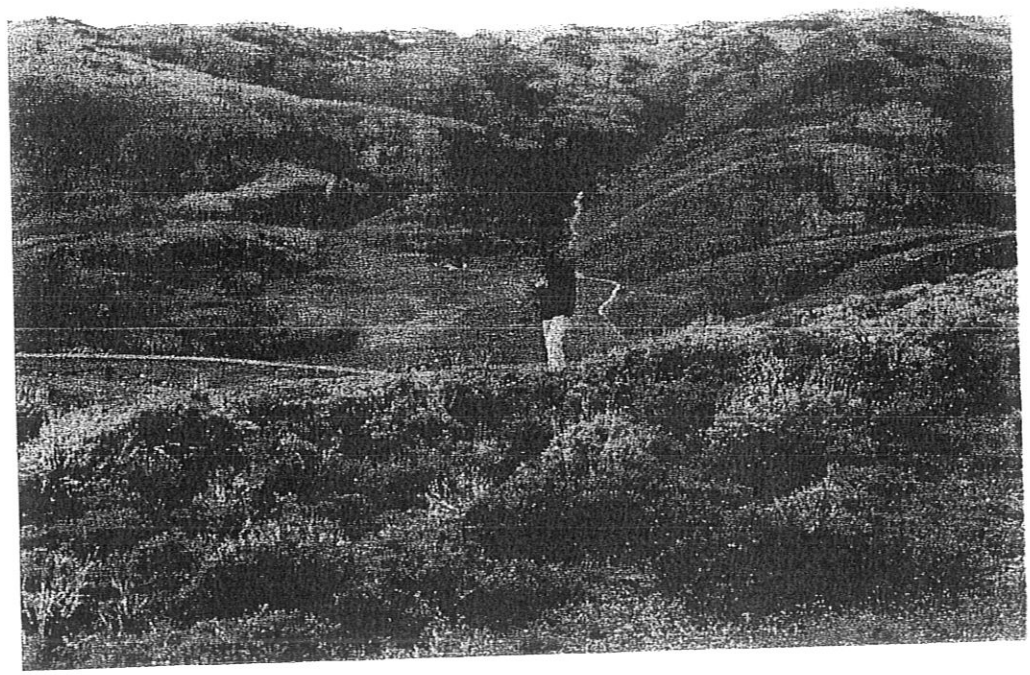
#	MATERIAL	TYPE

DESCRIBE: N/A

16. COMMENTS/CONTINUATIONS:

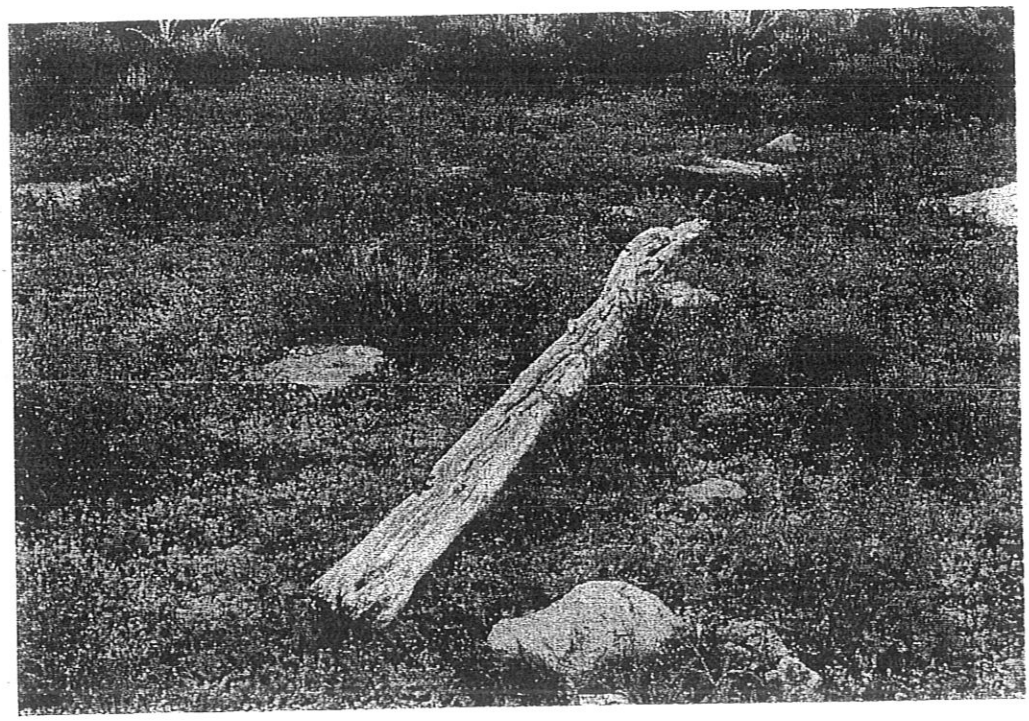


42Cb2626. Site overview facing southeast. Roll 07-172:1 Exp. 9.



42Cb2626. Site overview facing southwest. Roll 07-172:1 Exp. 10.

42Cb2626. Feature B, a salt trough, facing northeast. Roll 07-172:1 Exp. 11.



42Cb2626. Feature D, as salt trough, facing northeast. Roll 07-172:1 Exp. 12.

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name Darrah Johnston

A

1 42 - GB - 26210 (State Site Number) 2 - (Agency Site Number) 6 07MO0012 (Agency Report Number) 10 1878 (Elevation) 11 12 4878270 4397124 (Zone / Easting / Northing)

12 SW | SW | SE | 33 | 12 S | 007 E (1/4 | 1/4 | 1/4 | Sec. | T. | R.)

13 1 (Merid.) 14 SCOFIELD UTAH 1979 (USGS Map) 17 PR (Owner)

18 (Forest / Dist./Park) 19 (Loc. Curated Materials) 21 C (Cond.) 22 GR OT (Impacts) 23 D (N.R.) 26 MO (Organ.) 28 05 - 24 - 07 (Survey Date) 29 15 (Slope) 208 (Aspect)

30 02A C (Water: distance/type) 31 TDA (Geog. Unit) 32 D Q (1st / 2nd Topographic Location) 33 U (Dep.) 34 C MOS (1 2 3 Vegetation) 35 (Misc. Text, Site Name)

B

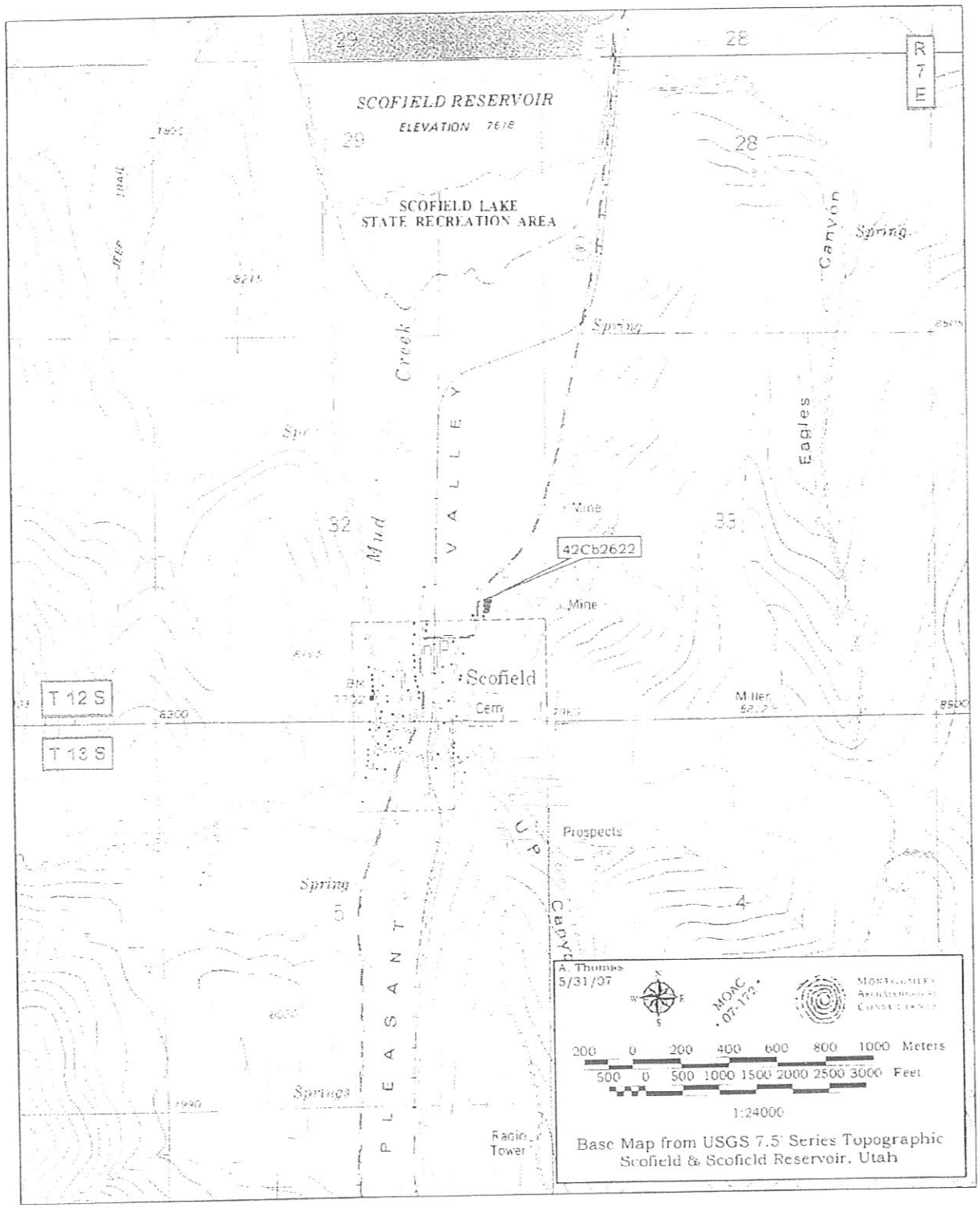
2 (Culture/Dating Method) 3 (Area) 4 (Collect) 5 (Depth) 6 (Excav. Status) 7 (Prehistoric Artifacts)

8 (Lithic Tools: # / type) 9 (# Flaking Stages) 11 (Ceramics: # / type) 13 (Features: # / type) 14 (Architecture: # / material / type)

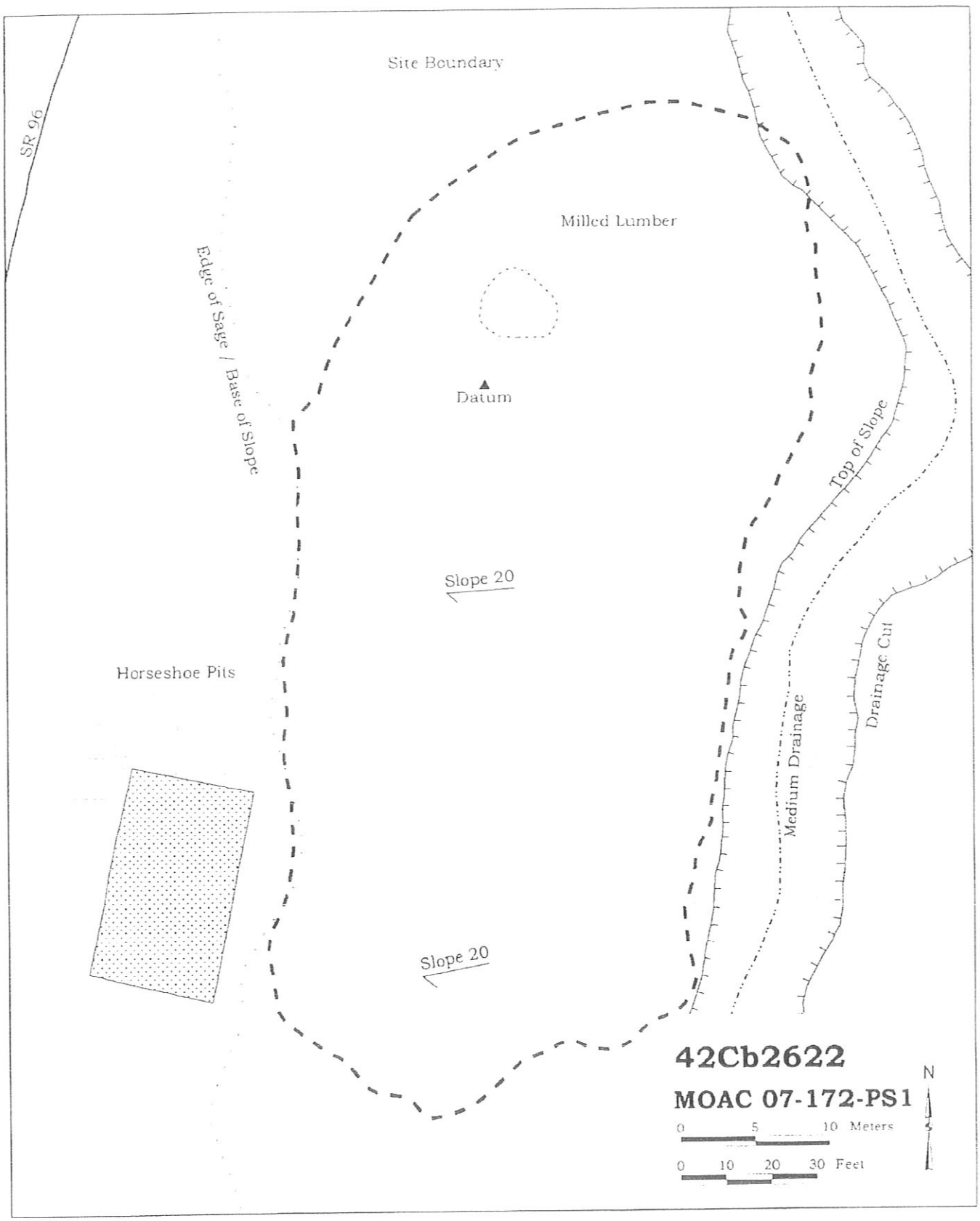
C

2 FR (Historic Themes) 3 EAI (Cultures / Dating Method) 4 1890 1960 (Dates) 5 975 (Area) 6 (Collect.) 7 A (Depth) 8 (Excav. Status) 9 (Artifacts)

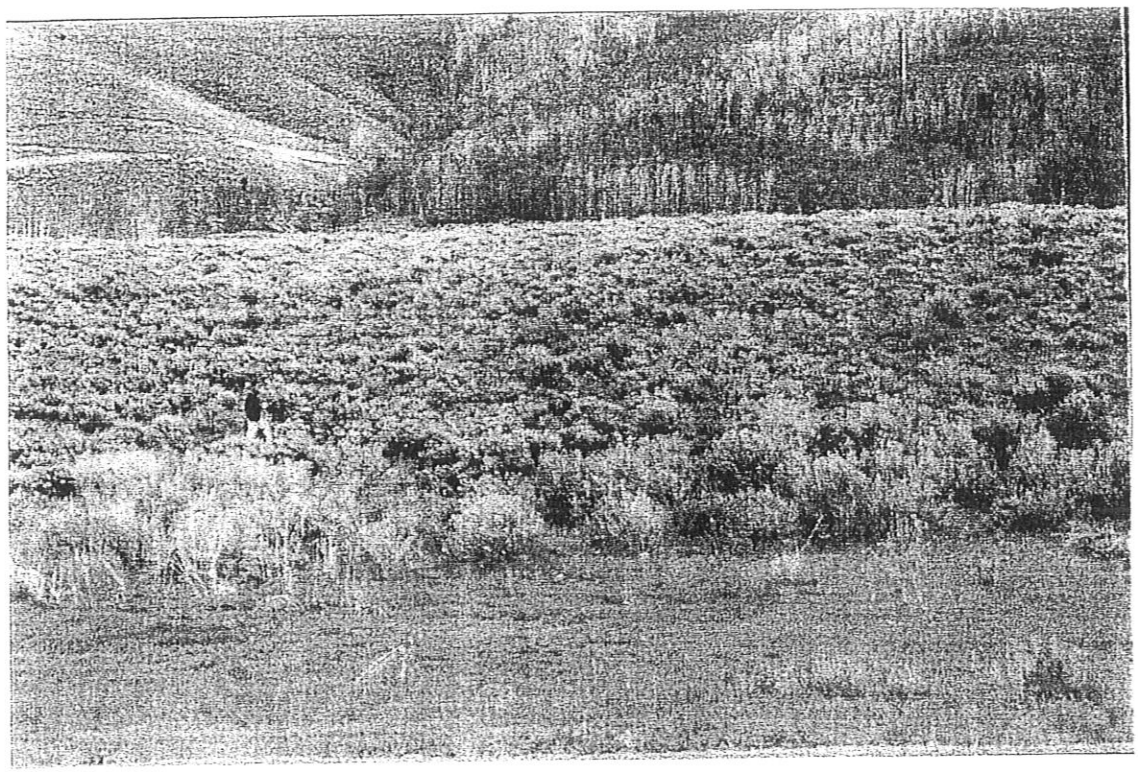
14 SOT (Features: # / type) 15 (Architecture: # / material / type)



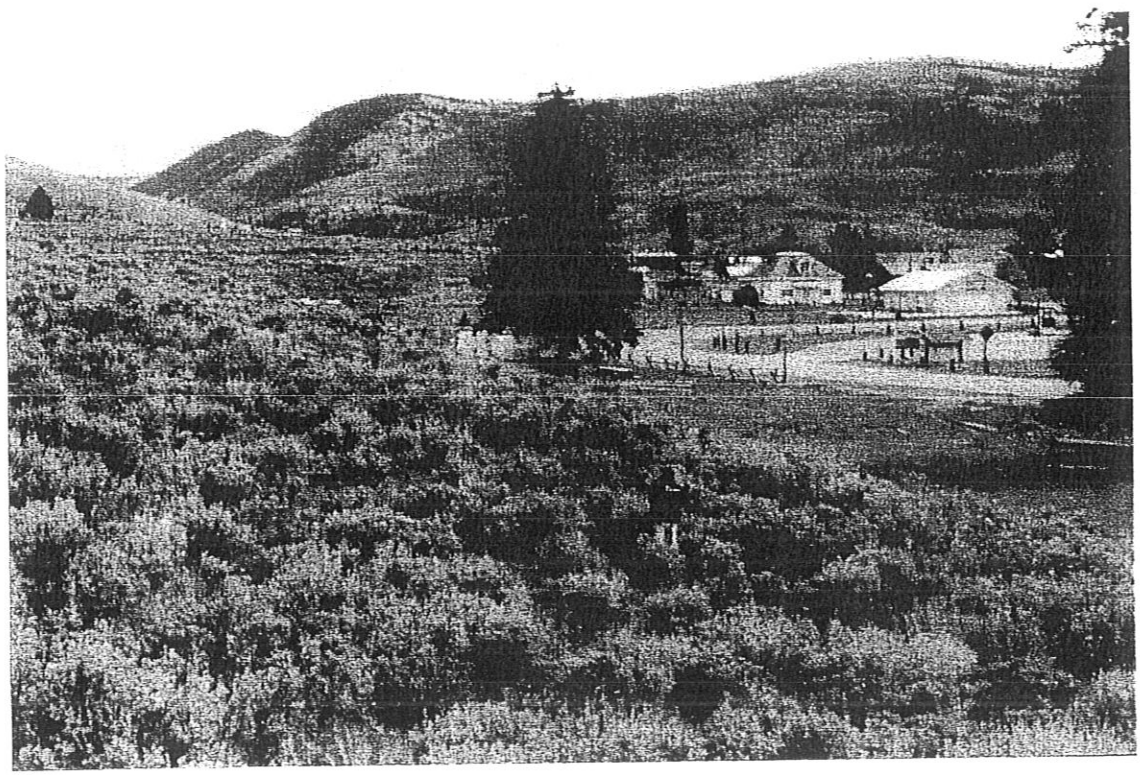
42Cb2622. Site Location Map.



