C/041/002 Incoming

Canyon Fuel Company, LLC
A Subsidiary of Arch Western Bituminous Group, LLC

Sufco Mine
Kenneth E May
General Manager
597 South SR24
Salina Utah 84654
(435) 286-4400
Fax (435) 286-4499

November 26, 2013

Permit Supervisor
Utah Coal Regulatory program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, UT 84114-5801

Re: Response to Deficiencies Associated with the Expansion of Lift #5 at Waste Rock Disposal Site, Task ID#4394

Dear Sirs:

Please find enclosed with this letter an amendment to the Sufco Mine Permit to revise the area of Lift #5 at the Waste Rock Disposal Site. We have included one redline/strike out copies of the text and maps associated with this amendment.

We are planning to expand the area of Lift #5 to the west of the existing lift boundary. This expansion will require removal of growth medium/topsoil from approximately 0.53 acres. Ditch No. 1 will be moved to the perimeter of the expanded lift and will be constructed to the currently approved design calculations.

During the construction of the expansion, subsoil which was previously deposited during a storm which breeched a berm surrounding the existing subsoil pile will be collected and replaced on the existing pile. Division No. 2 will be redefined in the area following the removal and replacement of the subsoil materials.

R645-301-121.100
The submittal has been checked to assure that all pages referenced are included in the submittal.

R645-301-121.200
The topsoil stored atop Lift #4 has been outlined. The permit area has increased along the west boundary adjacent to the county staging/storage area and with the addition of the Lift 5 expansion .

R645-301-122
The location of the B-1 boring information within the M&RP has been referenced.

R645-301-141
Map 2 has been revised.

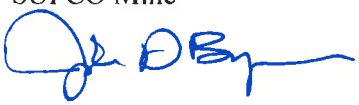
R645-301-512.200
The text has been modified to include the commitment language requested. Map 2 has been returned to its original format with the cross section included and a cross section has been added in the expansion area and is included as Map 2A.

R645-301-731.100 and -553.252
The sampling plan has been returned to the previous commitment concerning timing of the sampling of waste rock. As agreed, following the filling of Lift #5, density will be reevaluated for the material being placed in future lifts.

The expanded Lift #5 will be constructed and maintain as written in the currently approved permit.

If you have questions or need addition information please contact Vicky Miller at (435)286-4481.

CANYON FUEL COMPANY
SUFCO Mine



John Byars
Technical Services Manager

Encl.

cc: DOGM Correspondence File

APPLICATION FOR COAL PERMIT PROCESSING

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

Permittee: Canyon Fuel Company, LLC
Mine: Sufco Mine **Permit Number:** C/041/0002
Title: Revisions to Waste Rock Disposal Site to Expand the Area of Lift #5, Task ID# 4394
Description, Include reason for application and timing required to implement:

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

☒ Yes ☐ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: 0.53 ☒ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes ☒ No 6. Does the application require or include public notice publication?
☒ Yes ☐ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes ☒ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☐ Yes ☒ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
☐ Yes ☒ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☒ Yes ☐ No 15. Does the application require or include soil removal, storage or placement?
☐ Yes ☒ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes ☒ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☒ Yes ☐ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☒ Yes ☐ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☐ Yes ☒ No 21. Have reclamation costs for bonding been provided?
☐ Yes ☒ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

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

John D. Bayes
Print Name

Sign Name, Position, Date: Mgr. Tech Servs. 11-27-13

Subscribed and sworn to before me this 27 day of November, 20 13

Notary Public

My commission Expires: _____, 20____ } ss:
Attest: State of _____ }
County of _____

JACQUELYN NEBEKER
Notary Public
State Of Utah
My Commission Expires 3/24/2015
Commission# 606049

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining
		RECEIVED NOV 27 2013 DIV. OF OIL, GAS & MINING

Form DOGM- C1 (Revised March 12, 2002)

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

Permittee: Canyon Fuel Company, LLC
Mine: Sufco Mine **Permit Number:** C/041/002
Title: Revisions to Waste Rock Disposal Site to Expand the Area of Lift #5, Task ID# 4394

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

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☐ Add	☐ Replace	☐ Remove	M&RP
☐ Add	☒ Replace	☐ Remove	Chapter 1, Page 1-12 in Volume 1
☐ Add	☒ Replace	☐ Remove	Chapter 2, Pages 2-9, 2-14 thru 2-19 in Volume 2
☒ Add	☐ Replace	☐ Remove	Appendix 2-3
☐ Add	☒ Replace	☐ Remove	Chapter 7, Page 7-63, 7-64 and 6-75 in Volume 2
☐ Add	☐ Replace	☐ Remove	Volume 3 - Waste Rock Disposal Site
☐ Add	☒ Replace	☐ Remove	Pages 1-1 thru 1-3, 2-1 thru 2-10, 3-3 thru 3-6, 3-13, 3-14, 4-1, 4-1A and 4-2
☐ Add	☒ Replace	☐ Remove	Maps 1, 2, 4
☒ Add	☐ Replace	☐ Remove	Figure 2-A
☐ Add	☐ Replace	☐ Remove	
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

November 26, 2013

Received by Oil, Gas & Mining

RECEIVED
NOV 27 2013
DIV. OF OIL, GAS & MINING

CHAPTER 1

GENERAL CONTENTS

4. Vertical extent of mine workings — Surface to 2,000 feet deep (Life of mine)

The anticipated total acreage to be affected during the five years of operation by underground mining activities is 1,500 acres. The estimated number of total surface acres to be affected over the entire mining operation is ~~48.432~~49.66 acres.

PERMITTED DISTURBED AREA BOUNDARY	ACTUAL AREA CURRENTLY DISTURBED TO BE RECLAIMED	SITE DESCRIPTION
30.210	17.405	Mine Site, East Spring Canyon
0.967	0.39	Spring Collection Field, Convulsion Canyon
0.220	0.075	Pump House, Convulsion Canyon
0.784	0.40	Leach Field, Convulsion Canyon
1.595	0.193	Water Tank, East Spring Canyon
0.286	0.017	3 East Portals
1.774	0.70	4 East Portals
0.302	0.017	South Portals
0.396	0.017	Quitchupah Portals
0.287	0.18	Link Canyon Substation No. 1
0.245	0.12	Link Canyon Substation No. 2
0.380	0.18	Link Canyon Portal
~~10.986~~ 12.22	~~10.23~~ 11.29	Waste Rock Disposal Site
0.000	0.00	North Water Mitigation Area
0.000	0.00	Quitchupah Fan and Shaft Site
~~48.432~~49.66	~~29.924~~ 30.98	Totals

The legal description of the SUFCO permit area:

Mine Site Facility, Water Tank, South Portals, Spring Collection Field, Pump House, Pipeline, Leachfield (Approximately 64.403 acres)

T. 22 S., R. 4 E., SLBM, Utah

Section 12: A Portion of the following:
E1/2NW1/4, SW1/4NW1/4NE1/4, S1/2

Portals - 3 East, 4 East, Quitchupah and Link Canyon, Link Canyon Substation No. 1 and No. 2 (Approximately 3.368 acres)

T. 21 S., R. 5 E., SLBM, Utah

Section 26: A Portion of the following:
SE1/4SW1/4SW1/4NW1/4, E1/2NW1/4NW1/4SW1/4
SE1/4NE1/4SW1/4SW1/4

Section 29: A Portion of the following:
NW1/4NW1/4SW1/4SE1/4, NE1/4NW1/4SE1/4SW1/4,
NE1/4NE1/4SE1/4SW1/4

CHAPTER 2

SOILS

2.2.4 Substitute Topsoil

~~The Applicant will collect substitute topsoil from the sediment pond dam slope, the fill slope above the sediment pond and from other suitable locations during final reclamation. A random composite sample will be taken for ever 2000 tons as the soil is collected. The Applicant plans to utilize existing soil resources used in the surface pad construction. These soil resources will be supplemented with appropriate fertilizers and amendments (Section 2.30).~~

During final reclamation suitable growth medium/substitute topsoil will be collected at potential locations such as the upper sediment pond dam, the fill slope above the upper sediment pond and soil resources used to the construct the original surface pad. The applicant has no sound method for calculating the quantity of growth medium/substitute topsoil available from these potential locations. The preconstruction topography is poor or non-existent and the record of the quantity of material used for the construction of these locations is not available. A random composite sample will be taken for approximately every 2,000 tons as the soil is collected. The soil resources will be supplemented as described in Section 2.4.3.

2.30 Operation Plan

2.3.1 General Requirements

2.3.1.1 Removing and Storing Soil Methods

The SUFCO Mine has been in operation since 1941. At the time the main facilities in East Spring Canyon were constructed, no topsoil was segregated and saved. Topsoil and other fill material was used in construction of the surface facilities pad. However, soils removed from the Link Canyon Substation No. 1 area are to be stored in the outslope of the substation pad. Additionally, the soils removed from the Link Canyon Substation No.2 area will be stored in a small stockpile adjacent to the substation pad. The mix of topsoil and subsoil will be used as substitute topsoil at the time of reclamation. Soils removed from the Link Canyon Mine Portal area will be stored in a topsoil pile located south of the disturbed portal pad area out of the floodplain (Plate 5-2F). The majority of the portal area has been previously disturbed and only thin topsoil layers exist in

used as bedding material. The remaining sand will be spread over the disturbed area and also used to supplement the existing surface runoff control berms already in the tank area.