42Cb2622. Site Sketch Map.



42Cb2622. Site overview facing east, from west site of SR-96. Roll 07-172:2 Exp.6.



42Cb2622. Site overview facing south with Scofield, Utah in background. Roll 07-172:2 Exp. 9.

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name Darrah Johnston

A

1 42 - Cb - UPDATE 2622 (State Site Number)
2 - (Agency Site Number)
6 07MQ0012 (Agency Report Number)
10 7673 (Elevation)
11 12 (Zone) 481666 (Easting) 4397584 (Northing)

12 SW (1/4) NE (1/4) SE (1/4) 32 (Sec.) 12 [redacted] S (T.) 007 [redacted] E (R.)

13 1 (Merid.)
14 SCOFIELD UTAH 1979 (U S G S Map)
17 PR (Owner)

18 (Forest) (Dist./Park)
19 (Loc. Curated Materials)
21 D (Cond.)
22 ER (Impacts)
23 0 (N.R.)
26 MQ (Organ.)
28 05 - 24 - 07 (Survey Date)
29 15 (Slope) 998 (Aspect)

30 017 C (Water: distance/type)
31 TDA (Geog. Unit)
32 E (1st) P (2nd) (Topographic Location)
33 H (Dep.)
34 C QMQ (Vegetation 1 2 3)
35 (Misc. Text, Site Name)

B

2 (Culture/Dating Method)
3 (Area)
4 (Collect)
5 (Depth)
6 (Excav. Status)
7 (Prehistoric Artifacts)
8 (Lithic Tools: # / type)
9 (#) (Flaking Stages)
11 (Ceramics: # / type)
13 (Features: # / type)
14 (Architecture: # / material / type)

C

2 (Historic Themes)
3 EAF (Cultures / Dating Method)
4 1925 1983 (Dates)
5 2100 (Area)
6 (Collect.)
7 A (Depth)
8 (Excav. Status)
9 GE GK VE GJ GM VD G8 VJ VC (Artifacts)
14 (Features: # / type)
15 (Architecture: # / material / type)

IMACS SITE FORM

PART A - ADMINISTRATIVE DATA

1. **STATE NO.:** 42Cb2623
2. **AGENCY NO.:**
3. **TEMP NO.:** MOAC 07-172-K7
4. **STATE:** Utah (42) **COUNTY:** Carbon (Cb)
5. **PROJECT:** CRI of Carbon Resources Kinney 2 Mine, Carbon County, Utah
6. **REPORT NO.:** U-07-MQ-0612p
7. **SITE NAME/PROPERTY NAME:**
8. **CLASS:** [ ] PREHISTORIC [X] HISTORIC [ ] PALEONTOLOGIC [ ] ETHNOGRAPHIC
9. **SITE TYPE:** Aspen Art
10. **ELEVATION:** 8509 ft.
11. **UTM GRID:** Zone [12] [487727] E [4397848] N
12. [NW 1/4] of [NW 1/4] of [SE 1/4] of Section [33] Township [12S] Range [7E].
13. **MERIDIAN:** Salt Lake (1)
14. **MAP REFERENCE:** USGS 7.5' Series Scofield, Utah 1979
15. **AERIAL PHOTO:** N/A
16. **LOCATION AND ACCESS:** From SR-96 in Scofield, Utah drive north for approximately 0.2 miles to a two track road. Turn right (east) onto the two track road and continue in an eastward direction up the hill through a series of switchbacks to the top of the hill. The site is located approximately 30 meters east of the road. Follow a GPS unit to the above stated UTM coordinates to locate the site. The site datum consists of a rebar and cap stamped with the temporary site number.
17. **LAND OWNER:** Private (PR)
18. **FEDERAL ADMIN. UNITS:** N/A
19. **LOCATION OF CURATED MATERIALS:** N/A
20. **SITE DESCRIPTION:** The site consists of four aspen art features located on the top of a ridge, above Pleasant Valley. These aspen art features likely relate to sheep grazing in the upper elevations around Pleasant Valley from the 1890s to the 1960s. Feature A is an aspen art panel that consists of two inscriptions, one over the other, that partially wrap around the aspen tree. The inscription reads (in script) "Clark Ninteria / June 4 / 1941" and below that reads (in block letters) "JV / 1956." Feature B is an aspen art panel that consist of a single inscription that reads (in script) "Clark Ninteria / July 4, 1941." Feature C is an aspen art panel that consists of a single inscription that reads (in script) "Elmo Velasq_ _ _ / 1945 / Aug 15 - 37 / ELMO / Velasquez." Feature D is an aspen art panel that consists of an inscription that reads (in a block-script) "A.M. / AM / Oct / 1. 1911." No historic artifacts or other features were documented at the site.
21. **SITE CONDITION:** [ ] EXCELLENT [ ] GOOD [X] FAIR [ ] POOR
22. **IMPACT AGENT(S):** Tree Growth (OT)
23. **NAT. REGISTER STATUS:** [ ] SIGNIFICANT [X] NON-SIGNIFICANT [ ] UNEVALUATED
    JUSTIFY: The site consists of historic aspen art located on top of a ridge, above Pleasant Valley. This is a common historic site in sheep grazing area. This site cannot be linked to any significant event(s) or person(s) (Criteria A and B); does not represent a type or the work of a master (Criterion C); and fails to have the potential to yield information important to the history of the area (Criterion D). Therefore, site 42Cb2623 is not recommended eligible to the NRHP.
24. **PHOTOS:** Roll 07-172:1 Exp. 21-23 and Roll 07-172:2 Exp. 1

IMACS SITE FORM: 42Cb2623

25. RECORDED BY: Patricia Stavish
26. SURVEY ORGANIZATION: Montgomery Archaeological Consultants
27. ASSISTING CREW MEMBERS: Adam Thomas
28. SURVEY DATE: May 24, 2007

LIST OF ATTACHMENTS:

[ ] PART B	[X] PART C
[X] TOPO MAP	[X] SITE MAP
[X] PHOTOS	[ ] OTHER
[ ] ARTIFACT/FEATURE SKETCH	

PART A - ENVIRONMENTAL DATA

29. SLOPE: [4] (Degrees) [358] ASPECT (Degrees)
30. DISTANCE TO PERMANENT WATER: [17] X 100 METERS

TYPE OF WATER SOURCE:

[ ] SPRING/SEEP	[ ] STREAM/RIVER
[X] LAKE	[ ] OTHER

NAME OF WATER SOURCE: Scofield Reservoir

31. GEOGRAPHIC UNIT: Wasatch Plateau (TDA)
32. TOPOGRAPHIC LOCATION
    PRIMARY LANDFORM: Ridge (D)
    SECONDARY LANDFORM: Ridge (P)

DESCRIBE: The site is located on the top of a ridge, above Pleasant Valley.

33. ON-SITE DEPOSITIONAL CONTEXT: Residual (U)

DESCRIPTION OF SOIL: The soil is a dark brown sandy silt.

34. VEGETATION
    A. LIFE ZONE: Canadian (C)
    B. COMMUNITY
        PRIMARY ON-SITE: Aspen (A)
        SECONDARY ON-SITE: Grassland (M)
        SURROUNDING SITE: Aspen (A)

DESCRIBE: The vegetation includes aspen trees, bunch grasses and annual forbs, and sparse low sagebrush.

35. MISCELLANEOUS TEXT:
36. COMMENTS/CONTINUATIONS:

IMACS SITE FORM: 42Cb2623

PART C - HISTORIC SITES

1. SITE TYPE: Aspen Art
2. HISTORIC THEME(s): Farming/Ranching (FR)
3. CULTURE:

CULTURAL AFFILIATION	DATING METHOD
European/American (EA)	Historical Record (I)

DESCRIBE: European-Americans began settling the area in the 19th century participating in farming, ranching, and timber industries. Early sheep grazing began in the 1890s and continued in the mountains until the 1960s.

4. OLDEST DATE: 1911 RECENT DATE: 1956
HOW DETERMINED: Several dates were inscribed in the aspen art and include the following dates: 1911, 1937, 1941, 1945, and 1956.
5. SITE DIMENSIONS: [47] M by [25] M
Area [1175] Sq. M
6. SURFACE COLLECTION/METHOD: None (A)
SAMPLING METHOD: N/A
7. ESTIMATED DEPTH OF CULTURAL FILL: Surface (A)
How estimated (If tested, show location on map): Only aspen art panels were documented at the site.
8. EXCAVATION STATUS: [ ] EXCAVATED [ ] TESTED [X] UNEXCAVATED
TESTING METHOD: N/A
9. SUMMARY OF ARTIFACTS AND DEBRIS: None
DESCRIBE: No artifacts were documented in association with the aspen art.
10. CERAMIC ARTIFACTS: None

PASTE	GLAZE/SLIP	DECORATION	PATTERN	VESSEL	#

ESTIMATED NUMBER OF CERAMIC TRADEMARKS: [0]
DESCRIBE: N/A
11. GLASS: None

#	MANUFACTURE	COLOR	FUNCTION	TRADEMARK	DECORATION

DESCRIBE: N/A
12. MAXIMUM DENSITY #/SQ. M (glass and ceramics): 0/sq. m.
13. TIN CANS: None

TYPE	OPENING	SIZE	MODIFIED	LABEL/MARK	FUNCTION

DESCRIBE: N/A
14. LANDSCAPE AND CONSTRUCTED FEATURES (locate on site map): 4 Aspen Art (AN)
DESCRIBE: Feature A is an aspen art panel that consists of two inscriptions, one over the other, that partially wrap around the aspen tree. The inscription reads (in script) "Clark Ninteria / June 4 / 1941" and below that reads (in block letters) "JV / 1956." This panel is oriented to 264 degrees and measures 23 inches tall by 31 inches wide. The panel is located 42 inches above the ground on an aspen tree that is 51 inches in diameter.

Feature B is an aspen art panel that consist of a single inscription that reads (in script) "Clark Ninteria / July 4, 1941." This panel is oriented to 342 degrees and measures 6 ½ inches tall by 27 inches wide. The panel is located 57 ½ inches above the ground on an aspen tree that is 60 inches in diameter.

IMACS SITE FORM: 42Cb2623. PART C. Item 14 (Cont.)

Feature C is an aspen art panel that consists of a single inscription that reads (in script) "Elmo Velasq_ _ _ / 1945 / Aug 15 - 37 / ELMO / Velasquez." This panel is oriented to 314 degrees and measures 13 inches tall by 25 inches wide. The panel is located 49 inches above the ground on an aspen tree that is 39 inches in diameter.

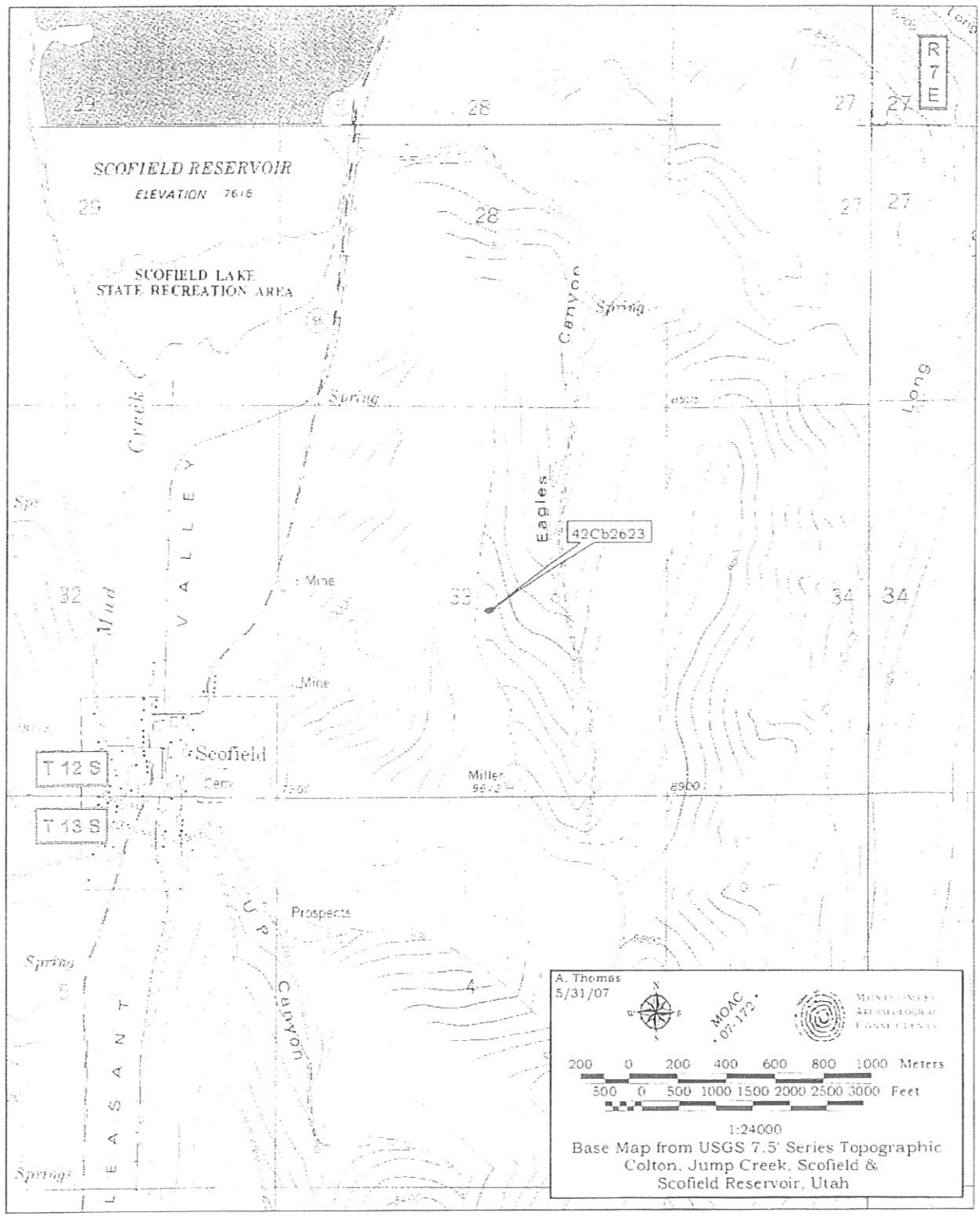
Feature D is an aspen art panel that consists of an inscription that reads (in a block-script) "A.M. / AM / Oct / 1. 1911." This panel is oriented to 238 degrees and measures 19 inches tall by 11 inches wide. The panel is located 55 inches above the ground on an aspen tree that is 37 inches in diameter.

15. BUILDINGS AND STRUCTURES (locate on site map): None

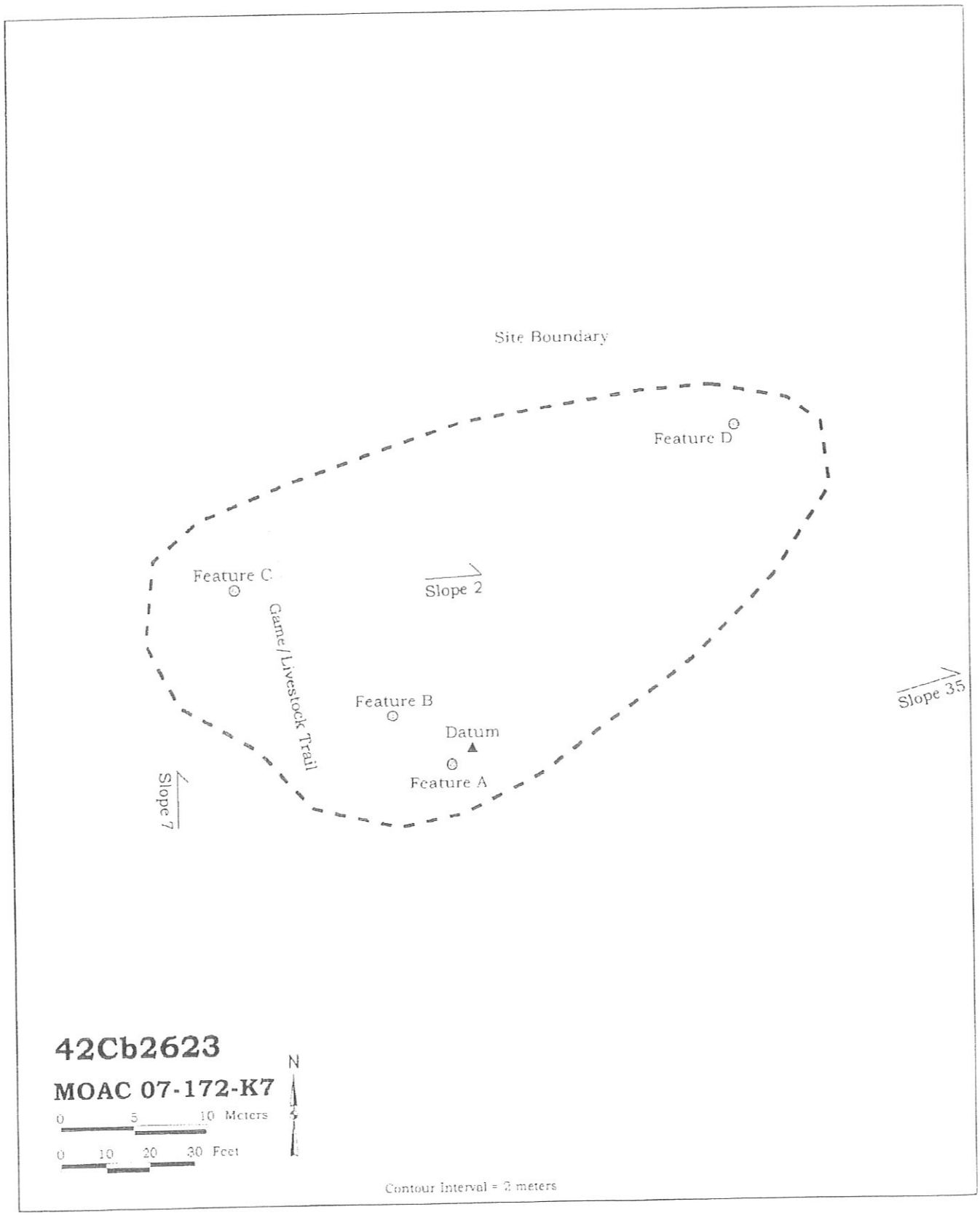
#	MATERIAL	TYPE

DESCRIBE: N/A

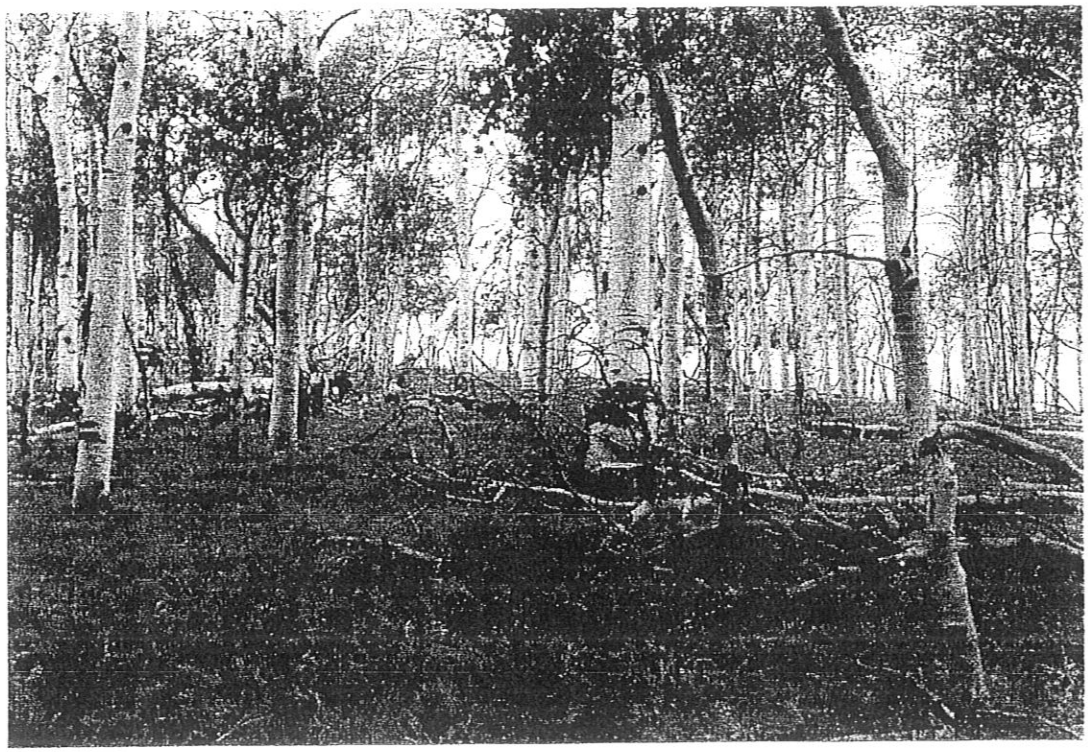
16. COMMENTS/CONTINUATIONS:



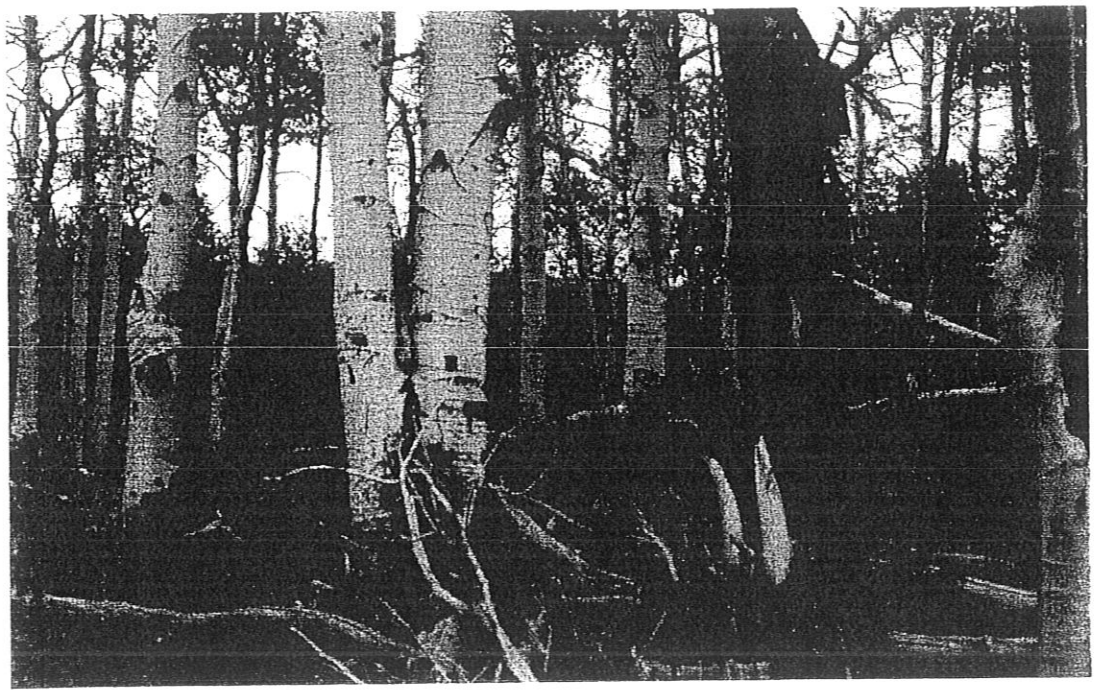
42Cb2623. Site Location Map.



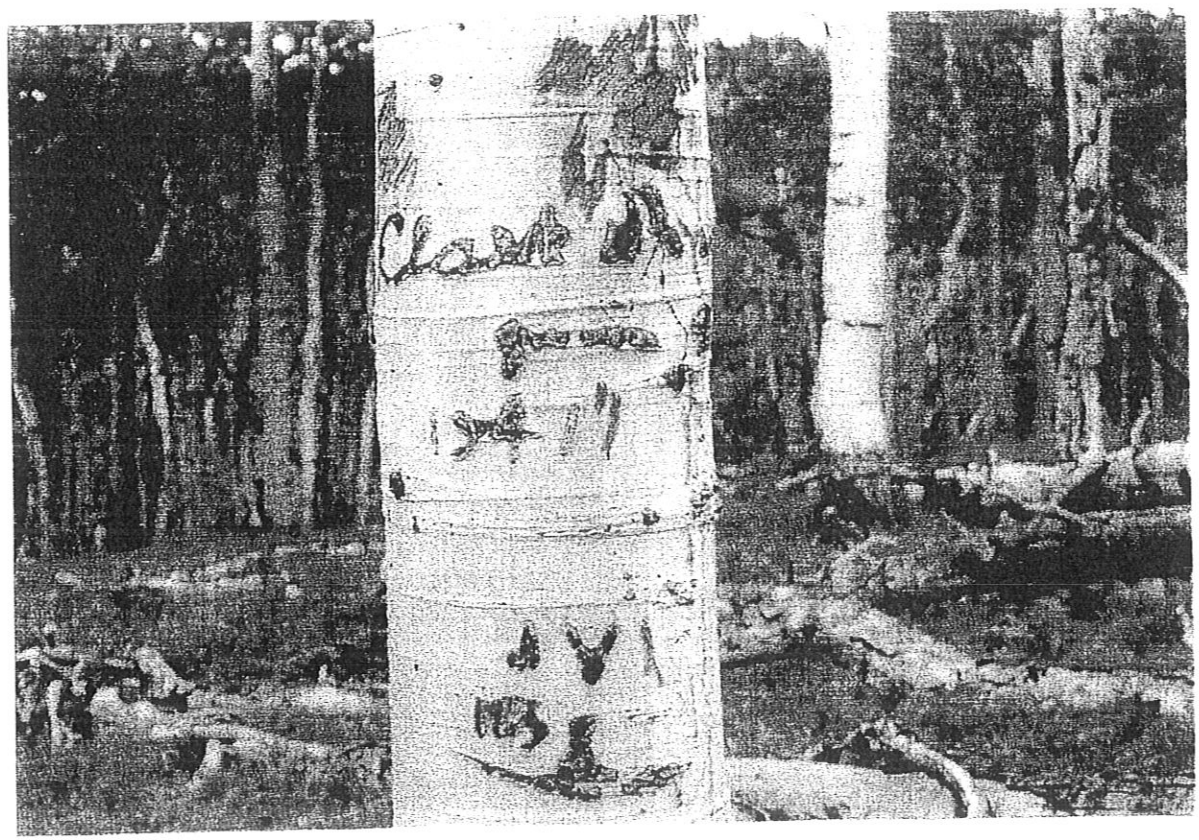
42Un2623. Site Sketch Map.



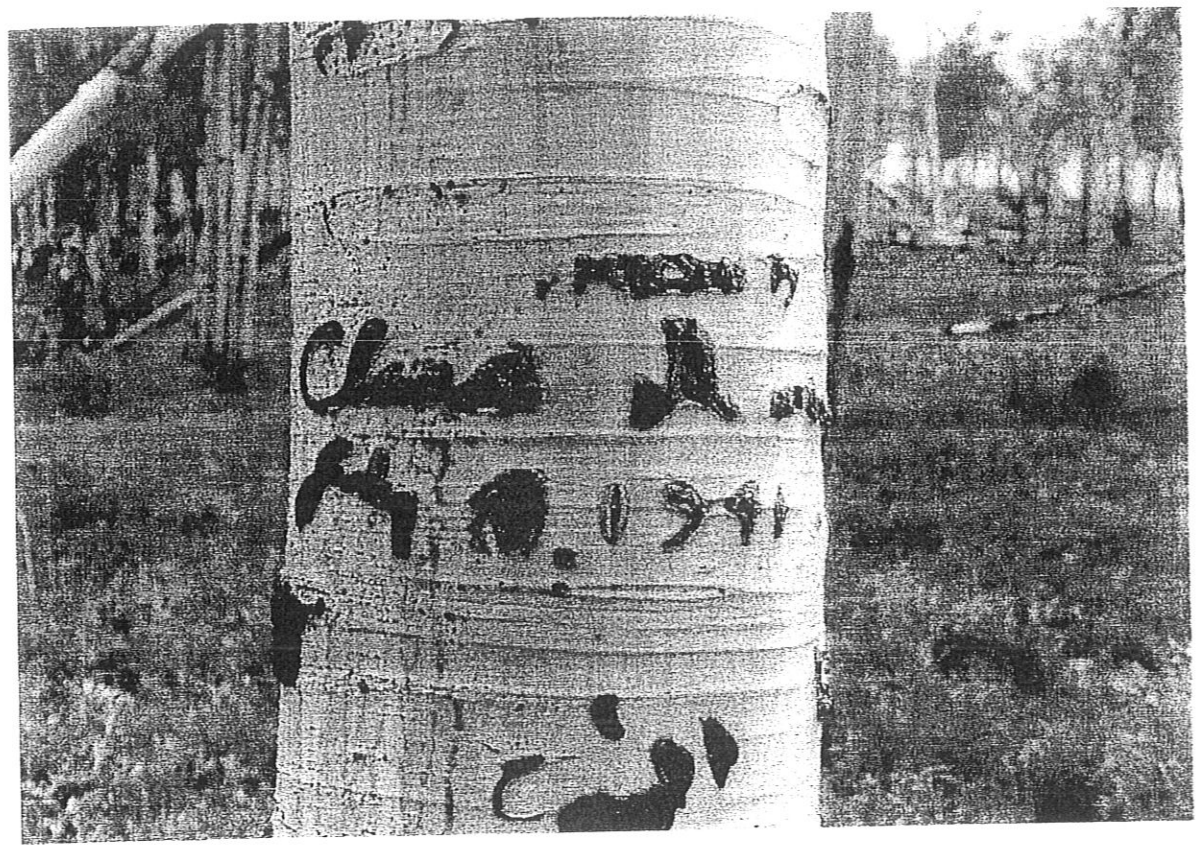
42Cb2623. Site overview facing south. Roll 07-172:2 Exp. 2.



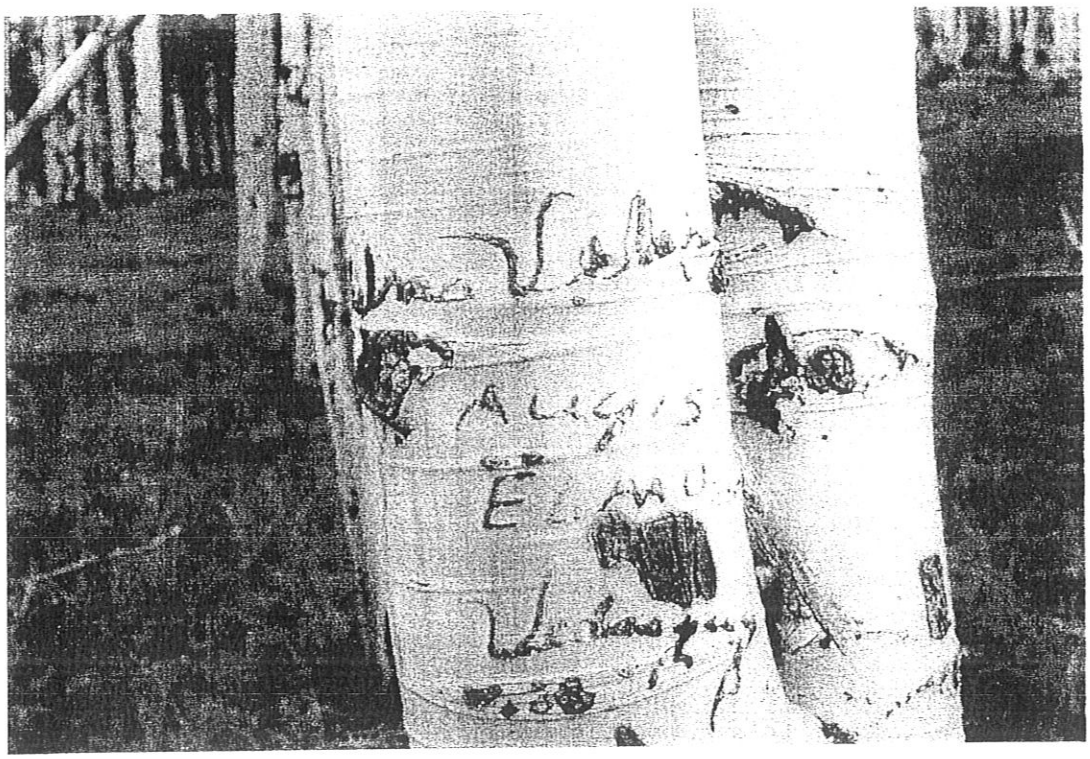
42Cb2623. Site overview facing east. Roll 07-172:2 Exp. 5.