A 300,000 gallon fire water tank will be constructed in the fall of 2001 north of the mine site substation which is located on the hill side above the portals and mine buildings. Construction of the tank will require the removal of soils and weathered bedrock. The soils in the area consist of soils Type X as described in Section 2.2.2.3 of this chapter. A profile of the exposed soil in a cut adjacent to the substation and within the tank area was measured and described. The identified A 1 horizon extended from 1.5- to 7.5-inches below ground surface. The area had an average of 1.5 inches of vegetative litter from sage brush, pinyon, and junipers. The AC horizon extended from a depth of 7.5- to 12.0-inches below the surface. The Cca horizon extended from a depth of 12.0-inches to approximately 42-inches. Underlying this unit was weathered bedrock of sandstone and siltstone. A copy of the field log data sheet is included in Appendix 2-2.

Salvaged soil volumes for the disturbance related to construction of the fire water tank are based on the measured thicknesses described above of the A 1 (topsoil) horizon, underlying AC and Cca horizons (subsoils), and the cut and fill calculations provided on Figure 5-OE of Chapter 5 of this permit. The A1 horizon in the area appeared to have a maximum thickness of 6-inches. As described previously in this section, where the topsoil is less than 6-inches thick, a lift of 6-inches of topsoil and subsoil will be taken and stockpiled as topsoil. The removal of the first 6-inches of soil will be observed and measured in the field by the site construction supervisor or a trained representative. The total area where soil salvage will be performed is approximately 0.07 acres (3,049 sq ft). Based on this area, the following volumes of salvaged soils were estimated: ~~have been calculated~~:

A1 or topsoil - maximum thickness 0.5 ft.

0.5 ft X 3,049 sq ft = 1,525 cu ft (~56 cu yds)

The volume of salvagable topsoil ~~Total volume may vary~~ varied from the volume originally calculated ~~since one~~ due to large sandstone boulders present in the cut area and reduced the salvable topsoil significantly, from the estimate ~56 cu yds to 8.2 cu yds. ~~Actual size of the boulder is unknow at this time.~~

AC and Cca horizon - average thickness of approximately 3 ft

3 ft X 3,049 sq ft = 9,147 cu ft (~339 cu yds)*

~~* Total volumes may vary from calculated since one large sandstone boulder is present in the cut area. Actual size of the boulder is unknown at this time.~~

The topsoil will be removed first and transported for storage at the waste rock storage site. It will be signed and stored separately from other piles located at the site. The subsoils will be removed to a depth of 42-inches or to the boundary with the weathered bedrock. Approximately 109 cu yds of subsoil and weathered bedrock will be used as fill material at the water tank site. The remaining subsoils will be transported to the waste rock site and stored with the subsoils removed previously from the minesite. Storage of the topsoil and subsoil piles will be done in accordance with Section 2.3.1.4 of this M&RP.

The topsoil removed from construction of the overflow pond and overflow pond access road will be stockpiled on a stable surface southwest of the overflow pond, see Plate 7-4A. According to Plate 2-1 the overflow pond site consists of type T soil. The A horizon is 0 to 2 inches in depth and the B horizon is 2-12 inches in depth. The topsoil stockpile will be segregated between A and B horizons. Much of the site of the overflow pond is on steep hill sides where topsoil is less then 6 inches deep. Assuming an average of 12 inches of removal the following quantities have been calculated:

0.167 ft X 49,950 sq ft = 8,342 cu ft (~309 cy) horizon A

0.833 ft X 49,950 sq ft = 41,608 cu ft (~1,541 cy) horizon B

Total 309 cy + 1,541 cy = 1,850 cy

A site specific soil survey will be completed for the Overflow Pond prior to disturbance and this information will be utilized in determining topsoil salvage depth. During topsoil removal observations and measurements in the field will be conducted by the site construction supervisor or a trained representative. Actual volume of topsoil removed and stockpiled for the Overflow Pond was 1,488 cubic yards.

During the topsoil removal operation for the temporary access road for the construction of the bypass culvert portion of the overflow pond, the total depth of soil removal will be based upon the color change between the upper most and underlying layer and the use of a tape measure. For calculation purposes, the upper layer of soils was assumed to average 12-inches. Therefore, the total material removed prior to excavating the bypass culvert trench is:

13000 sq ft X 1.0 ft = 13000 cubic feet or approximately 482 cubic yards.

The 482 yards of salvaged soils will be removed and placed adjacent to the new bypass culvert trench location. The remaining material, C2 horizon, will be excavated from the trench and temporarily stored adjacent to the excavation but not mixed with the 482 cubic yards of salvaged soil. After the culvert is placed, the excavated C2 material will be replaced in the trench and any remaining material will be evenly spread over the disturbed trench area. The salvaged 482 cubic yards of soils will then be spread over the disturbed area. The surface will be left in a roughened state to reduce erosion. Reseeding of the area followed the completion of construction in 2010. ~~Will take place as soon as practical.~~

2.3.1.2 Suitability of Topsoil Substitutes/Supplements

See Section 2.3.3.2

2.3.1.3 Testing of Topsoil Handling and Reclamation Procedures Regarding Revegetation

The Applicant will exercise care to guard against erosion during and after application of topsoil and will employ the necessary measures to ensure the stability of topsoil on graded slopes. Erosion control measures will include surface roughing and erosion mat placement on slope areas thought to be unstable. The Applicant will fill, regrade, or otherwise stabilize any rills or gullies deeper than nine (9) inches which form in areas which have been regraded and topsoiled. The areas adjacent to any rills or gullies which have been filled, regraded or otherwise stabilized, will be reseeded or stabilized accordingly.

Methods used to evaluate success of revegetation and stabilization appear in page 37 of Appendix 2-2. Erosion monitor pins will be placed on the slopes at the time of reseeding. Locations of the erosion pins will be obtained via a random number generator. The pin locations will be surveyed and revegetation analyses conducted annually following completion of reseeding, until the release of the bond.

2.3.1.4 Construction, Modification, Use, and Maintenance of Topsoil Storage Piles

The topsoil storage piles (Plate 2-1) at the SUFCO Mine in East Spring Canyon area consist of small amounts of topsoil, from the substation pad (27 cubic yards) and the area where the sediment pond (1,200 cubic yards) was constructed. The topsoil materials were segregated and stockpiled. The stockpiled materials were selectively placed in small area exemption areas within the permit area on stable surface areas below the sediment pond (0.105 acres) and on the south end of the substation pad (0.02 acre). The topsoil small area exemption stockpiles are isolated with no means of access from the main surface area to protect the topsoil from contaminants and unnecessary compaction that would interfere with vegetation. A topsoil storage sign was installed at the base of each stockpile. The stockpiles were protected from wind and water erosion by being revegetated with a quick growing vegetative cover (proposed seed mix minus the shrubs and trees) and by installing silt fence below the stockpiles to help trap sediment coming off the stockpile. This topsoil will not be moved or disturbed until required for redistribution during final reclamation.

Topsoil from the Overflow Pond will be placed in a topsoil pile located southwest of the overflow pond area. This storage area will be protected with berms and/or silt fences, a three-strand barbwire fence, and revegetated with a quick growing vegetative cover (standard seed mix in section 3.4.1.2 minus the shrubs and trees) to control erosion. The surface of the topsoil pile will be pitted to reduce runoff and erosion. This soil will not be moved or disturbed until it is required for redistribution during final reclamation. A figure of the surveyed topsoil stockpile and estimated quantity of soil stored in the pile is included in Appendix 2-2. Plate 5-2B shows the as-built features associated with the overflow pond.

Topsoil from the Link Canyon Substation No. 1 will be placed and stored on the outslope of the pad. This storage area will be protected with berms and/or silt fences, a three-strand barbwire fence, and revegetated to control erosion. This soil will not be moved or disturbed until it is required for redistribution during final reclamation.

Soil from the Link Canyon Substation No. 2 will be placed in a soil stock pile located at the south end of the pad area. The storage area will be protected with berms and/or silt fences, a three strand barbwire fence, and revegetated to control erosion. This soil will not be moved or disturbed until it is required for redistribution during final reclamation.

Soil from the Link Canyon Mine Portal area will be placed in a topsoil pile located south of the disturbed portal pad area out of the floodplain (Plate 5-2F). The storage area will be protected by installing a topsoil storage sign at the base of the pile, berms and/or silt fences, a three strand barbwire fence, and protected from wind and water erosion by surface pitting the stockpile to retain moisture and reduce erosion and by being revegetated with a quick growing vegetative cover (standard seed mix in section 3.4.1.2 minus the shrubs and trees) to control erosion. This soil will not be moved or disturbed until it is required for redistribution during final reclamation. The surface of the topsoil pile will be pitted to reduce runoff and erosion. Vegetation removed during site construction, such as sage brush and other woody plants, will be placed on top of the pile.

Excess subsoil associated with construction of a run of mine coal stockpile and the West Lease portal tunnel development is stored at SUFCO Mine's ~~40-acre~~ waste rock disposal site. At the mine site the substation binwall has approximately 2,160 cubic yards of subsoil material and 5,300 cubic yards of road base, with the additional 11,260 cubic yards of subsoil material (West Lease/run of mine stockpile) being stored at the waste rock site there is a total of 18,720 cubic yards (approximate) that will be available for use as subsoil material during final reclamation of the mine site facilities. Reference Appendix 2-3 for the analyses of the subsoil being stored at the waste rock site to be used during reclamation of the mine site.