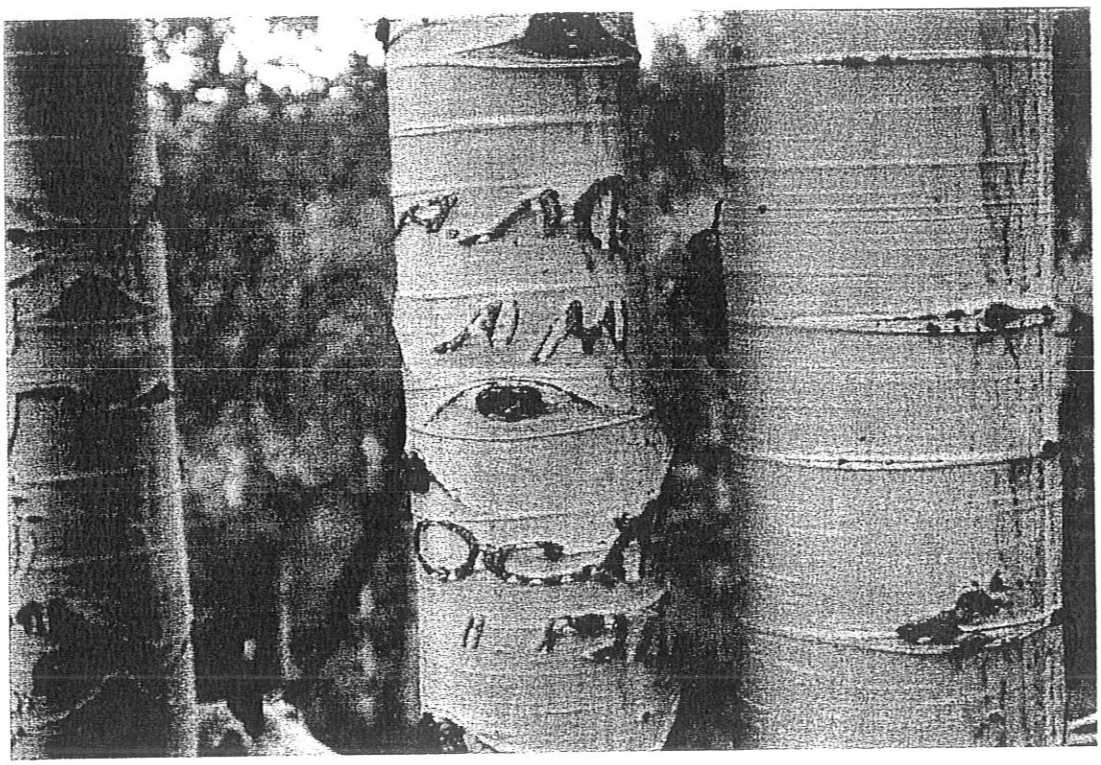
42Cb2623. Feature A, aspen art, facing east. Roll 07-172:1 Exp. 21.



42Cb2623. Feature B, aspen art, facing southeast. Roll 07-172:1 Exp. 22.



42Cb2623. Feature C, aspen art, facing southeast. Roll 07-172:1 Exp. 23.



42Cb2623. Feature D, aspen art, facing northeast. Roll 07-172:2 Exp. 1.

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name Darran Johnston

A

1 42-Cb-2623 (State Site Number) 2 - (Agency Site Number) 6 07MQ0612 (Agency Report Number) 10 8509 (Elevation) 11 12 (Zone) 487727 (Easting) 4397848 (Northing)

12 NW (1/4) NW (1/4) SE (1/4) 33 (Sec.) 12 S (T.) 007 E (R.)

13 1 (Merid.) 14 SCOFIELD UTAH MAP (USGS Map) 17 PR (Owner)

18 (Forest) (Dist./Park) 19 (Loc. Curated Materials) 21 C (Cond.) 22 QT (Impacts) 23 D (N.R.) 26 MQ (Organ.) 28 05-24-07 (Survey Date) 29 04 (Slope) 358 (Aspect)

30 017 C (Water: distance/type) 31 TDA (Geog. Unit) 32 D P (Topographic Location: 1st 2nd) 33 U (Dep.) 34 C AMA (Vegetation: 1 2 3) 35 (Misc. Text, Site Name)

B

2 (Culture/Dating Method) 3 (Area) 4 (Collect) 5 (Depth) 6 (Excav. Status) 7 (Prehistoric Artifacts)

8 (Lithic Tools: # / type) 9 (# Flaking Stages) 11 (Ceramics: # / type) 13 (Features: # / type) 14 I (Architecture: # / material / type)

C

2 FR (Historic Themes) 3 EAG (Cultures / Dating Method) 4 1911 1956 (Dates) 5 (Area) 6 (Collect.) 7 A (Depth) 8 (Excav. Status) 9 (Artifacts)

14 HAN (Features: # / type) 15 (Architecture: # / material / type)

IMACS SITE FORM

PART A - ADMINISTRATIVE DATA

1. **STATE NO.:** 42Cb2624
2. **AGENCY NO.:**
3. **TEMP NO.:** MOAC 07-172-K8
4. **STATE:** Utah (42) **COUNTY:** Carbon (Cb)
5. **PROJECT:** CRI of Carbon Resources Kinney 2 Mine, Carbon County, Utah
6. **REPORT NO.:** U-07-MQ-0612p
7. **SITE NAME/PROPERTY NAME:**
8. **CLASS:** [ ] PREHISTORIC [X] HISTORIC [ ] PALEONTOLOGIC [ ] ETHNOGRAPHIC
9. **SITE TYPE:** Aspen Art
10. **ELEVATION:** 8543 ft
11. **UTM GRID:** Zone [12] [487739] E [4397767] N
12. [NW 1/4] of [NW 1/4] of [SE 1/4] of Section [33] Township [12S] Range [7E].
13. **MERIDIAN:** Salt Lake (1)
14. **MAP REFERENCE:** USGS 7.5' Series Scofield, Utah 1979
15. **AERIAL PHOTO:** N/A
16. **LOCATION AND ACCESS:** From SR-96 in Scofield, Utah drive north for approximately 0.2 miles to a two track road. Turn right (east) onto the two track road and continue in an eastward direction up the hill through a series of switchbacks to the top of the hill. The site is located approximately 60 meters east of the road. Follow a GPS unit to the above stated UTM coordinates to locate the site. The site datum consists of a rebar and cap stamped with the temporary site number.
17. **LAND OWNER:** Private (PR)
18. **FEDERAL ADMIN. UNITS:** N/A
19. **LOCATION OF CURATED MATERIALS:** N/A
20. **SITE DESCRIPTION:** The site consists of three aspen art features located on the top of a ridge, above Pleasant Valley. These aspen art features likely relate to sheep grazing in the upper elevations around Pleasant Valley from the 1890s to the 1960s. Feature A is an aspen art panel that consist of a single inscription that reads (in block) "F.S. / 1910." Feature B has two aspen art panels, Panel 1 and Panel 2. Panel 1 consist of a single inscription over a line drawing of a horse. The inscription reads (in block) "ADELANDO / MANZANABES." Panel 2 consist of two inscriptions, one over the other, that read (in block) "N A _ / NHA." Feature C is an aspen art panel that consist of a single inscription that reads (in block) "HRW / M _ / M." No historic artifacts or other features were documented at the site.
21. **SITE CONDITION:** [ ] EXCELLENT [ ] GOOD [X] FAIR [ ] POOR
22. **IMPACT AGENT(S):** Tree Growth (OT)
23. **NAT. REGISTER STATUS:** [ ] SIGNIFICANT [X] NON-SIGNIFICANT [ ] UNEVALUATED
    JUSTIFY: The site consists of historic aspen art located on top of a ridge, above Pleasant Valley. This is a common historic site in sheep grazing area. This site cannot be linked to any significant event(s) or person(s) (Criteria A and B); does not represent a type or the work of a master (Criterion C); and fails to have the potential to yield information important to the history of the area (Criterion D). Therefore, site 42Cb2624 is not recommended eligible to the NRHP.
24. **PHOTOS:** Roll 07-172:1 Exp. 13-20
25. **RECORDED BY:** Patricia Stavish

IMACS SITE FORM: 42Cb2624

26. SURVEY ORGANIZATION: Montgomery Archaeological Consultants
27. ASSISTING CREW MEMBERS: Adam Thomas
28. SURVEY DATE: May 24, 2007

LIST OF ATTACHMENTS: [ ] PART B [X] PART C
[X] TOPO MAP [X] SITE MAP
[X] PHOTOS [ ] OTHER
[ ] ARTIFACT/FEATURE SKETCH

PART A - ENVIRONMENTAL DATA

29. SLOPE: [3] (Degrees) [998] ASPECT (Degrees)
30. DISTANCE TO PERMANENT WATER: [18] X 100 METERS
TYPE OF WATER SOURCE: [ ] SPRING/SEEP [ ] STREAM/RIVER
[X] LAKE [ ] OTHER
NAME OF WATER SOURCE: Scofield Reservoir
31. GEOGRAPHIC UNIT: Wasatch Plateau (TDA)
32. TOPOGRAPHIC LOCATION
PRIMARY LANDFORM: Ridge (D)
SECONDARY LANDFORM: Ridge (P)
DESCRIBE: The site is located on the top of a ridge, above Pleasant Valley.
33. ON-SITE DEPOSITIONAL CONTEXT: Residual (U)
DESCRIPTION OF SOIL: The soil is a dark brown sandy silt.
34. VEGETATION
A. LIFE ZONE: Canadian (C)
B. COMMUNITY
PRIMARY ON-SITE: Aspen (A)
SECONDARY ON-SITE: Grassland (M)
SURROUNDING SITE: Aspen (A)
DESCRIBE: The vegetation includes aspen trees, bunch grasses and annual forbs.
35. MISCELLANEOUS TEXT:
36. COMMENTS/CONTINUATIONS:

IMACS SITE FORM: 42Cb2624

PART C - HISTORIC SITES

1. SITE TYPE: Aspen Art
2. HISTORIC THEME(s): Farming/Ranching (FR)
3. CULTURE:

CULTURAL AFFILIATION	DATING METHOD
European/American (EA)	Historical Record (I)

DESCRIBE: European-Americans began settling the area in the 19th century participating in farming, ranching, and timber industries. Early sheep grazing began in the 1890s and continued in the mountains until the 1960s.

4. OLDEST DATE: 1910 RECENT DATE: 1910
HOW DETERMINED: The date, 1910, is inscribed on the aspen art inscriptions.
5. SITE DIMENSIONS: [14] M by [9] M
Area [126] Sq. M
6. SURFACE COLLECTION/METHOD: None (A)
SAMPLING METHOD: N/A
7. ESTIMATED DEPTH OF CULTURAL FILL: Surface (A)
How estimated (If tested, show location on map): Only aspen art panels were documented at the site.
8. EXCAVATION STATUS: [ ] EXCAVATED [ ] TESTED [X] UNEXCAVATED
TESTING METHOD: N/A
9. SUMMARY OF ARTIFACTS AND DEBRIS: None
DESCRIBE: No artifacts were documented in association with the aspen art.
10. CERAMIC ARTIFACTS: None

PASTE	GLAZE/SLIP	DECORATION	PATTERN	VESSEL	#

ESTIMATED NUMBER OF CERAMIC TRADEMARKS: [0]
DESCRIBE: N/A
11. GLASS: None

#	MANUFACTURE	COLOR	FUNCTION	TRADEMARK	DECORATION

DESCRIBE: N/A
12. MAXIMUM DENSITY #/SQ. M (glass and ceramics): 0/sq. m.
13. TIN CANS: None

TYPE	OPENING	SIZE	MODIFIED	LABEL/MARK	FUNCTION

DESCRIBE: N/A
14. LANDSCAPE AND CONSTRUCTED FEATURES (locate on site map): 3 Aspen Art (AN)
DESCRIBE: Feature A is an aspen art panel that consist of a single inscription that reads (in block) "F.S. / 1910." This panel is oriented to 188 degrees and measures 7 inches tall by 15 inches wide. The panel is located 49 inches above the ground on an aspen tree that is 50 inches in diameter.

Feature B has two aspen art panels, Panel 1 and Panel 2. Panel 1 consist of a single inscription over a line drawing of a horse. The inscription reads (in block) "ADELANDO / MANZANABES." This panel is oriented to 274 degrees and measures 13 inches tall by 29 inches wide. The panel is located 72 inches above the ground on an aspen tree that is 51 inches in diameter. Panel 2 consist of two inscriptions, one over the other, that read (in block) "N A _ / NHA." This panel is oriented to 314 degrees and measures 5 inches tall by 8 inches wide. The panel is located 40 inches above the ground on an aspen tree that is 51 inches in diameter.

IMACS SITE FORM: 42Cb2624, PART 14, Item 14 (Cont.)

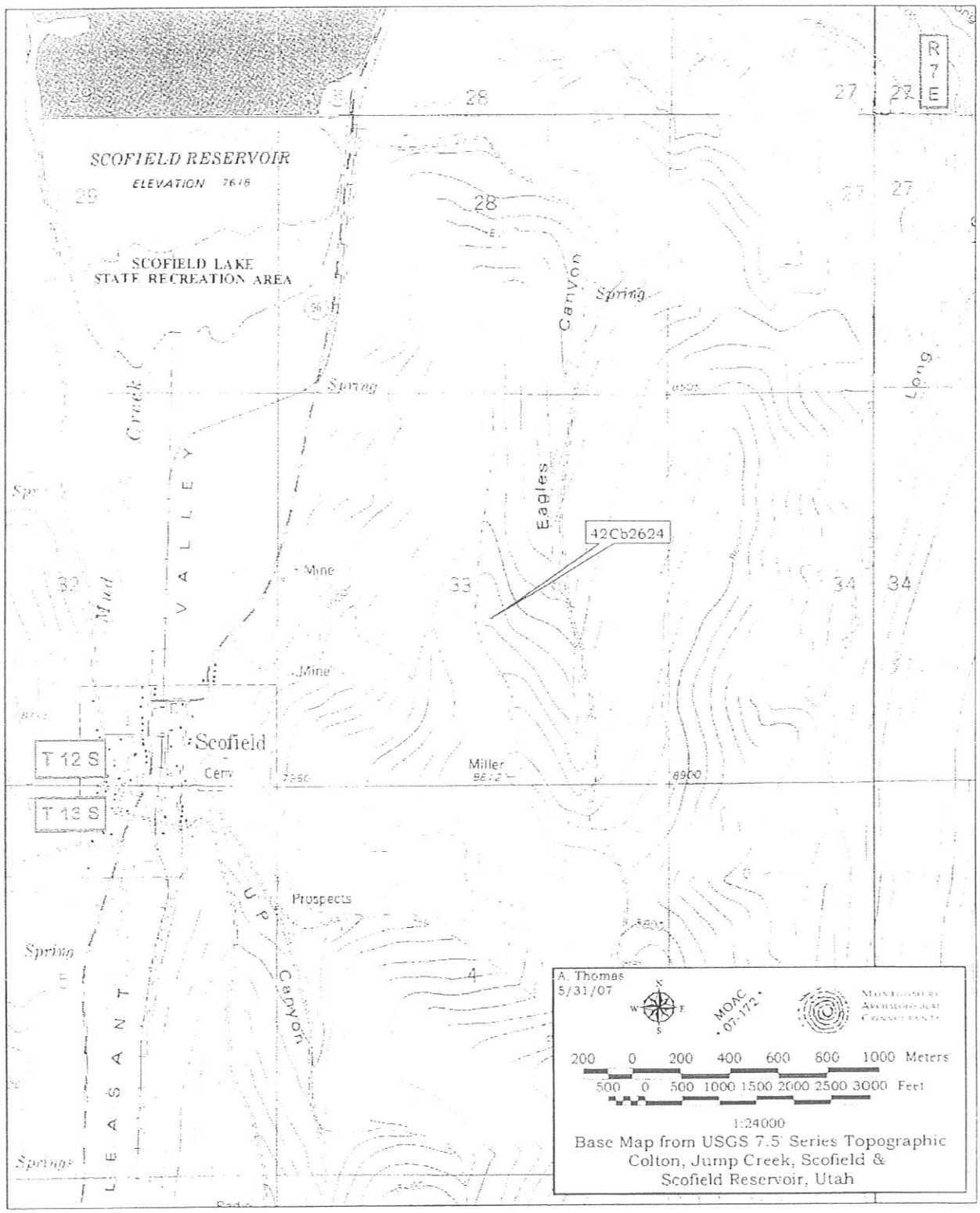
Feature C is an aspen art panel that consist of a single inscription that reads (in block) "HRW / M _ / M." This panel is oriented to 236 degrees and measures 10 inches tall by 10 inches wide. The panel is located 55 inches above the ground on an aspen tree that is 61 inches in diameter.

15. BUILDINGS AND STRUCTURES (locate on site map): None

#	MATERIAL	TYPE

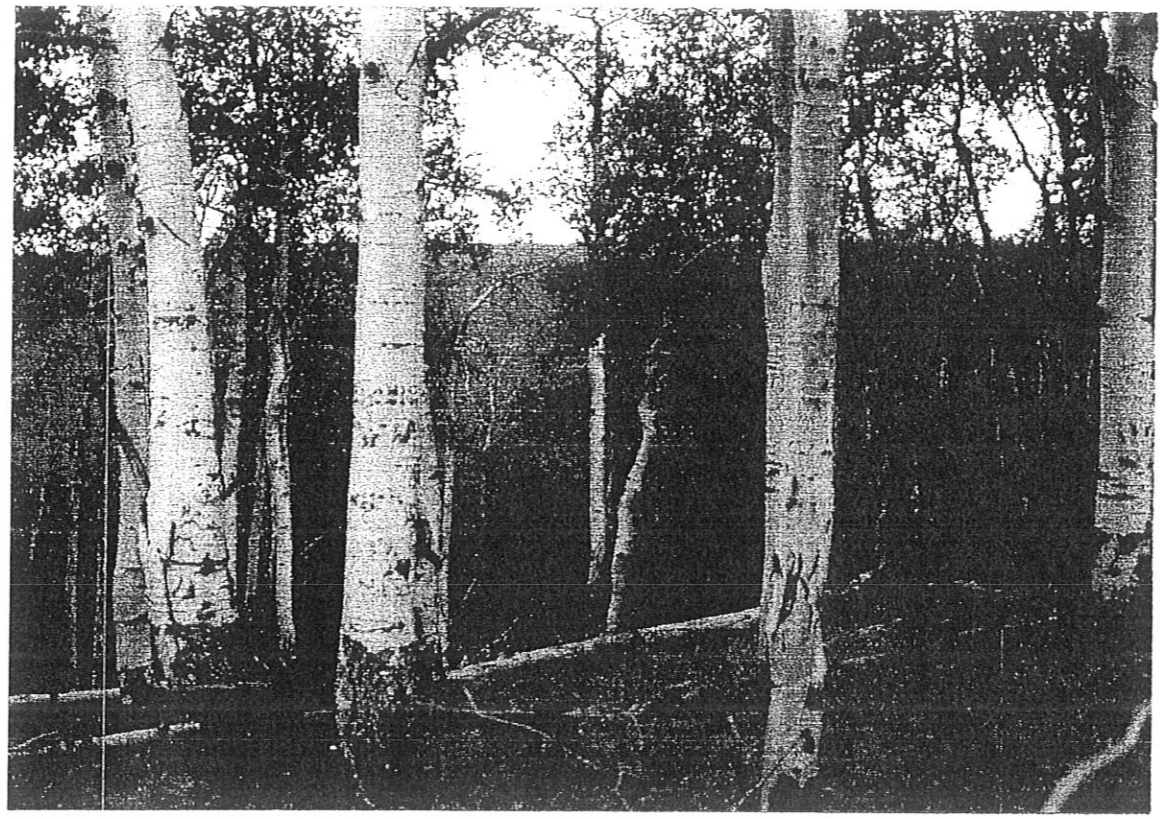
DESCRIBE: N/A

16. COMMENTS/CONTINUATIONS:

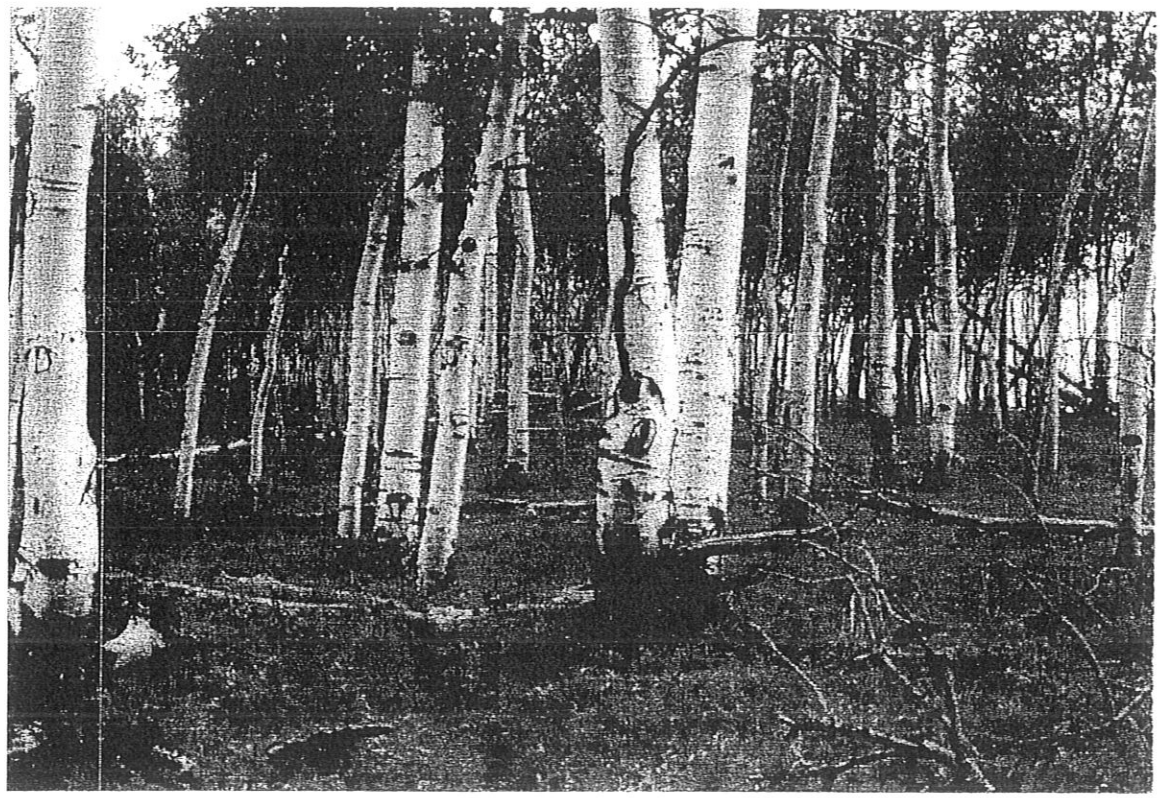


42Cb2624. Site Location Map.

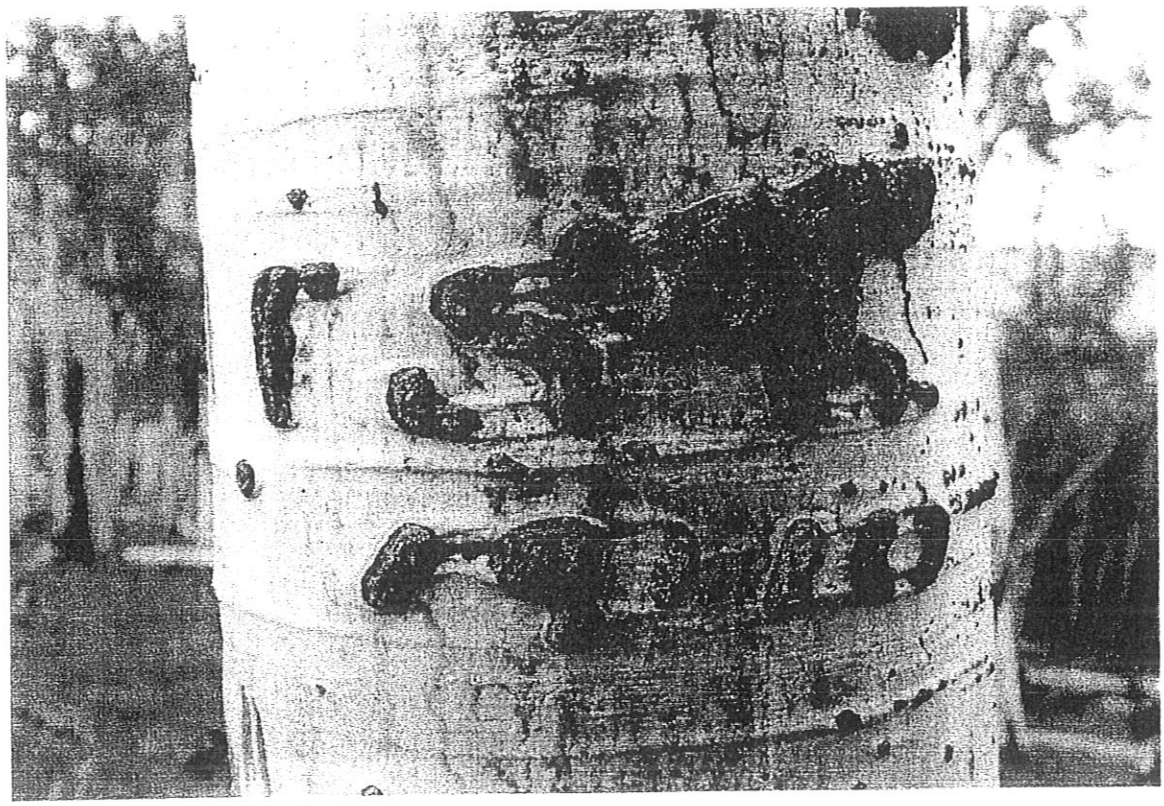
42Un2624. Site Sketch Map.



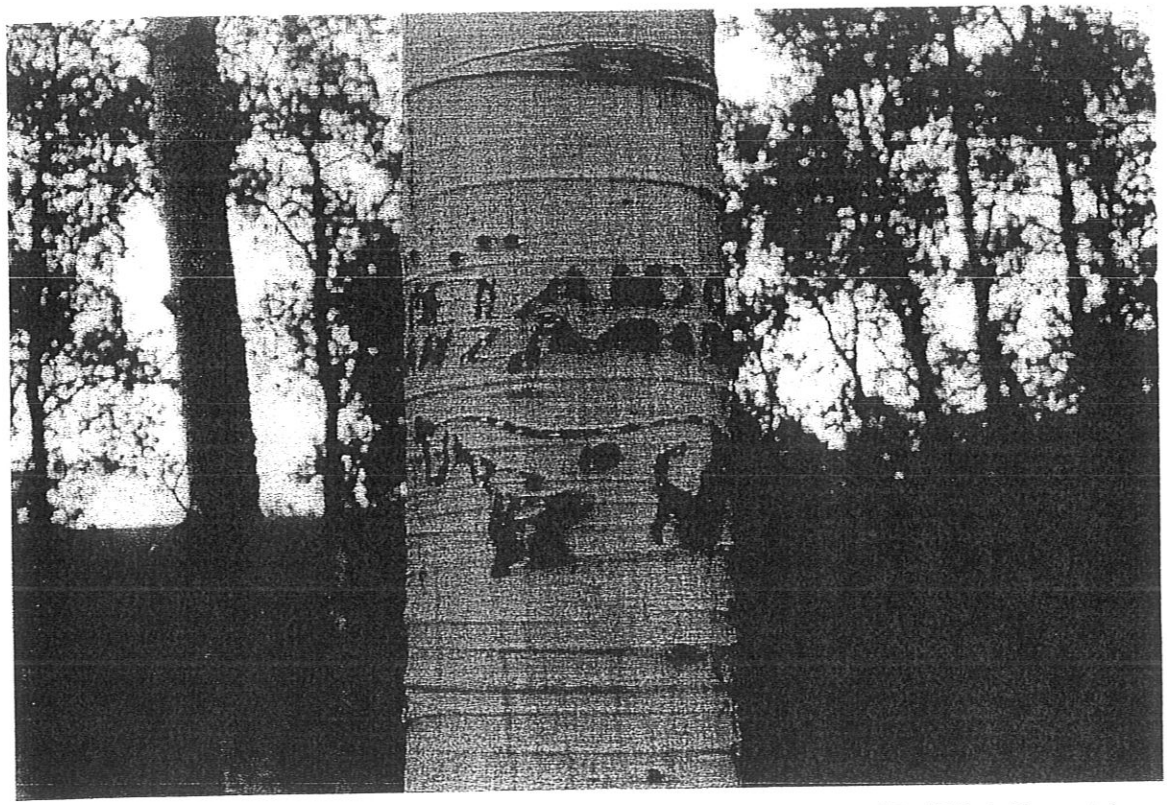
42Cb2624. Site overview facing east, aspen art visible. Roll 07-172:1 Exp. 18.



42Cb2624. Site overview facing south. Roll 07-172:1 Exp. 19.

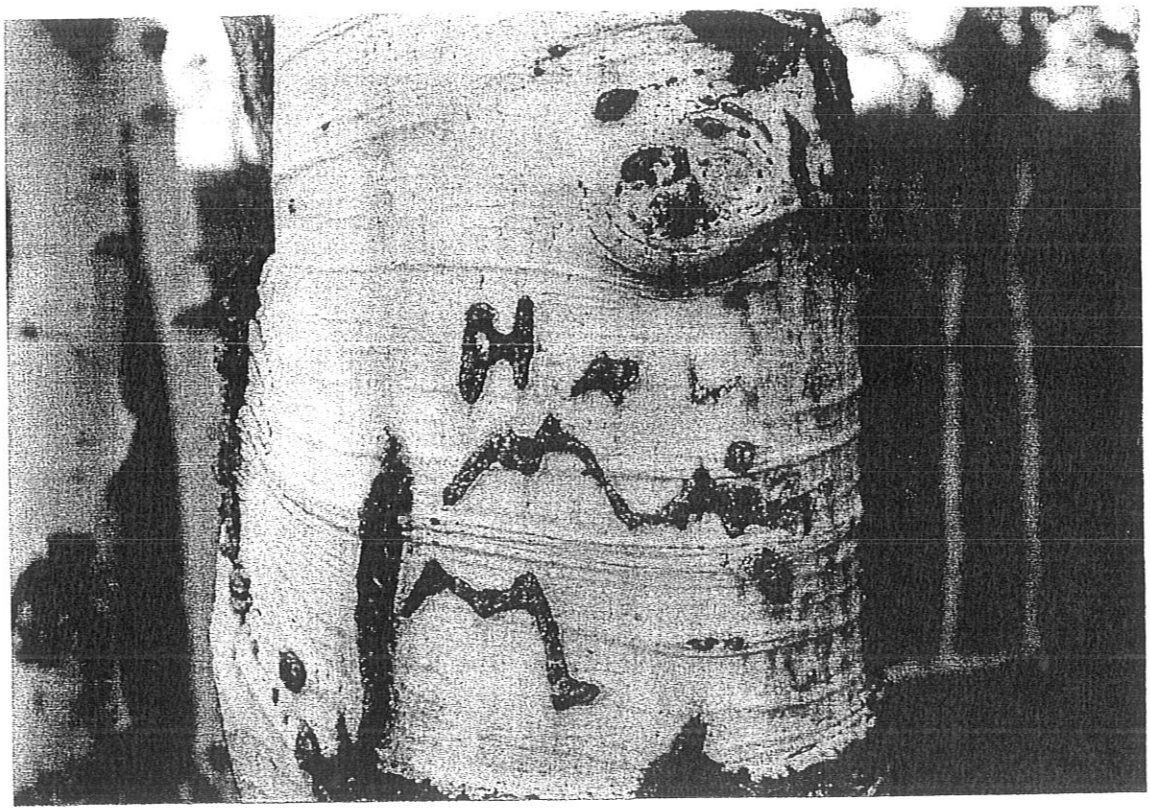


42Cb2624. Feature A, aspen art, facing north. Roll 07-172:1 Exp. 13.



42Cb2624. Feature B, Panel 1, aspen art, facing west. Roll 07-172:1 Exp. 14.

42Cb2624. Feature B, Panel 2, aspen art, facing northwest. Roll 07-172:1 Exp. 15.



42Cb2624. Feature C, aspen art, facing southwest. Roll 07-172:1 Exp. 16.