Immediately adjacent to the subsoil pile at the waste rock site is stored 756.3 cubic yards of topsoil collected from beneath the footprint of the subsoil pile. This total represents the removal of approximately 12" of topsoil prior to placement of the subsoil.

~~(see~~ Section 3.1.6 of Volume 3 of this M&RP contains more information pertaining to the soils stored at the waste rock disposal site~~. This material is segregated and will be available for fill during the reclamation phase of the mine site if needed. About 1,100 A total of Approximately 756.4 cubic yards (12 inches) of topsoil was removed from the location of the subsoil pilewest and to the east of the subsoil pile. This material represents the upper 2412 inches of topsoil removed prior to placing the subsoil. This material is stored and protected as described in Section 3.1.6 of Volume 3 of this M&RP. This topsoil is reserved to reclaim the subsoil storage area.~~,

2.3.2 Topsoil and Subsoil Removal

2.3.2.1 Topsoil Removal and Segregation

All topsoil thicker than 6 inches will be removed as a separate layer from the subsoil, segregated, and stockpiled separately. Topsoil less than 6 inches thick will be removed according to Section 2.3.2.3. However, in the areas of the Link Canyon Substation Nos. 1 and 2 pads, all soil will be removed and stored in one area as a single soil resource. At substation pad No. 1, the maximum projected volume of topsoil salvage based on the soil survey depth of 20 inches and the projected topsoil salvage area of 0.08 acres is 224 cubic yards. The salvaged topsoil will be removed as a separate layer, segregated and placed on the south end of the pad outslope. The remaining excavated material in the deeper cuts will be used as fill material for the access road and the north end of the substation pad. At substation No. 2, the volume of soil projected to be removed is 118 CY.

2.3.2.2 Poor Topsoil

Topsoil that is of an insufficient quantity, or of poor quality (for sustaining vegetation) will be removed as a separate layer and segregated. Such operations will be done with approval of the UDOGM, and in compliance with R645-301-233.100 (Section 2.3.3.1).

APPENDIX 2-3

Water and Soil Data Report

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report

Canyon Fuel Company, LLC.
397 South 800 West
Salina, UT 84654

Report ID: S1006246001

Project: Sufco Topsoil
Date Received: 6/15/2010

Date Reported: 7/8/2010
Work Order: S1006246

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Organic Matter	PE Calcium	PE Magnesium	PE Potassium	PE Sodium	SAR
		s.u.	%	dS/m	%	meq/L	meq/L	meq/L	meq/L	
S1006246-001	Gob Pile Composite	7.3	30.1	2.82	3.9	22.2	12.2	0.31	2.02	0.49

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report

Canyon Fuel Company, LLC.
397 South 800 West
Salina, UT 84654

Report ID: S1006246001

Project: Sufco Topsoil
Date Received: 6/15/2010

Date Reported: 7/8/2010
Work Order: S1006246

Lab ID	Sample ID	Sand %	Silt %	Clay %	Texture	Very Fine Sand %	CO3 %	Nitrogen Nitrate ppm	Selenium ppm	Boron ppm	Available Phosphorus ppm
S1006246-001	Gob Pile Composite	76.0	15.0	9.0	Sandy Loam	11.2	16.6	1.9	<0.02	1.07	2.50

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report

Canyon Fuel Company, LLC.
397 South 800 West
Salina, UT 84654

Report ID: S1006246001

Project: Sufco Topsoil
Date Received: 6/15/2010

Date Reported: 7/8/2010
Work Order: S1006246

Lab ID	Sample ID	Available Potassium meq/100g	Total Carbon %	TOC %	Neutral. Potential t/1000t
S1006246-001	Gob Pile Composite	0.14	12.6	10.6	167

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report

Canyon Fuel Company, LLC.
397 South 800 West
Salina, UT 84654

Report ID: S1210370001

Project: Sufco Topsoil
Date Received: 10/22/2012

Date Reported: 12/20/2012
Work Order: S1210370

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Organic Matter	PE Calcium	PE Magnesium	PE Potassium	PE Sodium	SAR
		s.u.	%	dS/m	%	meq/L	meq/L	meq/L	meq/L	
S1210370-001	Subsoil Pile 1	7.8	39.6	3.71	4.6	22.1	23.6	0.48	9.18	1.92
S1210370-002	Subsoil Pile 2	8.2	38.5	3.79	4.5	23.1	22.4	0.45	9.29	1.95
S1210370-003	Subsoil Pile 3	8.2	39.8	3.68	4.7	26.9	21.8	0.40	5.78	1.17

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

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Lab ID	Sample ID	Sand	Silt	Clay	Texture	Very Fine Sand	Boron	Nitrate (as N)	CO3	Phosphorus	Selenium
		%	%	%		%	ppm	ppm	%	ppm	ppm
S1210370-001	Subsoil Pile 1	39.0	30.0	31.0	Clay Loam	8.1	0.89	6.0	35.5	2.8	0.02
S1210370-002	Subsoil Pile 2	39.0	32.0	29.0	Clay Loam	6.9	1.06	4.5	37.2	2.7	<0.02
S1210370-003	Subsoil Pile 3	47.0	23.0	30.0	Sandy Clay Loam	8.2	1.29	1.6	29.8	2.6	0.03

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
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Lab ID	Sample ID	Available Potassium meq/100g	Total Carbon %	TOC %	Total Sulfur %	T.S. AB t/1000t	Neutral. Potential t/1000t	T.S. ABP t/1000t
S1210370-001	Subsoil Pile 1	0.33	11.0	6.8	0.08	2.50	355	352
S1210370-002	Subsoil Pile 2	0.32	10.1	5.6	0.07	2.19	372	370
S1210370-003	Subsoil Pile 3	0.30	13.5	9.9	0.16	5.00	298	293

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
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Soil Analysis Report

Canyon Fuel Company, LLC.
397 South 800 West
Salina, UT 84654

Project: West Lease
Date Received: 7/6/2011

Report ID: S1107066002
(Replaces S1107066001)
Date Reported: 8/11/2011
Work Order: S1107066

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Organic Matter	PE Calcium	PE Magnesium	PE Potassium	PE Sodium	SAR
		s.u.	%	dS/m	%	meq/L	meq/L	meq/L	meq/L	
S1107066-001	Comp 1	7.5	40.1	2.76	3.7	20.1	27.3	0.32	9.88	2.03
S1107066-002	Comp 2	7.6	37.4	3.62	5.1	22.0	32.6	0.35	11.8	2.27
S1107066-003	Comp 3	7.7	39.3	3.73	3.6	25.5	38.5	0.39	11.1	1.96
S1107066-004	Comp 4	7.8	41.2	3.06	4.2	17.7	26.4	0.36	8.68	1.85
S1107066-005	Comp 5	7.8	37.7	3.16	3.9	20.0	28.6	0.37	9.49	1.93
S1107066-006	Comp 6	7.9	39.0	2.36	4.5	11.1	18.3	0.29	6.91	1.80

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
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Lab ID	Sample ID	Sand	Silt	Clay	Texture	Very Fine Sand	CO3	Selenium	Boron	Nitrate (as N)	Phosphorus
		%	%	%		%	%	ppm	ppm	ppm	ppm
S1107066-001	Comp 1	29.0	36.0	35.0	Clay Loam	2.2	29.3	0.05	0.98	23.4	5.90
S1107066-002	Comp 2	32.0	35.0	33.0	Clay Loam	4.6	31.7	0.05	1.08	25.8	5.94
S1107066-003	Comp 3	28.0	37.0	35.0	Clay Loam	4.8	37.0	0.07	0.66	38.4	5.08
S1107066-004	Comp 4	30.0	35.0	35.0	Clay Loam	3.5	36.1	0.06	0.80	30.5	4.40
S1107066-005	Comp 5	32.0	35.0	33.0	Clay Loam	3.8	36.7	0.03	0.82	12.8	5.34
S1107066-006	Comp 6	35.0	36.0	29.0	Clay Loam	3.0	36.6	<0.02	0.86	8.9	5.79

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
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Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

CHAPTER 7

HYDROLOGY

3 East portals, and Quitchupah portals have sediment control consisting of routing runoff from disturbed areas into the mine with berms and insloping. The runoff is then treated using in mine settling ponds prior to discharge through approved UPDES points. The disturbed area associated with the South portals is 0.017 acre. The disturbed area associated with the 3 East portals is 0.017 acre. The disturbed area associated with the Quitchupah portals is 0.017 acre. A calculation demonstrating the insignificance of the inflow of surface water into the mine is included in Appendix 7-16.

During construction of the new overflow pond sediment from the disturbed area will be controlled by the use of containment berms and silt fencing.

Several alternate sediment control areas are defined within the mine site and are listed below (see Plates 5-2B,C,D,E,&F):

- The original substation pad area and fire water tank above the office building. The sediment controls include a graveled pad area and silt fences. The disturbed area is 0.324 acre.

- The topsoil stockpile near the mine site primary sedimentation pond. The sediment control consists of containment berms and silt fencing. The disturbed area is 0.105 acre.

- The topsoil stockpile near the mine site overflow pond. The sediment control consists of containment berms and silt fencing. The disturbed area of the overflow pond topsoil stockpile is 0.141 acres.

- The subsoil, topsoil and sedimentation pond topsoil stockpiles at the waste rock disposal site. The sediment controls include containment berms and silt fencing. The disturbed area of the subsoil and topsoil stockpiles is ~~0.51~~1.24 acre. The disturbed area of the pond topsoil pile is 0.293 acre.