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name: Darrah Johnston

A

1 State Site Number: 42 - Cb - 2624
2 Agency Site Number:
6 Agency Report Number: 07MQ0612
10 Elevation: 8543
11 Zone: 12 Easting: 487739 Northing: 4397767

12 1/4: NW 1/4: NW 1/4: SE Sec.: 33 T.: 12 S R.: 007 E
13 Merid.: 1
14 USGS Map: SCOFIELD UTAH 1979
17 Owner: PR

18 Forest Dist./Park:
19 Loc. Curated Materials:
21 Cond.: C
22 Impacts: OT
23 N.R.: D
26 Organ.: MQ
28 Survey Date: 05 - 24 - 07
29 Slope: 03 Aspect: 998
30 Water: distance/type: 018 C
31 Geog. Unit: TDA
32 Topographic Location: 1st Q 2nd P
33 Dep.: U
34 Vegetation: C 1 A 2 MA 3
35 Misc. Text, Site Name:

B

2 Culture/Dating Method:
3 Area:
4 Collect:
5 Depth:
6 Excav. Status:
7 Prehistoric Artifacts:

8 Lithic Tools: # / type:
9 # Flaking Stages:
11 Ceramics: # / type:
13 Features: # / type:
14 Architecture: # / material / type:

C

2 Historic Themes: FR
3 Cultures / Dating Method: EAG
4 Dates: 1910 1910
5 Area: 1.26
6 Collect.:
7 Depth: A
8 Excav. Status:
9 Artifacts:

14 Features: # / type: 3AN
15 Architecture: # / material / type:

IMACS SITE FORM

PART A - ADMINISTRATIVE DATA

1. **STATE NO.:** 42Cb2625
2. **AGENCY NO.:**
3. **TEMP NO.:** MOAC 07-172-K9
4. **STATE:** Utah (42) **COUNTY:** Carbon (Cb)
5. **PROJECT:** CRI of Carbon Resources Kinney 2 Mine, Carbon County, Utah
6. **REPORT NO.:** U-07-MQ-0612p
7. **SITE NAME/PROPERTY NAME:**
8. **CLASS:** [ ] PREHISTORIC [X] HISTORIC [ ] PALEONTOLOGIC [ ] ETHNOGRAPHIC
9. **SITE TYPE:** Corral
10. **ELEVATION:** 8788 ft
11. **UTM GRID:** Zone [12] [487955] E [4397095] N
12. [SE 1/4] of [SW 1/4] of [SE 1/4] of Section [33] Township [12S] Range [7E].
    [NE 1/4] of [NW 1/4] of [NE 1/4] of Section [4] Township [13S] Range [7E].
13. **MERIDIAN:** Salt Lake (1)
14. **MAP REFERENCE:** USGS 7.5' Series Scofield, Utah 1979
15. **AERIAL PHOTO:** N/A
16. **LOCATION AND ACCESS:** From SR-96 in Scofield, Utah drive north for approximately 0.2 miles to a two track road. Turn right (east) onto the two track road and continue in an eastward direction up the hill through a series of switchbacks to the top of the hill. From the top continue southward for approximately 0.3 miles. The site is located immediately west of the road. Follow a GPS unit to the above stated UTM coordinates to locate the site. The site datum consists of a rebar and cap stamped with the temporary site number.
17. **LAND OWNER:** Private (PR)
18. **FEDERAL ADMIN. UNITS:** N/A
19. **LOCATION OF CURATED MATERIALS:** N/A
20. **SITE DESCRIPTION:** The site is a corral complex located on the top of a ridge, east of Pleasant Valley. The artifacts documented at the site consist of a single crushed galvanized metal bucket, wire nails, a brown glass medical bottle embossed "Franklin Products 1845," and one metal utility gas or kerosene can. Feature A is a corral complex that consists of an exterior corral fence (post-and-rail construction) with three interior fences that divide the corral into four pens. There are two types of construction: Method A - post-and-rail; and Method B - post with nailed lumber rails. Method A is the most prominent construction method at the corral and consists of a pair of upright log posts wired together at the top and bottom to support the four to six log rails. The log posts are (on average) 70 inches high, 4 to 5 inches in diameter, and spaced between 10 ft 6 inches and 13 ft 6 inches apart. The log rails measure, on average, 10 to 13 feet long and 5 inches in diameter. The log posts and rails appear to be axe-cut and no wire nails were evident. Method B is used along one interior fence and consists of single log posts with nailed lumber rails. Though many of the rails have been removed from the posts, wire nails are present along the entire length of the post. The posts range in height between 34 inches and 75 inches and the post diameter is between 4 and 5 inches. The posts are spaced between 4 and 8 feet apart. The lumber rails are fragmentary with pieces measuring between 3 to 6 feet in length, 4 to 7 inches wide, and ½ inch thick. The corral is in poor shape.
21. **SITE CONDITION:** [ ] EXCELLENT [ ] GOOD [ ] FAIR [X] POOR
22. **IMPACT AGENT(S):** Structural Decay (SD), Grazing (GR)

IMACS SITE FORM: 42Cb2625

23. NAT. REGISTER STATUS: [ ] SIGNIFICANT [X] NON-SIGNIFICANT [ ] UNEVALUATED
JUSTIFY: The site is a historic corral complex located on the top of a ridge, east of Pleasant Valley. This is a common historic site in sheep grazing area utilizing common construction types and techniques. This site cannot be linked to any significant event(s) or person(s) (Criteria A and B); does not represent a type or the work of a master (Criterion C); and fails to have the potential to yield information important to the history of the area (Criterion D). Therefore, site 42Cb2624 is not recommended eligible to the NRHP.
24. PHOTOS: Roll 07-172:1 Exp. 1-6
25. RECORDED BY: Patricia Stavish
26. SURVEY ORGANIZATION: Montgomery Archaeological Consultants
27. ASSISTING CREW MEMBERS: Adam Thomas
28. SURVEY DATE: May 24, 2007
LIST OF ATTACHMENTS: [ ] PART B [X] PART C
[X] TOPO MAP [X] SITE MAP
[X] PHOTOS [ ] OTHER
[ ] ARTIFACT/FEATURE SKETCH

PART A - ENVIRONMENTAL DATA

29. SLOPE: [3] (Degrees) [130] ASPECT (Degrees)
30. DISTANCE TO PERMANENT WATER: [25] X 100 METERS
TYPE OF WATER SOURCE: [ ] SPRING/SEEP [ ] STREAM/RIVER
[X] LAKE [ ] OTHER
NAME OF WATER SOURCE: Scofield Reservoir
31. GEOGRAPHIC UNIT: Wasatch Plateau (TDA)
32. TOPOGRAPHIC LOCATION
PRIMARY LANDFORM: Ridge (D)
SECONDARY LANDFORM: Ridge (P)
DESCRIBE: The site is located on the top of a ridge, east of Pleasant Valley.
33. ON-SITE DEPOSITIONAL CONTEXT: Residual (U)
DESCRIPTION OF SOIL: The soil is a dark brown silt.
34. VEGETATION
A. LIFE ZONE: Canadian (C)
B. COMMUNITY
PRIMARY ON-SITE: Aspen (A)
SECONDARY ON-SITE: Low Sagebrush (Q)
SURROUNDING SITE: Aspen (A)
DESCRIBE: The vegetation includes aspen, low sagebrush, and bunch grasses.
35. MISCELLANEOUS TEXT:
36. COMMENTS/CONTINUATIONS:

IMACS SITE FORM: 42Cb2625

PART C - HISTORIC SITES

1. SITE TYPE: Corral
2. HISTORIC THEME(s): Farming/Ranching (FR)
3. CULTURE:

CULTURAL AFFILIATION	DATING METHOD
European/American (EA)	Historical Record (I)

DESCRIBE: European-Americans began settling the area in the 19th century participating in farming, ranching, and timber industries.

4. OLDEST DATE: 1890 RECENT DATE: 1960s
HOW DETERMINED: Early sheep grazing began in the 1890s and continued in the mountains until the 1960s.
5. SITE DIMENSIONS: [104] M by [60] M
Area [6240] Sq. M
6. SURFACE COLLECTION/METHOD: None (A)
SAMPLING METHOD: N/A
7. ESTIMATED DEPTH OF CULTURAL FILL: Surface (A)
How estimated (If tested, show location on map): Site appears surficial.
8. EXCAVATION STATUS: [ ] EXCAVATED [ ] TESTED [X] UNEXCAVATED
TESTING METHOD: N/A
9. SUMMARY OF ARTIFACTS AND DEBRIS: Medical Bottle (GK), Nails - Wire (NW), Metal (ME), Cans - Utility (CU)
DESCRIBE: Artifacts documented at the site include a single crushed galvanized metal bucket, wire nails, a brown glass medical bottle embossed "Franklin Products 1845," and one metal utility gas or kerosene can.
10. CERAMIC ARTIFACTS: None

PASTE	GLAZE/SLIP	DECORATION	PATTERN	VESSEL	#

ESTIMATED NUMBER OF CERAMIC TRADEMARKS: [0]
DESCRIBE: N/A
11. GLASS:

#	MANUFACTURE	COLOR	FUNCTION	TRADEMARK	DECORATION
1	unknown	amber	medical	Franklin Products	none

DESCRIBE: The glass artifacts consist of a single amber glass medical bottle embossed with a five pointed star and "FRANKLIN PRODUCTS 1845."
12. MAXIMUM DENSITY #/SQ. M (glass and ceramics): 1/sq. m.
13. TIN CANS:

TYPE	OPENING	SIZE	MODIFIED	LABEL/MARK	FUNCTION
Utility Can (1)	screw top	crushed	n/a	none	gas/kerosene

DESCRIBE: The tin cans documented at the site consist of a single crushed rectangular gas or kerosene can with a screw cap lid.
14. LANDSCAPE AND CONSTRUCTED FEATURES (locate on site map): None
DESCRIBE: N/A

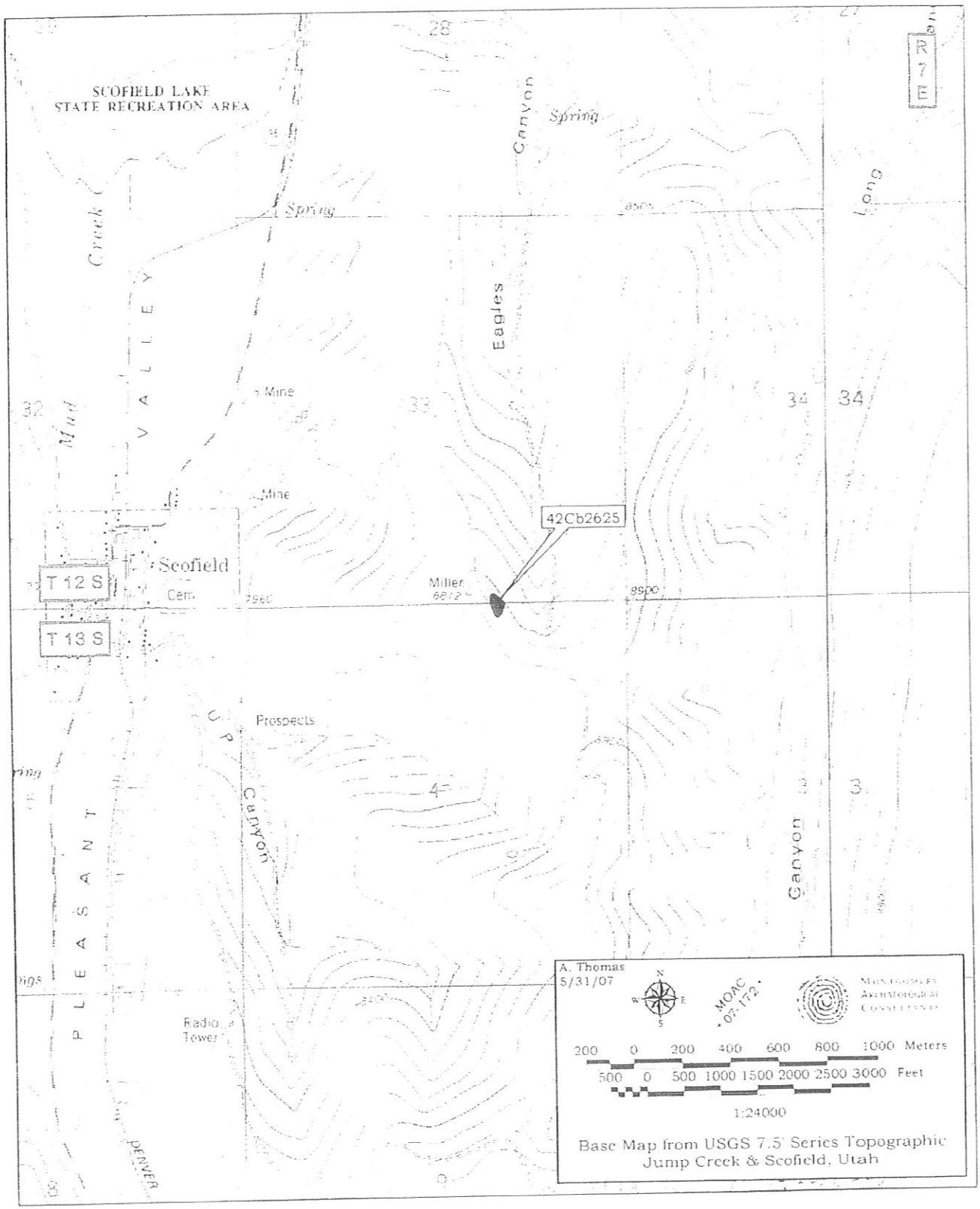
IMACS SITE FORM: 42Cb2625. PART C (Cont.)

15. BUILDINGS AND STRUCTURES (locate on site map):

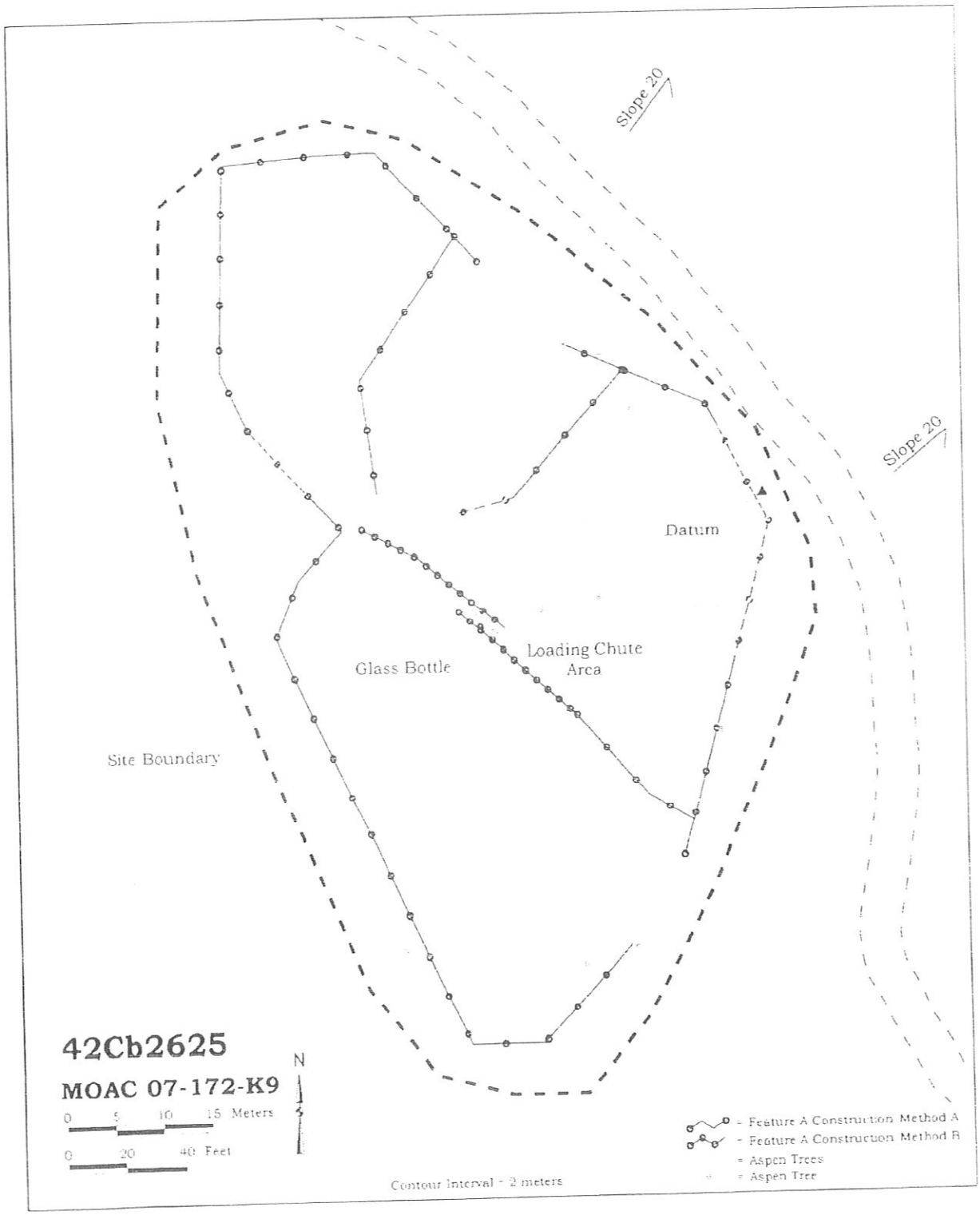
#	MATERIAL	TYPE
1	Log (P)	Corral (AJ)

DESCRIBE: Feature A is a corral complex that consists of an exterior corral fence (post-and-rail construction) with three interior fences that divide the corral into four pens. There are two types of construction: Method A - post-and-rail; and Method B - post with nailed lumber rails. Method A is the most prominent construction method at the corral and consists of a pair of upright log posts wired together at the top and bottom to support the four to six log rails. The log posts are (on average) 70 inches high, 4 to 5 inches in diameter, and spaced between 10 ft 6 inches and 13 ft 6 inches apart. The log rails measure, on average, 10 to 13 feet long and 5 inches in diameter. The log posts and rails appear to be axe-cut and no wire nails were evident. Method B is used along one interior fence and consists of single log posts with nailed lumber rails. Though many of the rails have been removed from the posts, wire nails are present along the entire length of the post. The posts range in height between 34 inches and 75 inches and the post diameter is between 4 and 5 inches. The posts are spaced between 4 and 8 feet apart. The lumber rails are fragmentary with pieces measuring between 3 to 6 feet in length, 4 to 7 inches wide, and ½ inch thick. The corral is in poor shape.

16. COMMENTS/CONTINUATIONS:



42Cb2625. Site Location Map.

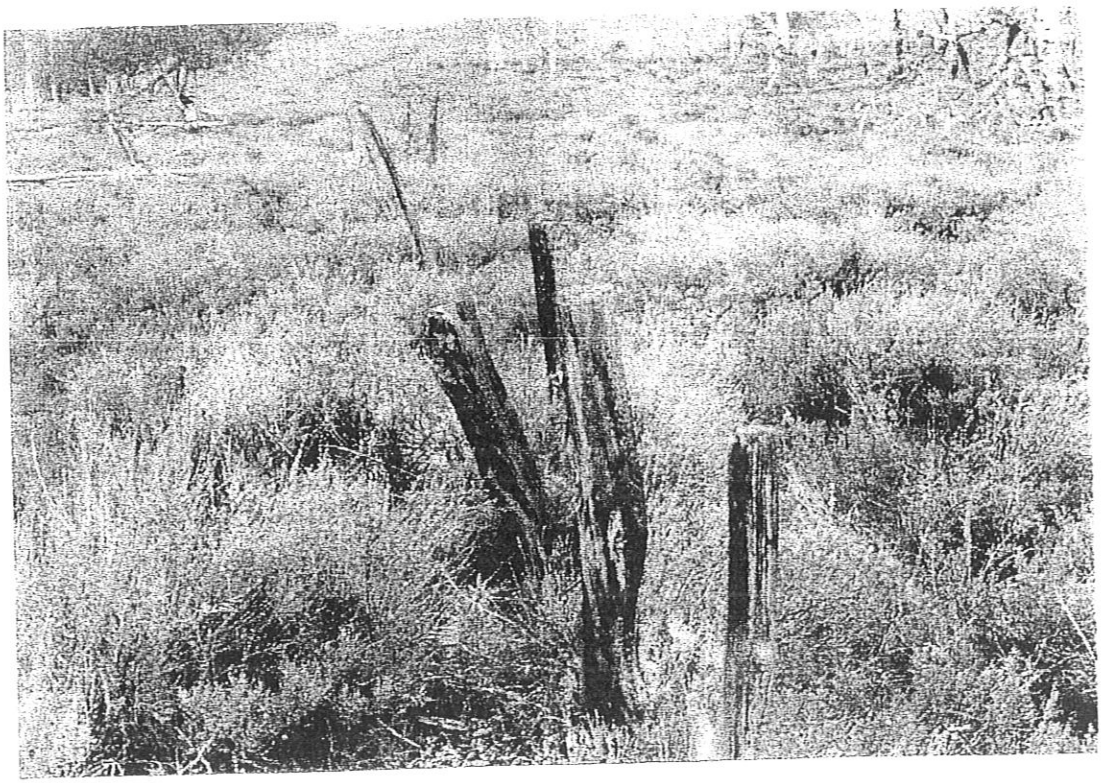


42Cb2625. Site Sketch Map.

42Cb2625. Site overview facing south. Roll 07-172:1 Exp. 1.

42Cb2625. Site overview facing west. Roll 07-172:1 Exp. 4.

42Cb2625. Close-up of construction Method A, post-and-rail fence. Roll 07-172:1 Exp. 5.



42Cb2625. Close-up of Construction Method B, post with nailed lumber rails. Roll 07-172:1 Exp. 6.

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name Darrah Johnston

A

1 State Site Number: 42 - CD - 2625
2 Agency Site Number:
6 Agency Report Number: 07MQ0612
10 Elevation: 8788
11 Zone: 12 Easting: 487955 Northing: 4397095
12 1/4 1/4 1/4 Sec. T. R.: SE NE | SW NW | SE NE | 33 04 | 12 S 13 S | 007 E 007 E
13 Merid.: 1
14 USGS Map: SCOFIELD UTAH 1979
17 Owner: PR
18 Forest Dist./Park:
19 Loc. Curated Materials:
21 Cond.: D
22 Impacts: SD GR
23 N.R.: D
26 Organ.: MQ
28 Survey Date: 05-24-07
29 Slope: 03 Aspect: 130
30 Water: distance/type: 025 C
31 Geog. Unit: TDA
32 Topographic Location: 1st D 2nd P
33 Dep.: U
34 Vegetation: C AQA (1 2 3)
35 Misc. Text, Site Name:

B

2 Culture/Dating Method:
3 Area:
4 Collect:
5 Depth:
6 Excav. Status:
7 Prehistoric Artifacts:
8 Lithic Tools: # / type
9 # Flaking Stages:
11 Ceramics: # / type
13 Features: # / type
14 Architecture: # / material / type

C

2 Historic Themes: FR
3 Cultures / Dating Method: EAI
4 Dates: 1890 1960
5 Area: 0240
6 Collect.:
7 Depth: A
8 Excav. Status:
9 Artifacts: GK CW | NW | ME
14 Features: # / type
15 Architecture: # / material / type: 1 P AJ

IMACS SITE FORM

PART A - ADMINISTRATIVE DATA

1. **STATE NO.:** 42Cb2626
2. **AGENCY NO.:**
3. **TEMP NO.:** MOAC 07-172-K10
4. **STATE:** Utah (42) **COUNTY:** Carbon (Cb)
5. **PROJECT:** CRI of Carbon Resources Kinney 2 Mine, Carbon County, Utah
6. **REPORT NO.:** U-07-MQ-0612p
7. **SITE NAME/PROPERTY NAME:**
8. **CLASS:** [ ] PREHISTORIC [X] HISTORIC [ ] PALEONTOLOGIC [ ] ETHNOGRAPHIC
9. **SITE TYPE:** Salt Troughs
10. **ELEVATION:** 8780 ft
11. **UTM GRID:** Zone [12] [487827] E [4397124] N
12. [SW 1/4] of [SW 1/4] of [SE 1/4] of Section [33] Township [12S] Range [7E].
13. **MERIDIAN:** Salt Lake (1)
14. **MAP REFERENCE:** USGS 7.5' Series Scofield, Utah 1979
15. **AERIAL PHOTO:** N/A
16. **LOCATION AND ACCESS:** From SR-96 in Scofield, Utah drive north for approximately 0.2 miles to a two track road. Turn right (east) onto the two track road and continue in an eastward direction up the hill through a series of switchbacks to the top of the hill. From the top continue southward for approximately 0.3 miles. The site is located approximately 30 meters west of the road. Follow a GPS unit to the above stated UTM coordinates to locate the site. The site datum consists of a rebar and cap stamped with the temporary site number.
17. **LAND OWNER:** Private (PR)
18. **FEDERAL ADMIN. UNITS:** N/A
19. **LOCATION OF CURATED MATERIALS:** N/A
20. **SITE DESCRIPTION:** The site consists of five salt troughs that are located on the southwest facing slope of a ridge overlooking Pleasant Valley. These five features (A through E) are salt troughs that consist of aspen logs, which have a hollowed out v-shape. The feature was likely a salt trough and used to provide salt for grazing sheep. Feature A measures 21 ft 6 inches long and has a maximum diameter of 6 inches. The salt trough is oriented to 310 degrees and possibly has axe-cut ends. Feature B measures 22 ft 10 inches long and has a maximum diameter of 11 inches. The salt trough is oriented to 300 degrees and possibly has axe-cut ends. Feature C measures 13 ft 4 inches long and has a maximum diameter of 7 inches. The salt trough is oriented to 310 degrees and has possibly axe-cut ends. Feature D measures 9 ft 8 inches long and has a maximum diameter of 5 inches. The log is oriented to 62 degrees. Feature E measures 18 ft 6 inches and has a maximum diameter of 7 inches. The log is oriented to 290 degrees. No artifacts were documented at the site.
21. **SITE CONDITION:** [ ] EXCELLENT [ ] GOOD [X] FAIR [ ] POOR
22. **IMPACT AGENT(S):** Grazing (GR), Weathering (OT)

IMACS SITE FORM: 42Cb2626

23. NAT. REGISTER STATUS: [ ] SIGNIFICANT [X] NON-SIGNIFICANT [ ] UNEVALUATED
JUSTIFY: The site consists of historic salt troughs that are located on the southwest facing slope of a ridge overlooking Pleasant Valley. This is a common historic site in sheep grazing areas. This site cannot be linked to any significant event(s) or person(s) (Criteria A and B); does not represent a type or the work of a master (Criterion C); and fails to have the potential to yield information important to the history of the area (Criterion D). Therefore, site 42Cb2624 is not recommended eligible to the NRHP.

24. PHOTOS: Roll 07-172:1 Exp. 8-13

25. RECORDED BY: Patricia Stavish

26. SURVEY ORGANIZATION: Montgomery Archaeological Consultants

27. ASSISTING CREW MEMBERS: Adam Thomas

28. SURVEY DATE: May 24, 2007

LIST OF ATTACHMENTS:

[ ] PART B	[X] PART C
[X] TOPO MAP	[X] SITE MAP
[X] PHOTOS	[ ] OTHER
[ ] ARTIFACT/FEATURE SKETCH	

PART A - ENVIRONMENTAL DATA

29. SLOPE: [15] (Degrees) [208] ASPECT (Degrees)

30. DISTANCE TO PERMANENT WATER: [24] X 100 METERS
TYPE OF WATER SOURCE: [ ] SPRING/SEEP [ ] STREAM/RIVER [X] LAKE [ ] OTHER
NAME OF WATER SOURCE: Scofield Reservoir

31. GEOGRAPHIC UNIT: Wasatch Plateau (TDA)

32. TOPOGRAPHIC LOCATION
PRIMARY LANDFORM: Ridge (D)
SECONDARY LANDFORM: Slope (Q)
DESCRIBE: The site is located on a southwest facing slope of a ridge.

33. ON-SITE DEPOSITIONAL CONTEXT: Residual (U)
DESCRIPTION OF SOIL: The soil is a dark brown sandy silt with large sandstone rocks.

34. VEGETATION
A. LIFE ZONE: Canadian (C)
B. COMMUNITY
PRIMARY ON-SITE: Grassland (M)
SECONDARY ON-SITE: Low Sagebrush (Q)
SURROUNDING SITE: Low Sagebrush (Q)
DESCRIBE: The vegetation includes grasses and bunch grasses, low sagebrush, with surrounding aspen.

35. MISCELLANEOUS TEXT:

36. COMMENTS/CONTINUATIONS:

IMACS SITE FORM: 42Cb2626

PART C - HISTORIC SITES

1. **SITE TYPE:** Salt Troughs
2. **HISTORIC THEME(s):** Farming/Ranching (FR)
3. **CULTURE:**

CULTURAL AFFILIATION	DATING METHOD
European/American (EA)	Historical Record (I)

DESCRIBE: European-Americans began settling the area in the 19th century participating in farming, ranching, and timber industries.

4. **OLDEST DATE:** 1890 **RECENT DATE:** 1960s
HOW DETERMINED: Early sheep grazing began in the 1890s and continued in the mountains until the 1960s.
5. **SITE DIMENSIONS:** [25] M by [39] M
Area [975] **Sq. M**
6. **SURFACE COLLECTION/METHOD:** None (A)
SAMPLING METHOD: N/A
7. **ESTIMATED DEPTH OF CULTURAL FILL:** Surface (A)
How estimated (If tested, show location on map): Site appears surficial.
8. **EXCAVATION STATUS:** [ ] EXCAVATED [ ] TESTED [X] UNEXCAVATED
TESTING METHOD: N/A
9. **SUMMARY OF ARTIFACTS AND DEBRIS:** None
DESCRIBE: No artifacts were documented in association with the features.
10. **CERAMIC ARTIFACTS:** None

PASTE	GLAZE/SLIP	DECORATION	PATTERN	VESSEL	#

ESTIMATED NUMBER OF CERAMIC TRADEMARKS: [0]
DESCRIBE: N/A
11. **GLASS:** None

#	MANUFACTURE	COLOR	FUNCTION	TRADEMARK	DECORATION

DESCRIBE: N/A
12. **MAXIMUM DENSITY #/SQ. M (glass and ceramics):** 0/sq. m.
13. **TIN CANS:** None

TYPE	OPENING	SIZE	MODIFIED	LABEL/MARK	FUNCTION

DESCRIBE: N/A
14. **LANDSCAPE AND CONSTRUCTED FEATURES (locate on site map):** 5 Salt Troughs (OT)
DESCRIBE: Feature A is a salt trough that consists of an aspen log that has a hollowed out v-shape. The feature was likely a salt trough and used to provide salt for grazing sheep. The log measures 21 ft 6 inches long and has a maximum diameter of 6 inches. The salt trough is oriented to 310 degrees and possibly has axe-cut ends.

Feature B is a salt trough that consists of an aspen log that has a hollowed out v-shape. The log measures 22 ft 10 inches long and has a maximum diameter of 11 inches. The salt trough is oriented to 300 degrees and possibly has axe-cut ends.

Feature C is a salt trough that consists of an aspen log that has a hollowed out v-shape. The log measures 13 ft 4 inches long and has a maximum diameter of 7 inches. The salt trough is oriented to 310 degrees and has possibly axe-cut ends.

Feature D is a salt trough that consists of an aspen log that has a hollowed out v-shape. The log measures 9 ft 8 inches long and has a maximum diameter of 5 inches. The log is oriented to 62 degrees.

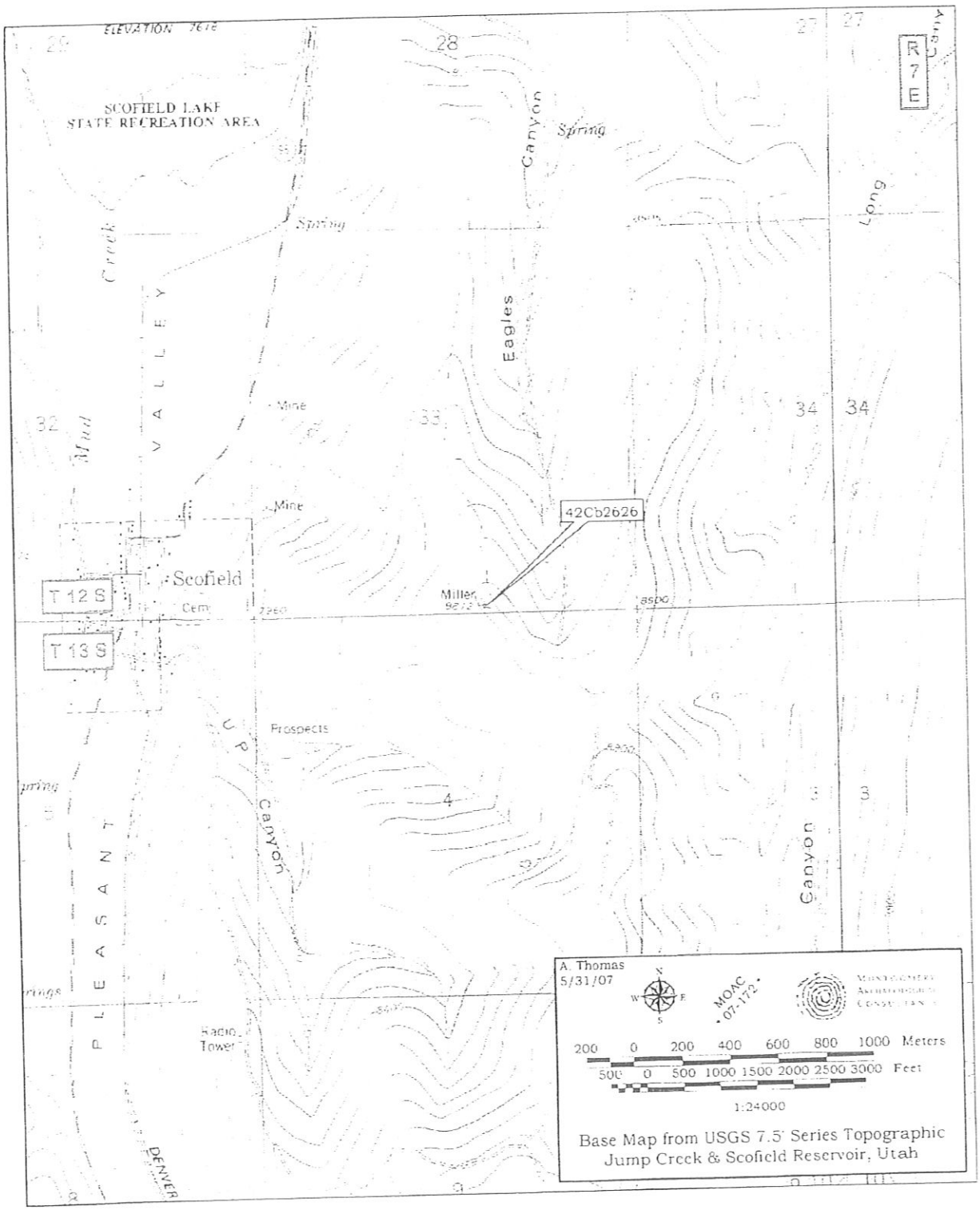
Feature E is a salt trough that consists of an aspen log that has a hollowed out v-shape. The log measures 18 ft 6 inches and has a maximum diameter of 7 inches. The log is oriented to 290 degrees.