- The area above the mine fan in East Spring Canyon. The sediment control consists of silt fencing. The disturbed area is 0.122 acre.

- The pump house in Convulsion Canyon. The sediment control consists of containment berms and silt fencing. The disturbed area is 0.075 acre.

- The leach field in Convulsion Canyon. The sediment control consists of containment berms and silt fencing. The area is fenced to prevent grazing. The disturbed area is 0.40 acre.

- The new substation pad disturbed area is 0.287 acre. The sediment controls include gravel and silt fences.

- The 4 East portal site consists of a pad area where a mine fan has been built. The disturbed area associated with the two portal openings at this site is 0.70 acre.

Alternate sediment control at this pad consists of a containment berm, gravel and silt fencing.

- The Link Canyon Substation No. 1 facility disturbed area is 0.18 acre. This substation pad area was reclaimed in 2000. The sediment control consists of containment berms, silt fencing, and vegetation.

- The Link Canyon Substation No. 2 facility disturbed area is 0.12 acre. The sediment control consists of containment berms, gravel and silt fencing.

- The Link Canyon Portal facility disturbed area is 0.18 acre. The sediment control consists of containment berms, gravel and silt fencing.

The total area for Alternate Sediment Control Areas (ASCA) is ~~3.437~~4.167 acres. This is approximately ~~12.1~~13.6 percent of ~~29.924~~ 30.454 acres of total disturbed area at the mine site, Link Canyon Portal and Substation No. 1 and No. 2 facility sites, and waste rock disposal site (including ASCA's and SAE's).

7.4.2.2 Siltation Structures

General Requirements. Additional contributions of suspended solids and sediment to stream flow or runoff outside the permit area are being prevented to the extent possible using various siltation structures.

The existing siltation structures for the main facilities area, the concrete sediment trap and primary sedimentation pond, were not constructed before beginning coal mining operations. The structures were constructed upon implementation of applicable State and Federal Regulations. The overflow pond was constructed to allow for continued compliance with State and Federal Regulations. The sedimentation pond for the waste rock disposal site was constructed before the site was used. Each structure has been certified by a qualified registered professional engineer.

All siltation structures which impound water have been designed, constructed and maintained as described in Chapter 5 and Sections 7.3.3 and 7.4.3.

Siltation structures are also provided at the mine-water discharges points. Water is presently being discharged from the mine at UPDES discharge point 003 from the Quitchupah Canyon breakouts.

- The water tank area northeast of the mine site. This area is classified as an "Exempt Area". The demonstration for this area is a SEDCAD computer program and is located in Appendix 7-16. The disturbed area is 0.193 acre.

The total disturbed area contributing to the primary sedimentation pond is 15.88 acres. The total disturbed area contributing to the overflow pond is 16.49 acres. The total disturbed area contributing to the waste rock disposal site sedimentation pond is 7.93 acres. The total area for Small Area Exemption (SAE) is 0.623 acres. This is ~~2.2~~2.1 percent of ~~29.924~~ 30.454 acres of total disturbed area at the mine site, Link Canyon Portal and Substation No. 1 and No. 2 facility sites, and waste rock disposal site (including ASCA's and SAE's).

7.4.2.3 Diversions

General Requirements. The diversions within the permit area consist of drainage ditches and culverts. All diversions within the permit area have been designed to minimize adverse impacts to the hydrologic balance, to prevent material damage outside the permit area and to assure the safety of the public.

All diversions and diversion structures have been designed, located, constructed, maintained and used to:

- Be stable
- Provide protection against flooding and resultant damage to life and property
- Prevent, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area
- Comply with all applicable local, state, and federal laws and regulations

All diversions within the permit area are temporary and will be removed when no longer needed. The diversions will be reclaimed in accordance with the reclamation plan defined in Chapter 5.

Peak discharge rates from the undisturbed and disturbed area drainages within the permit area were calculated for use in determining the adequacy of the existing diversion ditches and culverts. The storm runoff calculations for the temporary diversion structures were based on the 10-year, 6-hour precipitation event of 1.3 inches. Curve numbers were based on those defined in Appendix 7-9 and professional judgement. A description of the methods used to determine the peak discharge rates

VOLUME 3

WASTE ROCK DISPOSAL SITE

WASTE ROCK DISPOSAL SITE

PART 1 INTRODUCTION

Canyon Fuel Company LLC operates a waste rock disposal site at a location west of their SUFCO Mine. The facility is required for disposal of underground development wastes generated during mining operations.

Many of the general requirements for an operating permit are covered in the minesite M&RP, Volumes 1 and 2, and are not repeated in this document. Only those items considered site specific or those items requested by the Division have received detailed attention in this Waste Rock Disposal site M&RP. Information contained in the SUFCO Mine M&RP application should also be considered during review of this document.

1.1 Scope of Operation

The disposal site is located on part of a 9,640 acre parcel of private land located within the boundaries of the Fishlake National Forest. SUFCO hauls the development wastes by truck from the mine via a paved county road. Travel distance along the road is 6.4 miles from the portal to the disposal site exit.

1.2 Access and Use

The waste rock disposal site is located on forty acres owned by Southern Utah Fuel Company. The site is located in the northwest 1/4 of the northeast 1/4 of Section 18, Township 22 South, Range 4 East, Salt Lake Base and Meridian. A copy of SUFCO's Warranty Deed is included as Exhibit 1. This location is some 6 miles west from the minesite and is within Sevier County. It is estimated that approximately 10,000 tons of non-toxic, non-acid forming waste shale, coal, and sandstone per year will be generated by the mining operation. Life of the facility at this rate is estimated at 20 years. The design of the disposal area conforms to all State and Federal regulations.

The site will not be used as a sanitary land fill or for disposal of mining related rubbish. Efforts will be made to haul to the site on week days. Waste rock will be contemporaneously spread and compacted.

1.3 Disposal Site

The disposal site is located next to a paved county road that is presently used for access to the mine. Part of the site was previously disturbed for use as a borrow area for material to repair a slide on the county road in 1981. The site is situated between two natural drainages and, consequently, will cause only minimal disturbance to the existing drainages. The waste rock will be placed to fit in with the natural contour to the extent allowed. Drainage from the waste rock disposal area will be treated with a sediment pond, silt fences and other sediment controls. The drainage from the surrounding undisturbed area will be routed around the disturbed area when possible. There are no buildings or structures within 300 feet of the disposal site. There are no holders of lease hold interest or purchasers of record in the waste rock disposal area.

1.4 Contiguous Owners

The waste rock site is bordered by private and Forest Service land. The Warranty Deed showing Southern Utah Fuel Company's right of ownership for Section 18, Township 22S, Range 4E is included as Exhibit 1. The adjacent property owners are shown on Map 1. Table 1.3 gives the names of the present property owners of record contiguous to the waste rock disposal site.

TABLE 1.3

CONTIGUOUS PROPERTY OWNERS

Kenneth M. Christensen ETAL
Fishlake National Forest, U.S. Department of Agriculture
Ark Land Company
Cary & Leanna Beagley

1.5 Mining Permits - Compliance Information

of 1980. A NOV history of all of Canyon Fuel Company's operations is given in Volume 1 and in General Chapter 1 of the M&RP.

1.6 Insurance Coverage

The waste rock disposal site is included in the liability insurance coverage held by the operator (See General Chapter 1 for a copy).

PART 2 ENVIRONMENTAL RESOURCES

2.1 General Environmental Resources Summary

The environmental resources in the waste rock disposal area have been individually studied and are either presented in this document or are addressed in the main body of the M&RP.

The Permittee has attempted to provide pertinent and complete reports for each environmental study discipline through the use of independent consultants who are recognized as experts in their individual fields. It is the Permittee's intent that by so doing, the reviewing agencies will have available to them reliable data for their environmental analysis.

The initial geotechnical/hydrological analyses were contracted to Sergent, Hauskins and Beckwith (SHB). Drs. Stanley Welsh, Joseph Murdock, and Sheldon Nelson combined their efforts on the vegetative and soils requirements. Dr. Clyde Pritchett supervised the mammals study, and Dr. Clayton White concentrated on the birds with particular emphasis on the area's raptors. (These wildlife reports cover the general permit area which is adjacent to the proposed disposal site.) An extended opinion covering wildlife use has been provided by the Division of Wildlife Resource and is appended as Exhibit 2. Drs. Welsh, Nelson, Murdock, Pritchett, and White are all associated with the faculty of Brigham Young University. The cultural resource surveys were performed by Archeological-Environmental Research Corporation of Salt Lake City with Dr. Rick Hauck serving as project director. Copies of consultant reports not included previously in the M&RP are incorporated in this document.

Sediment will be controlled by construction of ~~a~~ diversion ditches around the area to be disturbed and through the use of berms, and other sediment control devices such as silt fences . The active disposal area will be limited and will be protected by sediment control devices located in the immediate area. Topsoil will be salvaged and stored for distribution on newly filled areas. Revegetation is discussed in Section 4, Reclamation Plan.

The site contains no springs or perennial streams. Surface flow is limited to runoff from precipitation events and is minimal because of a small upslope drainage area.

The applicant will help to prevent, control, and suppress fires in the waste rock pile(s).

2.1.1 Archeological Evaluation

A cultural resources evaluation, conducted by Dr. F.R. Hauck of Archeological-Environmental Research Corporation, resulted in negative findings. A copy of Dr. Hauck's report is attached as Appendix I.

2.1.2 Threatened & Endangered Species

The waste rock disposal site is not known to provide habitat for any threatened or endangered species. A letter from the Regional Resource Analyst of the Division of Wildlife Resources confirming this opinion is included as Exhibit 2. The applicant will promptly report any threatened or endangered species in the permit area, or golden eagles not previously reported, to the Division.

2.2 Geology

The bedrock, which underlies the site and is exposed immediately to the north and east of the site, consists of massive sandstone and sandy, carbonaceous claystone of the Price River Formation. The Price River Formation is part of the Mesaverde Group which is upper Cretaceous in age. The total thickness of the Price River Formation is about 700 feet, but the thickness below the site has not been determined. Local bedrock dips do not appear to exceed 10 degrees and no major faulting is apparent in the immediate site area. There has been no underground mining beneath the site.

As encountered in the seven boreholes and five backhoe test pits performed on site by SHB, the Price River Formation is overlain by 4 to 30+ feet of unconsolidated colluvial material. This overburden consists of a soft to hard clay sequence with varying amounts of sand and silt. Subordinate units of argillaceous sand are also present in the colluvial deposit. The predominant clay units are normally gray to black in color, medium in plasticity, and firm to hard in consistency.

2.3 Ground Water Hydrology

No free ground water was encountered in the soils overlying the bedrock. Water was encountered in the bedrock formation. Original ground water levels in the observation wells are recorded on the Well Completion Records which are included in Appendix A of the SHB report included as Appendix II. Subsequent observation well level measurements are found on the Division's EDI data site. Activity at the disposal site will have no impact on the ground water system.

2.4 Surface Water Hydrology

Surface drainage of the immediate site area appears to be good. No existing springs are within the proposed waste rock disposal area; however, some spring activity is present to the north and east of the forty acre parcel of property. A cut section of the county road to the east of the property has experienced some localized, shallow seated instability due to spring seepage in the cut slopes.

Drainage of the area to the north of the proposed fill area is directed by culverts through the county road embankment fills. The culverts are located to the east and west of the ~~proposed~~ waste disposal area and discharge into natural channels. Some natural erosion is evident in the channels. However, at a point approximately half way along the south side of the disposal site, the channels fade into an open grassy area and becomes almost indiscernible. The lack of defined channels through the lower half of this down slope drainage area emphasizes the lack of significant surface flow in the recent past.

At the time the exploration was made, the surface of the site was firm and the drilling equipment experienced no problems.

The only impact on the surface water hydrology will be that associated with collection of the water from the disturbed area, ~~and~~ routing of this water through the sedimentation pond and the routing of water from the undisturbed area around the waste disposal area ~~site~~. No perennial or intermittent streams pass through the area. Flow is limited to storm and/or snow melt runoff.

2.4.1 Diversion Ditches

Sergent, Hauskins & Beckwith's work on hydrology of the area was of an investigative nature. Subsequent designs of diversions used actual areas and runoff curve numbers that are believed to be more representative of the area. These calculations are included in Appendix III.

Diversion ditches are provided to direct runoff around the disturbed areas and sediment pond. Ditches will convey runoff from the disposal area to the sediment pond. These diversion ditches are shown on Map 2.

The maximum flow resulting from a 10 year, 24 hour storm was used as the design flow for each of the diversions. Ditches No. 1 and 2 conveying runoff to the sediment pond shall be trapezoidal shaped in cross-section. Both ditches have a bottom width of 12 inches and side slopes of 1:1 and are a nominal 16 inches deep. Ditch No. 2 is concrete lined, Ditch No. 1 is a dirt ditch with steep areas within the ditch being riprap lined. Ditch No. 1 was previously a concrete lined ditch, which will be broken up, left in place and covered with waste rock. This design will carry the 4.42 cfs of runoff expected from the disturbed area with 0.3 feet of freeboard. Design calculations are included in Appendix III.

Undisturbed drainage is routed around the disposal site and sediment pond using Diversions No. 1, 2, and 3 as shown on Map 2. The drainage areas are shown on Map 3. Diversion No. 1 utilizes an existing culvert to convey part of the drainage area across the county road and onto an existing flood plain. This vegetated channel will adequately carry the runoff expected from the 0.19 square mile area. Another culvert will be used to collect the runoff from Area No. 2 and convey it across the county road. The diversion utilizes a vegetated ditch 0.90 feet deep and 19 feet wide of parabolic cross-section. Diversion No. 3 will route road runoff away from the facility. Design calculations for these diversions are included in Appendix III.

2.4.2 Hydrologic Design Criteria of the Sedimentation Pond

Calculations of hydrologic design criteria are presented in Appendix III. Runoff volumes were calculated using SCS procedures.

The maximum capacity of the proposed sediment pond is 33,360 cubic feet. An ultimate sediment load based on 3 year loading was determined to be 9,148 cubic feet. Sediment volume is based on 0.0697 acre-foot per year for the 7.93 acres of disturbed area. In addition, a l0 year, 24 hour storm on the area would produce 21,792 cubic feet of runoff assuming no infiltration or collection. The total storage required for the reservoir is therefore 30,940 cubic feet. The additional storage volume is to allow for detention of a 10-year, 24-hour storm should the pond have water at the beginning of the storm.

The emergency spillway was designed to convey a 25 year, 24 hour flood flow through the pond safely with one foot of freeboard, assuming the pond was full at the beginning of the storm and no routing in the pond. The emergency spillway consists of a rip-rap lined ditch of trapezoidal cross-section. The side slopes are 3h:lv. The bottom width is 3 feet with a minimum depth of 0.75 feet. Rip-rap and filter blanket are in accordance with the recommendations in Appendix III. The crest elevation of the emergency spillway is 7890.70 feet.

2.4.3 Hydrologic Design Criteria of the Decanting Impoundment

Calculations and Hydrologic design criteria are presented in Appendix III. Runoff volumes were calculated using SCS procedures.

The maximum capacity of the decanting impoundment is 5,048 cubic feet. An ultimate sediment load based on 3 year loading was determined to be 654 cubic feet. In addition, a 10 year, 24 hour storm on the area would produce 3,655 cubic feet of runoff assuming no infiltration. The total storage required for the impoundment is therefore, 4309 cubic feet.

The emergency spillway was designed to convey the 25 year, 24 hour flood flow from the sediment pond through the impoundment safely with one foot of freeboard, assuming the pond was full at the beginning of the storm and no routing in the pond. The emergency spillway consists of a rip-rap lined ditch of trapezoidal cross-section. The bottom width is 4.6 feet with a depth of 1.5 feet. Rip-rap and filter blanket are in accordance with the recommendations in Appendix III. The crest elevation of the impoundment emergency spillway is 7880.25 feet.

2.5 Hydrological Impacts

Beyond those factors discussed in sections 2.3 and 2.4, no hydrological impacts, either surface or underground, are anticipated.

2.6 Climate

The climate at the proposed disposal site is typical of subalpine areas in the central region of Utah. Summer seasons are generally short with considerable variation in temperature. Fall and Spring are erratic in nature with snow precipitation occurring as early as September and as late as June. Snow frequently remains on the ground from November until May.

Aclimatological summary for the climatological station at the SUFCO Mine is included in Volume 9 of the M&RP.

2.7 Vegetation

An analysis of the vegetative community at the waste rock disposal site was made by Drs. Welsh and Murdock in 1983. Their measurements included information on cover, productivity and shrub density for the disposal site. An amended copy of this report is included as Appendix IV. The range condition was evaluated by the SCS in 1987. A copy of their evaluation is included as Exhibit 3.

2.8 Aquatic Wildlife Resources

The disposal site contains no perennial or intermittent streams. The only surface flow in the area is in the form of occasional storm runoff. Consequently there has been no analysis made of the aquatic wildlife resources.

2.9 Terrestrial Wildlife

The disposal area is adjacent to the area investigated by Drs. Pritchett and White as reported in the appendices to the M&RP, Volume 6. A further evaluation of the wildlife use of the site has been provided by Wes Shields, Resource Analyst, DWR, Cedar City. A copy of Mr. Shields' report is included as Exhibit 2.

The area is probably used by wintering deer and elk and by several non-game species of birds and mammals. The small area which will be disturbed at the disposal site at any given time will result in minimal disruption to the wildlife community. Revegetation of those areas currently disturbed and the sediment pond water retained should help mitigate the impact.

Protection of the area wildlife will also be provided by the Applicant not using persistent pesticides unless approved in advance by the Division.

2.10 Mammals

Refer to discussion of Section 2.9.

2.11 Raptors

The waste rock disposal site contains no suitable nesting sites for raptors. The area is probably part of the hunting territory for certain raptor species. (See DWR letter appended as Exhibit 2.)

The impact on the hunting activity of the raptors will be minimal since the area to be disturbed at any given time is small.

2.12 Soils

Soils surveys were done for different purposes by both the engineering consultant and by a soils specialist. Seven exploratory borings were drilled with truck-mounted equipment to depths of 25 to 5l feet below existing grades at the site. The borings were performed using 6 1/2 inch O.D. hollow stem augers. Standard penetration testing and open-end drive sampling were performed at selected intervals in the borings.

In five of the borings, PVC observation wells were installed for the purpose of long term monitoring of the ground water conditions at the site.

In addition, five backhoe test pits were performed at the site to supplement the soil boring program. The results of the field investigation are presented in Appendix A of the SHB report, which includes a brief description of drilling and sampling equipment and procedures, logs of the test borings, logs

of the test pits, and records of the observation well construction details. A site plan showing the boring, test pit, and observation well locations is included in a pocket at the back of the report.

The field investigation was supervised by Paul Kaplan and Donald Curran, engineers with SHB.

Moisture content determinations were made on selected tube samples recovered, and dry densities were determined for selected 2.42 inch diameter open-end drive samples. The results of these tests are shown on the boring logs.

Grain-size analysis, Atterberg limits, and direct shear tests were performed on selected soil samples. The results of these tests are presented in Appendix B of the SHB report along with a brief description of testing procedures.

A soil survey report dated December 22, 1987 is included as Appendix V. A facilities map overlay is provided that shows the outline of the sagebrush-grass vegetative type. Essentially all of the permitted waste rock disposal site is within that vegetative type. A very small proportion was mapped previously as mountain brush, and about two acres of the site was modified historically as a source of fill materials.

Four soil test pits were dug at the site, within the undisturbed area on December 10, 1987, and five more were dug on 16 December 1987 (to ascertain the adequacy of the first four pits). It was ascertained that the soils in the sagebrush-grass vegetative type are all sufficiently similar as to not be further divisible into mappable units. There are no rock outcrops within the undisturbed area. Rock outcrops were exposed in the borrow area, prior to using the area for waste rock disposal.

The contemporary study of soils at the waste rock disposal site indicate "that this small area is predominated by a single soil type which is classified as Typic Torrifluvents and in land capability class V with limitations due to climate and slope. Surrounding soils have been previously classified as Typic Argixerolls and the soil on the proposed soil site is small enough to have been considered an inclusion on previous soil maps." See the appended soil analysis report for additional details.

A discussion of the soil taxonomic classification availability of topsoil and other related soils discussion may be found in the report prepared by Dr. Sheldon D. Nelson located in Appendix V.

Lift #5 Expansion - Growth medium will be removed to a minimum depth of 18 inches in the approximately 0.54 acre area of the expansion. The growth medium will either be used immediately to reclaim a portion of the #5 lift or will be stockpiled on Topsoil Storage No. 2 to be used for reclamation in the future. Growth medium to be removed is estimated to be 1,300 yds. The logs (Appendix II) from boring number B-1 located within the expansion area shows the topsoil to be 12 inches deep, however the area has been part of an undisturbed ditch and additional sediment has the potential of having been deposited in the area. Boring B-1 is located on the west side of the waste rock pile between the pile and undisturbed ditch. Boring B-1 will be covered with waste as part of the expansion planned for Lift # 5 in approximately 2014 (depending upon the quantity of waste produced and hauled).

2.13 Land Use

The waste rock disposal site is privately owned and is suitable primarily for summer range for cattle although the area has not been used as such in recent years. Some land in the adjacent area is being subdivided as summer home building lots.

The waste rock disposal site is visible from a few of the summer home sites, however, the terrain is such that the disposal site is somewhat isolated. The visual impact is minimized by keeping the disturbed acreage small at any given time and by prompt revegetation of completed fill areas. Efforts will be made to use the disposal site during the week, thus avoiding an impact on weekend recreational use.

The visual impact will be only temporary in nature with the site being restored to an approximation of pre-mining conditions at the completion of mining activity.

2.14 Community Infrastructure and Socioeconomics

The waste disposal site is operated by personnel from the work force as currently proposed. No additional utilities or services will be required. Consequently, there will be no community infrastructure or socioeconomic impacts.

2.15 Prime Farm Land Investigation

The site has no developed water supply suitable for irrigation and is located in an area not considered to be prime farm land. Soil Conservation Service confirmation of this opinion may be found as Exhibit 4.

The analyses performed by SHB indicate the likely deformation of the embankment structure during a seismic event would be sloughing of surface material. Deep seated deformations would be a maximum of a few inches. Case history data indicates stability of rolled earth dams bearing on relatively stiff foundations have withstood extremely strong shaking ranging from 0.35g to 0.8g from earthquakes having magnitudes as large as 8.25. These data provide high confidence in the stability of the rockfill under similar extreme conditions.

A slope stability calculation using the fill configuration shown on Map 2 is included in Appendix III. The slope safety factor is 2.62. The slope stability and safety factor will be maintained throughout the expansion of Lift #5 and in the reconfiguration depicted on Map 2. ~~This indicates that the fill will be very stable.~~

3.1.4 Waste Rock Fill Construction Criteria

The waste rock generated at the mine at this time consists of a black to gray shale with some sandstone. Plasticity index, slake durability tests, and point load index tests performed on the present waste rock indicate it to be a sound, durable rock. It is anticipated that the waste rock will be flat, elongated pieces with a maximum size of 12 to 18 inches. The gradation of this material will most likely be coarse and poorly graded with a small percentage of sand size or smaller material.

Atterberg limits, slake durability, and point load index tests were performed on samples of waste rock from the mine. The results of these tests are also presented in Appendix B of the SHB report. ~~If the characteristics of the waste rock change at a future time, the design of the fill should be reviewed for possible alterations. Based on the life of the facility, the amount of waste produced yearly and the proposed plan area to be covered, the maximum depth of the fill is estimated at 30 feet.~~

Non-coal waste will not be deposited at the waste rock disposal site. Final disposal of non-coal wastes shall continue to be in an approved sanitary land fill. Durable rock type construction materials such as cinder block, concrete, however, will be deposited at the disposal site.

Any slide or other damage at the disposal site which may have a potential adverse affect on public property, health, safety, or the environment will be reported to the Division by the fastest available means and will be remediated in compliance with Division instructions.

3.1.5 Acid and Toxic Forming Materials

Based on analyses of material that has been placed in the waste rock disposal site to date, no acid forming problems are anticipated. There is a potential for borderline toxicity problems from boron. Samples of the waste material will be collected quarterly when the site is receiving material and will be analyzed for acid or toxic forming potential. All identified potential acid or toxic forming materials will be buried or otherwise treated.

Copies of laboratory reports on toxicity/acid-base accountability from representative waste samples are included in Volume 8 of the M&RP prior to 2005 and starting in 2005 will be included in the annual report.

3.1.6 Subsoil Stockpile

Excess subsoil material and a small amount of topsoil from the minesite is stockpiled at the Waste Rock Disposal Site for possible use during final reclamation of SUFCO minesite facilities. The location of the subsoil and topsoil material is shown on Map 2. Total acreage of the subsoil stockpile and associated topsoil piles 1A and 1B is 1.19 acres. Approximately 11,260 cubic yards of subsoil material and approximately 8.2 cubic yards of minesite topsoil material are stockpiled at the site. The associated original topsoil pile 1B and new topsoil piles 2 and 3 removed from the subsoil stockpile area contains about 756.3 cubic yards. The top 24 inches of soil material was removed from the subsoil stockpile area as described in Section 3.1.2, Site Preparation. This topsoil was stored along the westerly boundary and east of the subsoil stockpile as shown on Map 2. Topsoil handling procedures complied with those described in Section 3.2.3, Topsoil Handling. These topsoil stockpiles will be stored and seeded using the grasses and forbes of the standard seed mix, Table 4.6.1-1. When the subsoil and minesite topsoil are removed the topsoil will be redistributed and the area reclaimed and seeded in accordance with sections 4.5 and 4.6.

Subsoil material was placed in 2-3 ft. lifts using dump trucks and a D-7 Cat dozer. Exterior slopes of the subsoil stockpile are approximately 1v:1.25h. At this slope the material will be stable as placed. The subsoil stockpile was seeded using the grasses and forbes of the standard seed mix, Table 4.6.1-1. This subsoil may be taken to the minesite and used for fill material during final reclamation of the minesite.

Run off from the subsoil and associated topsoil stockpiles is collected and routed through a silt fence treatment located as shown on Map 2. The total acreage of the five stockpiles is 1.24 acres. Alternate sediment control measures are in place as described above. This area is classified as an approved Alternate Sediment Control Area (ASCA).

Topsoil and Subsoil Storage Piles at Waste Rock Disposal Site

TOPSOIL			
Description	Volume (cy)[(a)]	Area (acres)	Distribution Location
1A	8.2	1.19*	Mine Site
1B	456.9	0*	Waste Rock
2	161.4	0.03	Waste Rock
3	138	0.02	Waste Rock
Sediment Pond	634.9	0.293	Waste Rock
Lift # 4 Area**	1847	0.34	Waste Rock
TOTAL	3246.2	NA	NA
SUBSOIL			
Subsoil	11,260	0*	Mine Site

(a) Estimated Quantity

* The acreages for Piles 1A,1B and Subsoil are combined

** Topsoil stored in piles on top of Lift #4, estimated depth of stored topsoil - 3.5 feet

3.2 Components of Operation

3.2.1 Sedimentation Pond

A sedimentation pond was constructed down gradient from the rock fill area to control sediment removed from the disturbed areas by surface runoff. The pond was constructed prior to disturbing any other areas of the site. It will remain in place until the waste rock disposal area has been completely reclaimed.

The pond consists of an excavated storage basin. Suitable material removed from the excavation was used to construct an embankment on the downstream perimeter of the excavation to yield a maximum storage depth in the pond of 5.70 feet.

The embankment has a top width of l0 feet, a minimum height of 6.8 feet with exterior side slopes of 2.5h:lv. The bottom of the pond was constructed at an elevation of 7885.00 feet.

In accordance with Section 73-5-12 of the Utah Code Annotated 1953, before commencing construction of the sediment pond for the project, written notice was given to the State Engineer, Division of Water Rights.

The embankment and excavated pond area was grubbed of all organic material and the topsoil removed and stored for future use. It is estimated that 24 inches of topsoil was removed from the area.

The top 9 inches of the grubbed and stripped area for sediment pond embankment construction was scarified and recompacted to 90 percent of the maximum dry density as determined by ASTM D1557 procedures. Moisture content during compaction was maintained at -1 to +3 percent of the optimum as determined by ASTM D1557.

Intermittent construction slopes and the final exterior slopes of the fill should not be steeper than 2h:lv.

Final slopes of the top surface of the waste rock area will be contoured to blend into the natural contour of the area. The final fill slope will be terraced on 20 feet elevation increments as shown in Map 2.

3.2.7 Signs and Markers

The site is properly posted with signs and markers. The extent of the disturbed area is marked with T-posts. The topsoil storage piles are labeled as such.

3.2.8 Inspections

The sediment pond, diversion ditches, and waste rock fill shall be inspected on at least a quarterly basis throughout construction by a qualified engineer. The sedimentation pond and waste rock fill will be inspected and certified in accordance with the requirements of the SMCRA regulations. Reports are to be provided to the mine office and the Utah Division of Oil, Gas and Mining as to compliance with the project specifications.

3.3 Timing of Operation

Since the waste rock disposal area is relatively small and relatively small volumes of fill are placed annually, the fill will be constructed in segments. The original fill volume was estimated at 10,000 tons or 8,200 cubic yards per year. The average fill volume from 1996 through 2012 was 5,180 tons per year and ranged from 156 to 27,135 tons per year. At this projected rate, once the fill bench-slope configuration is established about 1.5 acres should be filled and reclaimed every six to nine years. The fill is expected to be completed in 2016. The waste rock disposal pile was surveyed in August 2005 and contains an estimated 163,748 tons of waste rock, at the end of 2012 there is estimated to be 199,700 tons of waste stored at the site. In 2013 the estimated available capacity remaining at the waste rock pile is 5,000 tons, the proposed expansion of Lift #5 will provide an estimated additional capacity of 40,000 tons. The maximum height of Lift #5 is estimated at 20 feet and will be adjusted lower if necessary for road visibility.

It should be noted that the active fill area will extend beyond the area shown for each year. This is best seen in cross-section G-G' of Figure 2 which shows the active fill areas in relation to the reclaimed area, topsoil removal area, and undisturbed area. Map 4 has been revised to illustrate the current status of the reclaimed, active and undisturbed areas of the waste rock disposal area as of ~~August 2005~~ April 2013.

The following information is retained for historical record (prior to 2013 Site Expansion): { The 200 feet wide strips of waste will be placed beginning along the southern boundary and extend between the drainage diversion ditches. The eastern half of the disposal area will be completed first. The original Map 4 showed the areas that would be completed based on a waste rock volume of 10,000 tons per year. The average fill volume from 1996 through 2003 was 3,200 tons per year and ranged from 1,400 to 6,800 tons per year.}

3.4 Area Affected by Each Phase of Operation

The eastern half of the waste rock disposal site will be built up first. Once the eastern portion is to design height, the fill will be extended to the western boundary by extending the fill in segments. As each segment of the fill is brought to final design height, it will be contoured to the approximate contours shown on Map 2. Once this has been accomplished, topsoil will be distributed and revegetation will proceed as indicated in the Revegetation Plan contained in Section 4.6.

3.5 Major Equipment List

The waste rock will be loaded at the mine by a front-end loader or other available equipment. Transport to the disposal site will be by dump trucks. The waste rock will be spread and compacted by a self powered compactor of suitable size, a dozer of a suitable size, or with a large front-end loader.

PART 4 RECLAMATION PLAN

4.1 Introduction

The operation of the waste rock disposal site is designed for minimal areal disturbance at any given time. The waste material will be placed in compacted lifts and will be covered with topsoil and revegetated. Routes required for access to active disposal areas will be revegetated as soon as practical. The final contours will be as shown on Map 2.

4.2 Time Table

The waste rock disposal site will be used on an infrequent basis as required to dispose of rock generated during mining. Because of the irregularity of use, the fill will be constructed in segments of varying widths and lengths, refer to Map 4 for dimensions. As segments are complete, they will be graded and vegetated as set forth in Sections 4.4-4.6. Final grading, topsoil application, seeding and other revegetation activities will be done in the Fall, preferably during late September or early October. Refer to Section 3.3 for additional information.

After vegetation and monitoring requirements have been fulfilled, the sediment pond will be leveled, this is expected to occur in 2026. This Phase II reclamation will consist of dozing the embankment into the pond and re-establishing the original contour as shown on Map 5. Topsoil will be placed over the area from the dedicated stockpile prior to reseeding according to Section 4.6. The monitoring bore holes will also be closed as part of the Phase II reclamation. ~~The shallow pipes will be pulled from the ground and the wells buried. These well areas will then be reseeded by hand broadcasting and raking.~~

The following information is retained for historical record (prior to 2013 Site Expansion) { The fill area will eventually encompass about 8 acres and contain an estimated 204,700 tons of waste rock. Because of the irregularity of use, the fill will be constructed in segments envisioned to be about 300 feet long by 150 feet wide.} Reference Section 3.3 for additional information. ~~The waste rock disposal pile was surveyed in August 2005 and contains an estimated 163,748 tons of waste rock. Map 4 has been revised to illustrate the current status of the reclaimed, active and undisturbed areas of the waste rock disposal area as of August 2005.~~

~~The original fill volume was estimated at 10,000 tons or 8,200 cubic yards per year. The average fill volume from 1996 through 2003 was 3,200 tons per year and ranged from 1,400 to 6,800 tons per year. At this projected rate, once the fill bench-slope configuration is established about 1.5 acres should be filled and reclaimed every six to nine years. The fill is expected to be completed in 2016.~~

4.3 Cost Estimate for Performance Bond

The Surface Mining Control and Reclamation Act of 1977 requires the operator of a coal mine to file with the Office of Surface Mining, a bond payable to the regulatory authority in the amount equal to the estimated cost of completing the work described in the operator's reclamation plan. The purpose of the bond provision is to ensure the State of Utah that in the event of the operator being financially unable to reclaim the disturbed areas, such areas can and will be restored by the proper regulatory authority at no cost to state residents.

Reclamation will consist of grading and revegetating the waste rock disposal fill area, site, monitoring wells locations and removing the sediment pond(s) described in Section 4.6 Appendix III contains the calculations for reclamation costs. The permitted disturbed area acreage and actual disturbed area acreage and legal description of the permit area is provided in Chapter 1, Section 116 of the M&RP.

4.4 Backfill Soil Stabilization, Compaction, Contouring & Grading

The fill area will be built up using waste rock generated during the mining operation at the SUFCO Mine. The waste rock will consist of shales, sandstones, mudstones, and some coal. Prior to fill placement, all vegetative cover will be removed from the area where fill is to be placed. Topsoil will then be removed, stockpiled, and reseeded. Fill will be placed in segments using trucks, loaders, other equipment and compaction equipment. These segments will vary in length and width, refer to Map 4 for dimensions. The first segment will be placed on the southeast side of the disposal area. Additional segments will be placed beginning on the east side and working to the west. The fill will be built up to approximate the final contours shown on Map 2. The active area of the fill will consist of a pad where the haul road and compaction activities are taking place with an associated

upslope and down slope. The upslope will be to the east adjacent to a previously established segment. The down slope will be to the west and will be the face of the present segment. ~~All slopes will be less than 2h:lv.~~ As a segment is completed, it will be graded to blend into the contours shown on Map 2. After grading, a layer of topsoil will be added and the completed segment will be seeded ~~as required~~ described in the revegetation plan of Section 4.6 and in accordance with the revegetation timetable in Section 4.2.

4.5 Soil Preparation and Fertilization Plan

Soil will be spread to a minimum depth of approximately 30 inches. Heavier soil cover will be applied, if necessary, to avoid plant toxicity problems. The first lift was covered with topsoil from the existing adjacent stockpile. Subsequent lifts will be covered with topsoil from the next lift site. Sufficient topsoil will be placed in the longterm storage stockpile to ensure minimum depth coverage of the final lift and the sediment pond area.

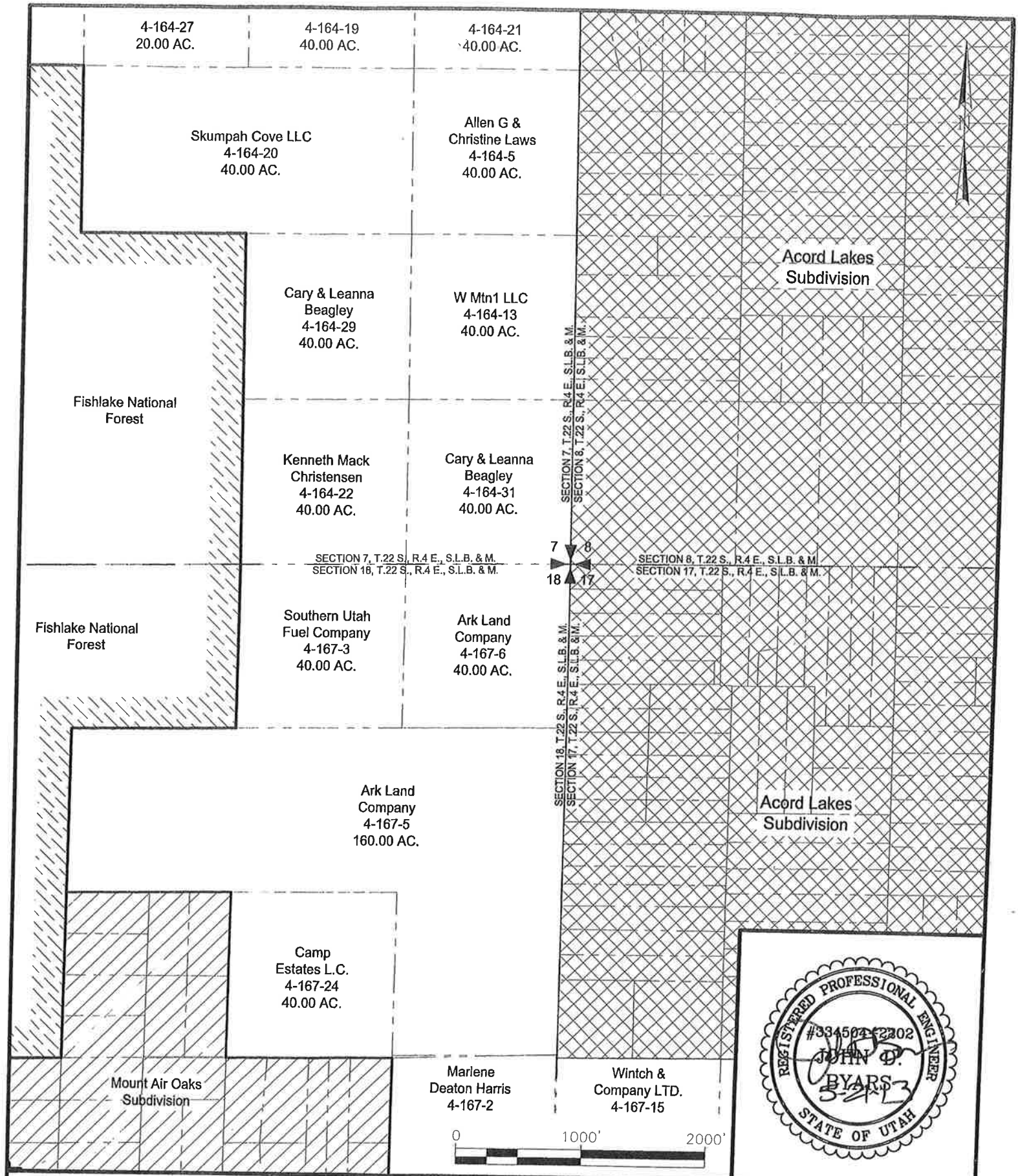
Upon phase II final reclamation, the banks of the sediment pond will be pushed over the existing pond residue and the site will be covered with topsoil.

The soil will be spread in a manner to provide a roughened surface so that seed and mulch can remain during germination and initial growth of the seedlings. Nitrogen fertilization will be applied at the rate determined by need. Topsoil redistribution will be accomplished when soil is dry or merely damp (not wet) to avoid excessive compaction.

Should rills or gullies deeper than nine inches develop in areas that have had topsoil redistributed, such damage shall be corrected by hand repair to avoid excessive compaction. These repaired areas shall be reseeded, also by hand, with the standard seed mixture on a schedule consistent with the proposed revegetation plan - see Section 4.6.

4.6 Revegetation Plan

Revegetation efforts will follow, insofar as possible, those procedures recommended by the consultant, Dr. Stanley Welsh.



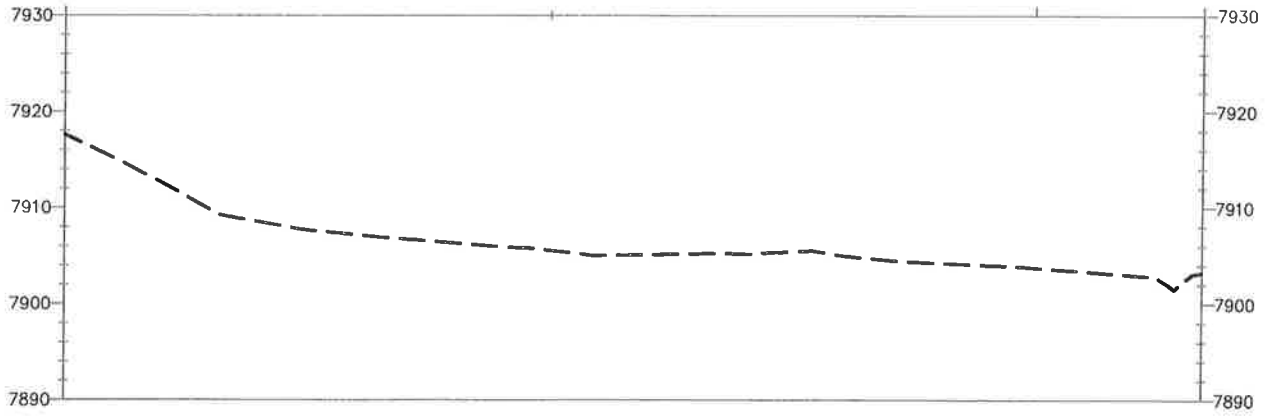
Canyon Fuel Company, LLC
SUFCO Mine
597 South SR 24 - Salina, UT 84654
(435) 286-4880 Phone
(435) 286-4499 Fax

Underground Development Waste Disposal Site – Property Ownership

SCALE: 1" = 1000'	DATE: 6/20/2012	DRAWN BY: K.B.B.
ENGINEER: J.D.B.	CHECKED BY: K.B.B.	PROJ:
FILE NAME: H:\DRAWINGS\MRP\PLATES\WRDS MAP1v2.dwg		

SHEET NO.

Map 1



Canyon Fuel Company, LLC
SUFCO Mine
597 South SR 24 - Salina, UT 84654
(435) 286-4880 Phone
(435) 286-4499 Fax

WASTE DISPOSAL SITE
CROSS SECTION L-L

SCALE: 1" = 20'	DATE: 11/18/2013	DRAWN BY: T.R.B.
ENGINEER:	CHECKED BY: V.L.M.	PROJ: ####
FILE NAME: H:\DRAWINGS\MRP\PLATES\WRDS Map2v6.dwg		

SHEET NO.
FIGURE
2A

EXPLANATION

- DISTURBED AREA BOUNDARY
- PERMIT AREA BOUNDARY/PROPERTY LINE
- DIKE BOUNDARY
- STORAGE PILE BOUNDARY
- FINAL CONTOUR WITH 10' – 15' TERRACE AND DITCH
- FINAL CONTOUR WITH NO TERRACE
- B-2 7100.0' (30) — WATER MONITORING WELL WITH CAP ELEVATION (DEPTH TO CONSOLIDATED FORMATION)
- B-4 (18) — TEST BORE HOLE (DEPTH TO CONSOLIDATED FORMATION)
- DIVERSION DITCH

NOTE:
PERMIT/PROPERTY BOUNDARY IS NW1/4 NE1/4 SECTION 18, T22S, R4E, SLB&M

STATE OF UTAH — #334504-2202 — JOHN D. BYARS — REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

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REVISIONS OR UP-DATES		
NO.	DATE	BY
2	04-03-01	MLD
3	OCT. 15, 2001	MLD
4	APR. 10, 2013	MLD
5	AUG 05, 2013	VM
6	NOV 13, 2013	VM

FILENAME: H:\DRAWINGS\MRP\PLATES\WRDS_MAP2v6.DWG

DATE: JAN. 29, 1998
DESIGNED BY:
DRAWN BY: SKS/TRB
CHECKED BY: MLD/VM
SCALE: 1" = 50'

Canyon Fuel Company, LLC
SUFCO Mine

UNDERGROUND DEVELOPMENT WASTE DISPOSAL SITE PLAN

397 SOUTH 800 WEST
SALINA, UTAH 84654

DRAWING OR MAP NUMBER: MAP 2v6

EXPLANATION

- DIKE BOUNDARY
- STORAGE PILE BOUNDARY
- DISTURBED AREA BOUNDARY
- PERMIT AREA BOUNDARY/PROPERTY LINE
- B-2 7100.0' (30) — WATER MONITORING WELL WITH CAP ELEVATION (DEPTH TO CONSOLIDATED FORMATION)
- B-4 (18) — TEST BORE HOLE (DEPTH TO CONSOLIDATED FORMATION)
- DIVERSION DITCH

NOTE:
PERMIT/PROPERTY BOUNDARY IS NW1/4 NE1/4 SECTION 18, T22S, R4E, SLB&M

STATE OF UTAH — #334504-2202 — JOHN D. BYARS — REGISTERED PROFESSIONAL ENGINEER

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REVISIONS OR UP-DATES			DATE: NOV. 12, 1987	
NO.	DATE	BY	DESIGNED BY:	
1	AUG. 31, 2005	MLD	DRAWN BY:	SKS/TRB
2	APR. 10, 2013	MLD	CHECKED BY:	MLD/VM
3	MAY 20, 2013	VM		
4	NOV 13, 2013	VM		
			SCALE:	1" = 50'

FILENAME: H:\DRAWINGS\MRP\PLATES\MAP4v4.DWG

Canyon Fuel Company, LLC
SUFCO Mine

UNDERGROUND DEVELOPMENT WASTE DISPOSAL SITE OPERATIONS PLAN

397 SOUTH 800 WEST
SALINA, UTAH 84654

DRAWING OR MAP NUMBER: MAP 4v4