15. BUILDINGS AND STRUCTURES (locate on site map): None

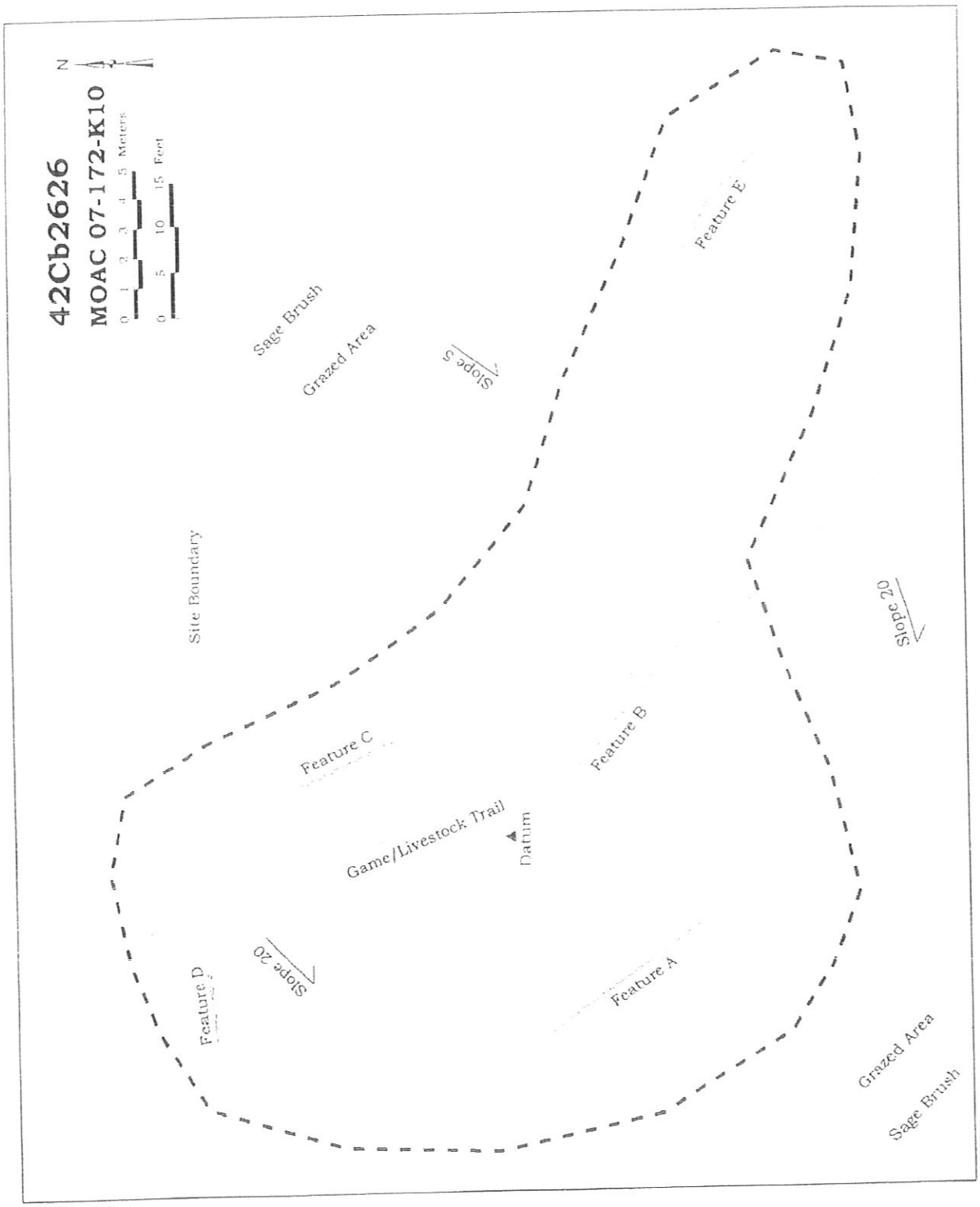
#	MATERIAL	TYPE

DESCRIBE: N/A

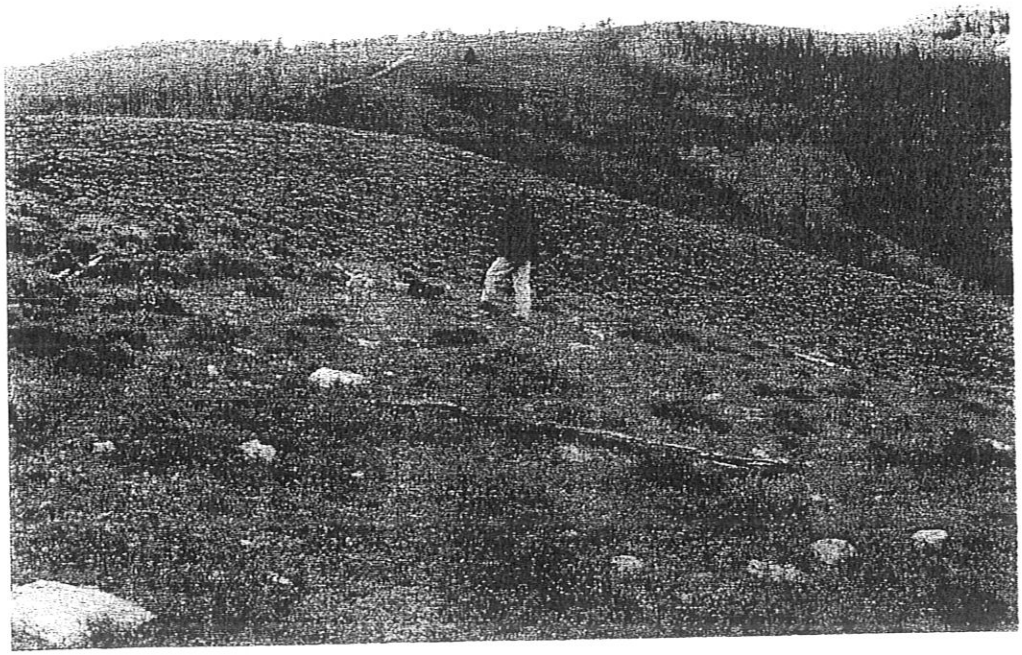
16. COMMENTS/CONTINUATIONS:



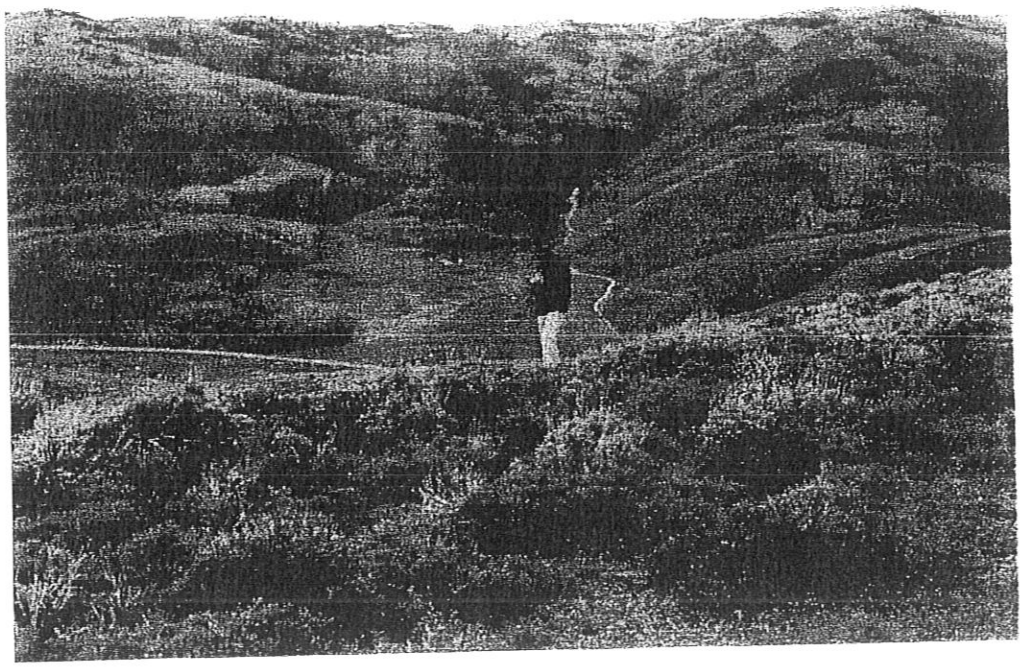
42Cb2626 Site Location Map.



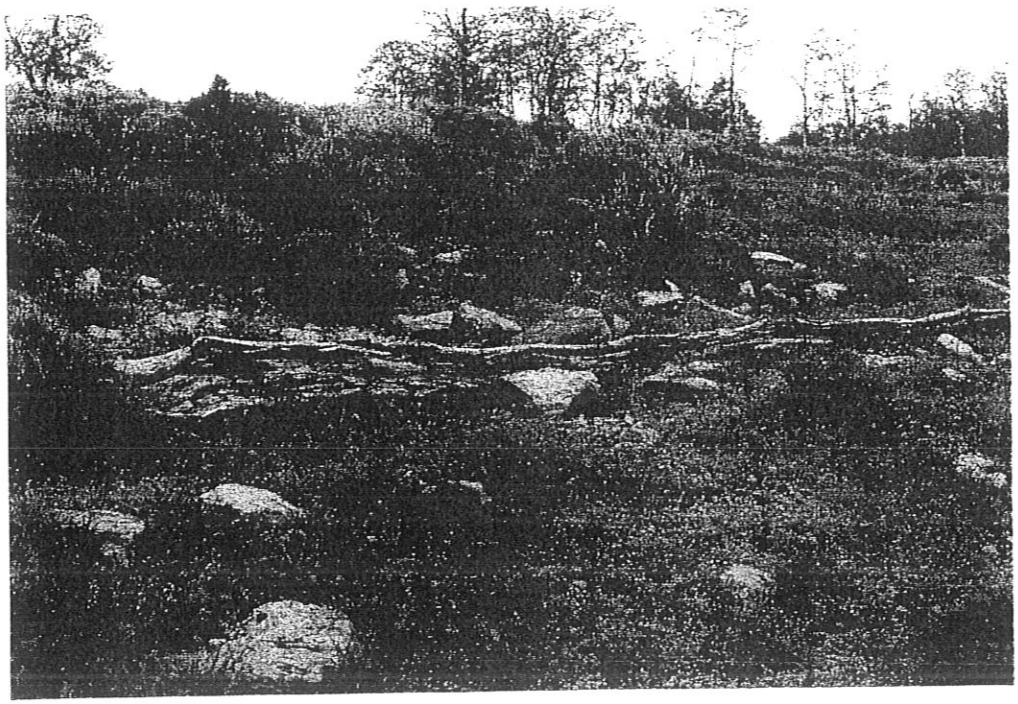
42Cb2626. Site Sketch Map.



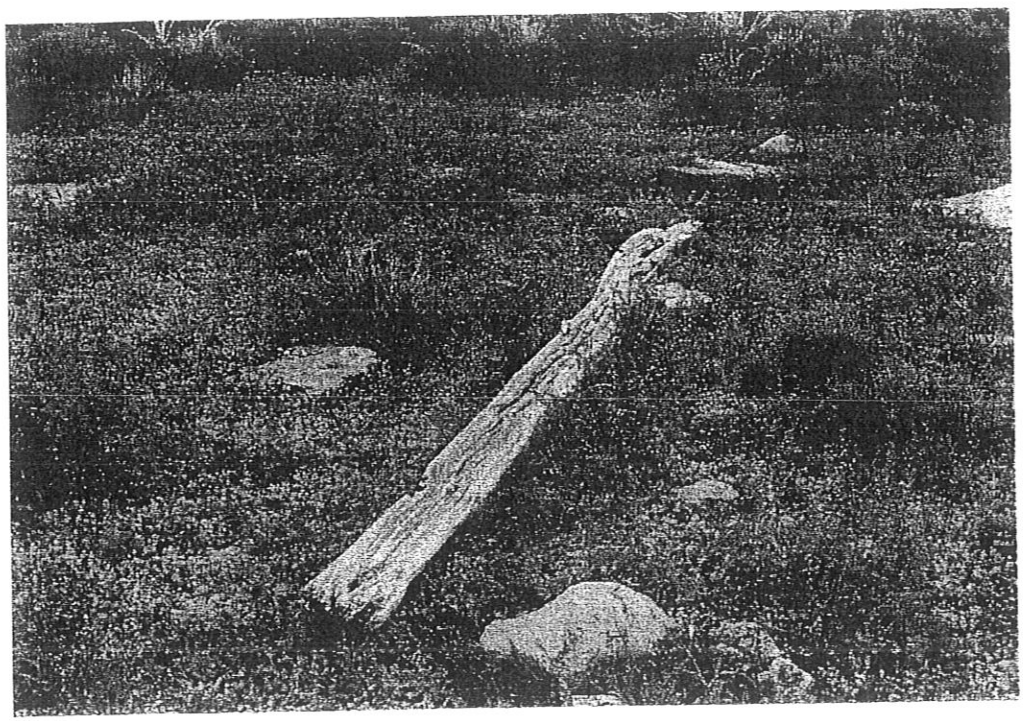
42Cb2626. Site overview facing southeast. Roll 07-172:1 Exp. 9.



42Cb2626. Site overview facing southwest. Roll 07-172:1 Exp. 10.



42Cb2626. Feature B, a salt trough, facing northeast. Roll 07-172:1 Exp. 11.



42Cb2626. Feature D, as salt trough, facing northeast. Roll 07-172:1 Exp. 12.

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name Darrah Johnston

A

1 42-GB-26216 State Site Number
2 Agency Site Number
6 07MS0612 Agency Report Number
10 1780 Elevation
11 12 487827 4397124 Zone Easting Northing
12 SW SW SE 33 12S 007E 1/4 1/4 1/4 Sec. T. R.
13 1 Merid.
14 ISOLATED MOUNTAIN 1979 USGS Map
17 PR Owner
18 Forest Dist./Park
19 Loc. Curated Materials
21 C Cond.
22 GR OT Impacts
23 D N.R.
26 MS Organ.
28 05-24-07 Survey Date
29 15 Slope
208 Aspect
30 02H C Water: distance/type
31 TDA Geog. Unit
32 D Q 1st 2nd Topographic Location
33 U Dep.
34 C MQG 1 2 3 Vegetation
35 Misc. Text, Site Name

B

2 Culture/Dating Method
3 Area
4 Collect
5 Depth
6 Excav. Status
7 Prehistoric Artifacts
8 Lithic Tools: # / type
9 # Flaking Stages
11 Ceramics: # / type
13 Features: # / type
14 Architecture: # / material / type

C

2 FR Historic Themes
3 EAI Cultures / Dating Method
4 1890 1960 Dates
5 975 Area
6 Collect.
7 A Depth
8 Excav. Status
9 Artifacts
14 SOT Features: # / type
15 Architecture: # / material / type

SCOFIELD LAKE STATE RECREATION AREA
CRITICAL BALD EAGLE WINTER RANGE

POWER LINE

PERMIT BOUNDARY

PRE-SMCRA MINING DISTURBANCE

MINE DISTURBANCE FOOTPRINT

SCOFIELD TOWN

R/R TRACKS

96

Spring

Mud Creek

VALLEY

Canyon

Eagles Canyon

Long Canyon

Quarters Canyon

PLEASANT

U.P. Canyon

1536
1537
1538
1539
1540
1541
1542
1543

31 32 33 34 35
6 5 4

T 12 S, R7E
T 13 S, R7E

T 12 S, R7E
T 13 S, R7E

RAPTOR NESTING RECORD

NEST NO.	TYPE	SPECIES	STATUS 2005	STATUS 2007	COMMENTS
1536	STICK	COOPERS OR RED-TAIL	UNKNOWN		
1537	STICK	PROBABLY SHARP-SHINNED	UNKNOWN		
1538	STICK	MAY BE MAGPIE	UNKNOWN		
1539	STICK	RED TAIL OR GOSHAWK	UNKNOWN		
1540	STICK	RED TAIL OR GOSHAWK	UNKNOWN		
1541	STICK	RED TAIL OR GOSHAWK	UNKNOWN	UNKNOWN	DETERMINED TO PROBABLY BE RED TAIL
1542	STICK	RED TAIL OR GOSHAWK	UNKNOWN		
1543	STICK	RED TAIL OR GOSHAWK	UNKNOWN		

NOTE:
1. REFER TO CHAPTER 3 TEXT FOR A DISCUSSION ON RAPTORS.
2. NEST 1541 IS LISTED AS GOSHAWK OR RED TAIL. SINCE VERLY LITTLE IF ANY GOSHAWK HABITAT EXISTS IN THE AREA, IT IS VERY UNLIKELY THAT THIS NEST IS GOSHAWK. IT IS PROBABLY RED TAIL.

N

Contour Interval 20 ft

0 500 1000 1500
SCALE

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

LEGEND

STICK NESTS 1/06 INVENTORY W/DWR INVENTORY NUMBER

KINNEY NO. 2 MINE DISTURBED AREA FOOTPRINT

PRE-SMCRA MINING DISTURBANCE

SCOFIELD TOWN BOUNDARY

ROADS

NOTES:

1. HABITAT INFORMATION FROM UTAH DIVISION OF WILDLIFE RESOURCES CONSERVATION DATABASE CENTER
2. SCOFIELD RESERVOIR IS CRITICAL BALD EAGLE WINTER RANGE
3. ENTIRE MAP IS GOLDEN EAGLE HABITAT
4. REFER TO CHAPTER 3 OF THE PERMIT TEXT FOR A FULL DISCUSSION OF RAPTORS

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 2
RAPTOR MAP

DRAWN BY:	B.G.	DATE:	9/10
APPROVED BY:	G.H.	DATE:	9/10

Carbon Resources
Coal For Carbon County

PO BOX 954
SANDIA PARK, NM 87047

DWG. NAME: