

CANYON FUEL COMPANY, LLC

**DUGOUT CANYON MINE
PACE CANYON FAN PORTAL FACILITIES
AMENDMENT
C/007/039**

MARCH 2005

File in:
 Confidential
 Shelf
 Expandable
Refer to Record No 0034 Date 03302005
In CI 0070039 Submittal
For additional information

Technical Review Deficiencies
Dugout Mine - Pace Canyon Fan Portal
Task ID# 2104

R645-301-114, The legal description of the BLM surface to be disturbed for the Pace Canyon fan portal and shaft must be added to the right of entry information documented in Section 114 of the Dugout MRP. [PWB]

Refer to Section 114 of the M&RP and Appendix 1-4..

R645-301-111.100, Canyon Fuel has offices in Colorado, a contact is provided in Section 112.200. Are any other [Utah] representatives of Canyon Fuel authorized to make changes to the Mining and Reclamation Plan? [PWB]

A letter was delivered to the Division addressed to Pamela Grubaugh-Littig authorizing individual in Utah at each mine to act on behalf of Canyon Fuel Company, LLC.

R645-301-115.300, Although recent email communications from the BLM indicate that it is a private road, the application must state whether the road adjacent to the fan portal is a public or private road. [PWB]

Refer to Section 521.100 - Transportation Facilities

R645-301-222, Provide the 2003 Soil Survey conducted for the BLM EA as well as the following information from the 2004 supplemental soil survey of Pace Canyon: test pit logs, laboratory analysis, and soils map showing location of disturbed and undisturbed soils. [PWB]

The soil survey from 2003 will not meet the requirements of this regulation and will not be included in the M&RP. 2004 supplemental soil survey information is included in Appendix 2-3. Refer to Section 222 for text revisions.

R645-301-232.200, The depth of topsoil is variable and should be illustrated using an isopach derived from the 2004 survey information. The presence of a qualified person to direct the salvage is indicated. The Division requests advance notification of the topsoil salvage, so that a Division inspector may be present as well. [PWB]

Refer to drawing in Appendix 2-3.

R645-301-233.200, Topsoil and subsoil will be sampled during salvage for the parameters indicated in MRP Section R645-301-233.300. The number of samples to be taken and the method of sampling must be indicated. [PWB]

Refer to Section 233.300.

R645-301-234.210, Show on a plate the location of temporarily stockpiled topsoil (as described in Section 242.100, above the portal and along the channel diversion area for immediate replacement after construction of the portal and channel diversion). [PWB]

Refer to Plate PC5-2

R645-310-234.230, For prompt establishment of vegetation and protection from erosion, out slopes of stockpiled soil must not exceed 2h:1v. [PWB]

Refer to Plate PC5-2

R645-301-241, Soil will be replaced in all disturbed areas (except the road) in Pace Canyon. The MRP (p. 2-41) cites Plate 7-5A as illustrating this information, but it was not found on Plate 7-5A.

Refer to Plate PC5-6

R645-301-244, Ensure that Plate 7-5A is labeled "contemporaneous reclamation treatments" and show final reclamation treatments: topsoil depths, hay, gouged, mulched and seeded areas on Plate PC5-5. [PWB]

Refer to Plate PC5-6 and reclamation section in Chapters 2 and 3. Label on Plate PC7-5A has been revised.

R645-301-411.110, Plate PC5-4 (pre-disturbance area map) must indicate the location of mine dumps within the Snow Mine disturbed area. Plate 4-1, LAND USE MAP in the MRP must be updated to include the main livestock watering source, and the holding corral outside the Pace Canyon disturbed area. [PWB]

Refer to Plate PC5-4. Refer to Section 411.110 and Plate 4-1.

R645-301-412.200, The Permittee must provide documentation of landowner or surface manager comments, especially with respect to Pace Canyon Grazing Allotment No. 24085. [PWB]

Refer to the letter in Appendix 4-2. The letter from the BLM (surface manager and landowner) speaks specifically to the regulation, not to the grazing allotment. Permittee had personnel

communication 3/24/05 with Dugout's BLM inspector Stan Perkes concerning the grazing allotment. He stated that regulation R645-301- 412.200 quoted to the BLM had been addressed in the letter incorporated into the appendix. Since the regulation did not address a grazing allotment it was not necessary to address the grazing allotment in the letter.

R645-301-521.163, Plates 1-1, and 1-4, and page 1-9 as well as Appendix 1-4 in the MRP must be updated to include the Pace Canyon surface disturbance. [PWB]

Refer to Plates 1-1 and 1-4, Appendix 1-4 and Chapter 1.

R645-301-731.311, The coal mine waste remaining on the surface from the Snow Mine as well as the shaft material excavated during construction must be sampled for acid/toxic information. The plan should indicate sampling frequency and parameters to be analyzed. Page 5-49 of the application indicates that oxidized coal encountered during shaft construction will be disposed of at the Waste Rock site. The disposition of the Snow Mine coal mine waste during reclamation must be disclosed in the application. [PWB]

Refer to Section 513.400.

R645-301-121.200, (1) *The Study To Determine The Effects Of Coal Development On Wildlife In Southeastern Utah* (1979-1981; Vol. 3, App. 3-2) has the following missing pages: 1-10 and 12-14. The Permittee stated that their copy does not include the missing pages, however, agreed to place pages in their place noting the missing pages. The Permittee must add this explanation page prior to the "Abstract" (2) The Permittee describes the big game for the Pace fan site differently than illustrated on Plate 3-2 (Vol. 1). The Permittee must clarify and provide documentation that supports the statements on page 3-17 (3) The MRP states that habitat that may be "affected" will not impact the survival of amphibians. This statement was cited from Dalton (et. al 1990), but this reference is not in the reference list in the back of chapter 3 or in the appendices (Vol. 3). The Permittee must include the document in the MRP or reference the document in the reference list (4) The Permittee states that the 2004 raptor survey map is in the Division's confidential files. The Division has no record of the 2004 map. The Permittee might have meant the 2003 survey map is in confidential. The Permittee must clarify the location of the 2004 map or change the referenced year (p. 3-16) (5) The Permittee describes short-term and possible long-term impacts to two species (mollusk [*Physella virgata*] and tiger salamander) that may be dependent on local water resources. The Permittee discusses mobility and mortality of these species as well as notes that there is no documentation showing subsidence impacts these species within the permit area. The statement may lead the reader to assume that scientist have evaluated the impacts of subsidence on these species within the permit area. The Permittee must either remove these statements or provide documentation or a citation supporting the statements and projections of impacts to these species from drought and drought-related subsidence. Supporting information must supplement the associated information in section 332 (6) The MRP refers to a letter in App. 3-3 for discussion on exclusionary periods during mining activities. This letter only applies to the mitigation project implemented because of the need to drill during the exclusionary

period for the northern saw-whet owl. It does not provide general agreements to adhere to exclusionary periods for the northern saw-whet owl or other wildlife species. The Permittee must present the related paragraph (Sec. 301-358, p. 3-54) to more clearly state the intentions of the letter (7) The discussions throughout the MRP on ripping, gouging, incorporating hay during gouging or mulching are difficult to follow. In chapter three, the Permittee emphasizes ripping the soil to 6-24 inches (Vol. 1, p. 3-37) and gouging areas too steep to rip. But, later states reclamation will include gouging all areas regraded and covered with soil (Vol. 1, p. 3-49). In chapter two and App. 7-12, the Permittee emphasizes gouging and incorporating hay during gouging (App. 7-12, Attachment 2). The Permittee must clarify throughout the MRP whether the reclamation project will include ripping, gouging, applying hay during earthwork, or all three (R645-301-121.200) (8) The Permittee must reference the correct figure (5-3 not 5-4) for the reclamation timetable (Vol. 1, p. 3-34). [JAE]

1. Refer to the revisions of report submitted with TA.
2. Page 3-17 has been revised. In addition the information shown on Plate 3-2 was verified to be correct with DWR personnel on March 25, 2005.
3. See Section 322.200
4. See Section 322.200
5. Reference information previously submitted in association with SITLA Lease Amendment and subsequently is included in Chapter 3, Section 332 of this amendment.
6. See Section 358
7. Reference Reclamation Section 340 of Chapter 3
8. See Section 341.100

R645-301-124.330, The Pace fan amendment includes confidential documents (App. 4-3). The Permittee must submit all amendments that have confidential documents in two separate folders and mark the folder containing the confidential document as "Confidential". [JAE]

Request for relocating confidential documents have been submitted previously in a separate submittal. The relocation of documents will follow the approval of the submitted amendment.

R645-301-333, (1) The Pace fan and adjacent areas support both summer and winter big game habitat. The Permittee must comply with exclusionary periods during construction and reclamation phases. The general exclusionary periods are May 1 - July 1 for calving and November 1 – May 15 for wintering. The Division may remove this requirement if the Permittee can provide documentation from DWR that proves the area is not used by big game during these exclusionary periods. **(2)** The MRP states that the 2003/2004 MSO results were negative for goshawks. The survey reports do not clearly state that this species was surveyed. Although the SITLA lease project does not include surface disturbance, the Pace fan project does include 2.7 acres of disturbance. The Permittee must either conduct a ground survey for this species as well as the northern saw-whet owl or provide documentation showing this area does not support habitat for either species. The Permittee must comply with exclusionary periods if results are positive for either species during the years of construction or reclamation. [JAE]

Due to unfavorable weather conditions the ground survey and site visit were postponed. During a meeting with Leroy Mead(DWR)on March 25, 2005 the exclusionary periods were discussed and his initial response was that the construction of the fan facilities could be started in April/May 2005. However, the ground survey/site visit has been rescheduled for early April, weather permitting and DWR final decision will be made following the site visit. The DWR decisions will be forwarded to the Division as soon as they are made.

R645-301-341, The Permittee must apply adequate tackifier amounts to bring the plan to current standards. The Division recommends 60 pounds per acre or according to manufacturer instructions. [JAE]

Refer to Chapter 3, Section 341.200 (Pace Canyon).

R645-301-356.110, The Permittee must include forbs in Seed Mix #3 to more effectively replace the diversity found on the reference site. [JAE]

Refer to Chapter 3, Section 341.200 (Pace Canyon).

R645-301-356.231, The Permittee must provide proof of communications with agencies for the given stocking rates associated with Seed Mix #1 and #2. [JAE]

Reference e-mail previously sent to Jerriann discussing Seed mixes #1 and #2.

R645-301-353.250, The Permittee must specify the use of Utah certified noxious weed free hay or straw. [JAE]

Refer to Chapter 3, Section 341.200 (Pace Canyon).

R645-301-631, The permittee will be required to establish and maintain stream buffer markers during the reclamation phase to identify the limit where construction activities will take place. These areas should be identified on the reclamation map. [DWD]

Refer to the commitment in Section 521.200.

R645-301-724.310, The permittee will be required to collect stream morphology data on Pace Creek below the proposed mine water discharge site to provide baseline information. The information will be used to identify impacts to the channel from erosion over the time of discharge. [DWD]

Refer to Section 731.200.

R645-301-731, (1) The permittee will be required to submit updated information to clarify the to location and existence of hydrologic structures on respective text and maps. **(2)** The permittee should identify the locations where riprap will be placed to protect disturbed channel areas and to protect out slopes of discharge pipes. These areas should be identified on surface design maps, Plates PC5-2, PC7-4 and PC7-5. **(3)** Map PC5-2 should identify the ASCA areas on the proposed fan portal site, and the type of siltation structure to contain sediment. [DWD]

1. Refer to Plates PC7-4, 7-5 and 7-5A
2. Refer to referenced Plates PC5-2, 5-5, 7-5, updated to include riprap locations.
3. Refer to Plates PC5-2, 7-4, 7-5. The entire site is considered an ASCA, refer to Section 742.200.

R645-301-731.600, The applicant should identify that a buffer zone will be established and where the buffer zone markers will be placed and when the markers will be erected. This information should be reflected on Map PC5-2 and PC5-5. [DWD]

Refer to the commitment in Section 521.200.

R645-301-742.312, There are no designs provided for the berm shown on the west side of the new access road on Plate PC7-5. The permittee will have to provide the designs for the berm. [DWD]

Refer to Appendix 7-12, Attachment 1 .

R645-301-742.423, The Permittee shall submit plans to have adequate drainage control on roads. [DWD]

Water bars will be installed on the road, refer to Section 742.400, Plate PC 5-2, 7-5 and 7-5A.

R645-301-760, The permittee will be required to evaluate areas that have been disturbed along stream channels. Distrubed channels reaches that will receive flows with velocities greater than 5 ft/s need to be protected by riprap. These areas should be shown on the reclamation map. [DWD]

Refer to referenced Plates PC5-2, 5-5, and 7-5 updated to include riprap locations.

R645-301-830.140, The Permittee must give the Division complete reclamation costs for the Pace Canyon facilities. Items that were missing include: **(1)** Shaft closure costs (including backfilling) **(2)** Fan removal, in addition to removing the fan building **(3)** Transformer /switchgear / capacitor removal **(4)** Removal of the emergency generators, (salvage value cannot be assumed) **(5)** Removal of the fuel storage tank **(6)** Productivity calculations for earthwork. [WHW]

Refer to revisions to Appendix 5-6.

R645-301-411.143, Coal lease UTU-07064, Stipulation 4 discusses paleontological resources. During the course of earth moving activities in the Pace Canyon fan portal disturbance, the Division requests that the permittee have a registered professional geologist available to confirm, or not, the discovery of any vertebrate fossil material. [PHH]

Refer to Section 411.140.

R645-301-333, The Division recommends that the SPCC plan be amended to include the 8,000 gallon tank and recertified by a P.E. to meet the requirements of 40 CFR 112.5. Verification of this update must be submitted to the Division in the next application. [PHH]

A single copy of the SPCC plan has been submitted with this amendment as verification and a copy will be available for review at the mine facilities.

R645-301-524, If the permittee determines that the Pace Canyon fan portal intake entry will be developed through the use of conventional methods, the permittee must in accordance with **R645-301-524** submit an anticipated blast design meeting the requirements of R645-301-524.100 through 524.700. [PHH]

See Appendix 5-9.

R645-301-526.220, The permittee must include a description of the fence, including type of construction, height, length, and other information deemed pertinent to this component of the required description. [PHH]

See Section 529.

R645-301-526.222, The permittee must submit drawings, text, specifications, etc., to meet the description requirement for all of the components associated with the Pace Canyon Fan Portal surface facilities. [PHH]

Refer to Sections 521.100, 732, 733, 734 and Appendix 7-12 for sediment control methods and features and calculations.

R645-301-527.210, R645-301-742.420 et al., the permittee must develop a drainage plan to effectively drain the 550 foot roadway length such that runoff is controlled, and erosion of the road surface is minimized. [PHH]

Refer to Section 742.400, Plates 5-2, 7-5 and 7-5A.

R645-301-751, The Division requires that the permittee place a copy of the application cover letter to the DEQ/DWQ requesting an amendment to the current UPDES plan to permit the two new Pace Canyon outfalls in the next application. [PHH]

Refer to Appendix 7-6.

R645-301-761, The permittee must commit to removing and properly disposing of the gravel associated with the sediment control method utilized within the disturbed area prior to placement of topsoil for final reclamation. [PHH]

See Section 542.200.

R645-301-830.140, The permittee must supply earthwork calculations to support the backfilling and grading maps submitted with the application, such that an accurate reclamation bond amount can be determined. [PHH]

Refer to revisions to Appendix 5-6.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 2005 ~~November 2004~~

CHAPTER 1

LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION

Section 21:	SW1/4NW1/4, SW1/4
Section 28:	NW1/4, N1/2SW1/4, SW1/4SW1/4
Section 29:	All
Section 30:	E1/2, E1/2W1/2

Waste Rock Storage Facility

T. 14 S., R. 12 E., SLBM, Utah (Approximately 26.8 acres)

Section 18: Portions of NE1/4, SW1/4 and SE1/4 of the NE1/4

All of Lease ML-42648, except the E1/2 of Section 8 and the NE1/4 of Section 17, is included within the Dugout Canyon Mine permit boundary. However, only the S1/2 SE1/4 of Section 9 from Lease ML-42649 is within the permit boundary. The ten acres described in UTU-76601 are also described in UTU-77985. The U.S. Department of Interior, Bureau of Land Management (BLM) right-of-way application UTU-76601 is included in Appendix 1-3.

The disturbed area encompasses 20.31 acres (Mine Facility area, including Gilson well pad and small substation), 2.2 acres (G-2 and G-3 Degas Well), 2.7 acres (G-4, G-5 and G-6 Degas Well), 1.8 acres (Leach field/pipeline area), **2.7 acres (Pace Canyon Fan Portal)** and 26.8 acres (Refuse Pile area) totally ~~53.8~~ **56.5** acres. That acreage includes a pre- and post mining road with an area of 1.6 acres and 2.03 acres of undisturbed land within the mine facilities disturbed area and 11.2 acres within the refuse pile disturbed area.

The permit boundary encompasses approximately 7,111 acres which includes the following surface ownership and acreage: 10 acres in the BLM right-of-way, approximately 567 acres of other federal lands, 920 acres of state lands, and fee acreage of approximately 5,614 acres (Plate 1-1 and RA Plate 1-1).

Coal ownership acreage within the permit area includes approximately 2,416.14 acres of federal coal, approximately 3,225 acres of state coal, and 800 acres of fee coal (Plate 1-2 and RA1-1B). Approximately 670 acres which include the surface subsidence area, refuse pile and leach field

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
~~March 2005~~ November 2004

APPENDIX 1-4

Disturbed Area Legal Description

Waste Rock Storage Facility

T. 14 S., R. 12 E., SLBM, Utah (Approximately 26.8 acres)

- Section 18: Portions of NW1/4NE1/4NE1/4
Portions of NE1/4NE1/4NE1/4
Portions of SW1/4NE1/4NE1/4
Portions of SE1/4NE1/4NE1/4
Portions of NW1/4SE1/4NE1/4

Leachfield and Pipeline

T. 13 S., R. 12 E., SLBM, Utah (Approximately 1.8 acres)

- Section 22: Portion of SE1/4SE1/4NE1/4SE1/4
Portion of NE1/4SE1/4NE1/4SE1/4
Portion of N1/2NE1/4SE1/4SE1/4;
Portion of SW1/4NE1/4SE1/4SE1/4;
Portion of S1/2NW1/4SE1/4SE1/4;
Portion of SE1/4NE1/4SW1/4SE1/4;
Portion of N1/2SE1/4SW1/4SE1/4;
Portion of NE1/4SW1/4SW1/4SE1/4;
Portion of S1/2SW1/4SW1/4SE1/4
- Section 23: Portion of SW 1/4NW1/4NW1/4SW1/4;
Portion of SE1/4NW1/4NW1/4SW1/4;
Portion of NW1/4SW1/4NW1/4SW1/4;
- Section 27: Portion of W1/2NW1/4NW1/4NE1/4
Portion of SE1/4NE1/4NE1/4NW1/4
Portion of E1/2SE1/4NE1/4NW1/4
Portion of SW1/4SE1/4NE1/4NW1/4

Main Facilities Area T. 13 S., R. 12 E., SLBM, Utah (Approximately 20.31 acres)

- Section 23: A Portion of the following:
NE1/4NE1/4NW1/4SW1/4; NE1/4NW1/4NW1/4SW1/4;
NW1/4NE1/4NW1/4SW1/4;SW1/4SE1/4SW1/4NW1/4;
SE1/4SE1/4SW1/4NW1/4;NW1/4SE1/4SW1/4NW1/4;
NE1/4SE1/4SW1/4NW1/4;SW1/4SW1/4SE1/4NW1/4;
SE1/4SW1/4SE1/4NW1/4;NW1/4SW1/4SE1/4NW1/4;
NE1/4SW1/4SE1/4NW1/4;SW1/4NW1/4SE1/4NW1/4;
SE1/4NW1/4SE1/4NW1/4;NE1/4NW1/4SE1/4NW1/4;
SW1/4NE1/4SE1/4NW1/4;NW1/4NE1/4SE1/4NW1/4;
NE1/4NE1/4SE1/4NW1/4;W1/2SE1/4NE1/4NW1/4;
SW1/4NE1/4NE1/4NW1/4;NW1/4NE1/4NE1/4NW1/4;
NE1/4NE1/4NE1/4NW1/4
- Section 14: A Portion of the following:
SE1/4SE1/4SE1/4SW1/4;
NE1/4SE1/4SE1/4SW1/4;
NW1/4SW1/4SW1/4SE1/4

Degassification Wells (Approximately 4.9 acres)

- G-2 Degas Well, T. 13 S., R. 12 E., SLBM, Utah
Section 24: Portion of N1/2SW1/4NE1/4
- G-3 Degas Well, T. 13 S., R. 13 E., SLBM, Utah
Section 19: Portion of N1/2SW1/4NW1/4
- G-4 Degas Well, T. 13 S., R. 12 E., SLBM, Utah
Section 24: Portion of N1/2NE1/4NW1/4
- G-5 Degas Well, T. 13 S., R. 12 E., SLBM, Utah
Section 24: Portion of N1/2NW1/4NE1/4
- G-6 Degas Well, T. 13 S., R. 13 E., SLBM, Utah
Section 18: Portion of S1/2SW1/4NW1/4

Pace Canyon Fan Portal T. 13 S., R. 13 E., SLBM, Utah (Approximately 2.7 acres)

Section 30: Portion of E1/2NW1/4NW1/4

Total - 56.5 acres.

CHAPTER 2

SOILS

Fill that had been imported as part of the pad and culvert construction activities may be used as backfill against highwall and cutslopes and backfill during portal closure or in depressions to aid in the achievement of AOC. If the imported material is to be used as subsoil, it will be characterized in accordance with the Division's guidelines for topsoil and overburden. This characterization will occur at the time of reclamation.

The topsoil/growth medium salvaged at the Pace Canyon fan portal site will be characterized in accordance with the Division's guidelines for topsoil and overburden. This characterization will occur once topsoil salvage is completed. One sample will be taken from each permanent stockpile or for every 1200 cubic yards salvaged, whichever is greater.

233.300 Physical and Chemical Analyses

Physical and chemical analyses of the soil material will be conducted while generating substitute topsoil. Samples of the soils will be obtained after physical segregation has occurred. The rate of sampling will be one sample per every 500 CY (approximate) of material generated. Additional samples maybe obtained if the quality of the soils generated is questionable. This material will be analyzed for the following parameters. Reference Section 233.200 for Pace Canyon information.

- pH
- Electrical Conductivity (EC)
- Saturation Percent
- Calcium (soluble)
- Magnesium (soluble)
- Sodium (soluble)
- Sodium Absorption Ratio (SAR)
- Total Sulfur
- Acid/Base Potential
- Total Organic Carbon
- Phosphate

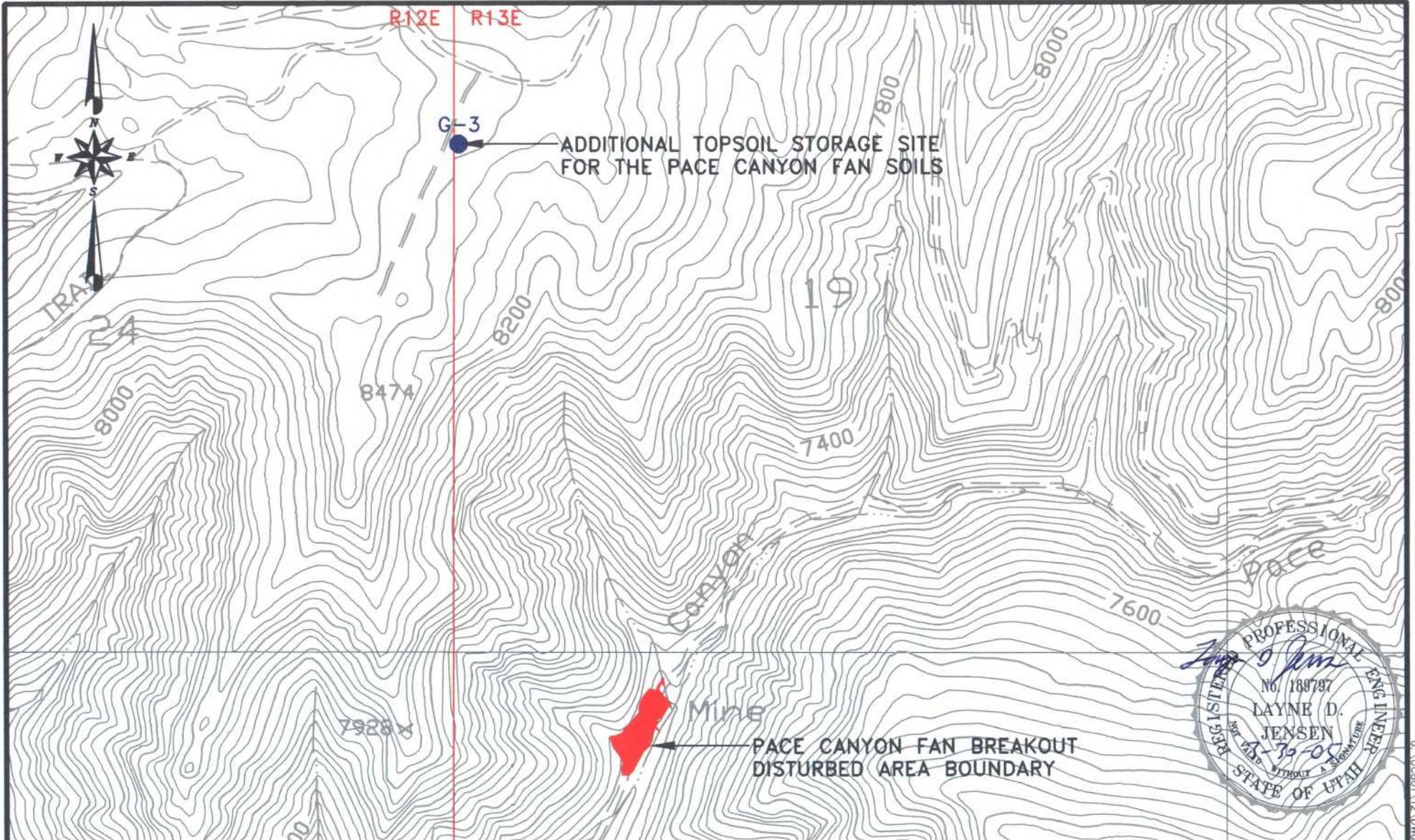


PLATE 2-3A ALTERNATE TOPSOIL STORAGE SITE

TOWNSHIP 13 SOUTH



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Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 2005 ~~January 2004~~

APPENDIX 2-3

Soil Test Pit Logs

**Dugout Canyon Mine
Pace Canyon Ventilation Project**

Soils Notes: D. Larsen (11/05/04)

The following are field notes from seven soil excavation points to evaluate soil resources at the ventilation fan and portal site in Pace Canyon. Soil pits were dug with a spade, and were intended for observation and documentation of soils available for salvage. Detailed soil descriptions were not taken. Colors are for a moist condition.

Site No. 1

Along the west side of the road near the portal site, toward the south end of the project area; toeslope between a rock ledge and the valley bottom.

0-3" 10YR3/2, very dark grayish brown; sandy loam

3-10" 10YR3/3, dark brown; loam

10-16" 10YR3/3 and 10YR3/4, dark brown with dark yellowish brown; loam

16-26" 10YR3/4, dark yellowish brown; cobbly loam

Very stony below 26 inches.

Site No. 2

At the base of the rock ledge near DUGP303; along the west edge of the project.

0-7" 10YR3/4-4/4, dark yellowish brown; stony sandy loam; weak, fine granular structure

7-14" 10YR4/4-5/4, dark yellowish brown; stony sandy loam

14" Sandstone bedrock

This site has pockets of soil intermingled with stones, boulders, and rock outcrop.

Site No. 3

Waste coal pile near the proposed fan site on the west side of the road; near the center of the pile.

About 36 inches of waste coal fragments that are mostly less than three inches in diameter. This appears to be about the maximum thickness of the coal and it decreases toward the edges. Underlying soil is yellowish brown sandy loam.

Site No. 4

At the geotechnical stake identified as Soil Hole #3; near the fan site on the west side of the road; toeslope.

0-3" Mixed soil and waste coal

3-33" 10YR3/3-4/3, dark brown to brown; sandy loam; weak, fine granular structure approaching structureless, massive; less than 5 percent rock fragments.

33-36" 10YR4/4, dark yellowish brown; loam to sandy loam; appears cobbly(hit larger rock fragments)

About 33 inches of suitable soil for salvage. The three inch layer with coal in it could be mixed with the soil being salvaged

Site No. 5

Along the canyon bottom between the road and the stream in a maple thicket. This site is below the fill area and appears to have undisturbed soils. Digging with a spade was limited due to high rock fragment content. The site has been used as a bedding area by cattle.

0-14" 7.5YR2.5/2, very dark brown; cobbly loam; high organic matter content

14-18" 7.5YR3/2, dark brown; cobbly to stony loam

Lighter colored subsoil was not encountered at this spot. The bottom is very stony and appears to have pockets of organic rich soils and spots that are extremely high in rock fragments.

Site No. 6

About 20 feet south of a stake identified as DUGP103; off from the west edge of the road.

0-3" Black waste coal

3-8" 10YR3/3-3/4, dark brown to dark yellowish brown; sandy loam

8-12" 10YR3/4, dark yellowish brown, with 7.5YR4/6, strong brown burned rock fragments; gravelly sandy loam; very firm

12-36" 10YR3/3-3/4, dark brown to dark yellowish brown; sandy loam; very few rock fragments.

36+" Yellowish brown cobbly loam subsoil.

Site No. 7

About 20 feet north of a stake identified as DUGP103; at the west edge of the road near the north end of the project site.

0-11" 10YR3/2, very dark grayish brown; sandy loam; weak, fine granular structure.

11-24" 10YR4/3-4/4, brown to dark yellowish brown; sandy loam to loam; few rock fragments.

24-28" 10YR4/4-10YR5/4, dark yellowish brown to yellowish brown; cobbly loam.

About 24 inches of suitable surface soil.

Comments:

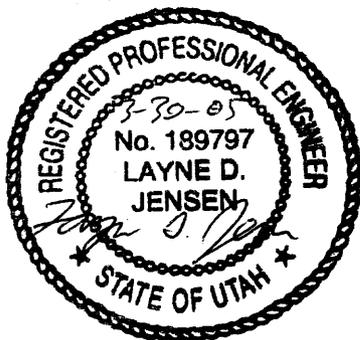
Much of the surface is high in rock fragments including stones and a few boulders. Soil pits were dug where the least amount of rock fragments were present. There is good supply of soil that is suitable for reclamation although waste coal, large rock fragments, road surface, and subsoil fill material will reduce the average compared to some of the thicknesses noted at the soil pits. Suitable soils for salvage have a very dark grayish brown to dark yellowish brown color and generally less than 30 percent rock fragments. High calcium carbonate layers (calcic) were not encountered, and no soil features not considered representative of this site were identified. No root restricting layers were noted although there was a reduction in roots with depth and as the soil color became lighter and rock fragment content increased. Bedrock appears to be near the surface only near the rock ledges along the west side of the project area.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 2005

APPENDIX 2-9

Pace Canyon Fan Facilities
Topsoil and Storage Pile Calculations



Topsoil Calculations

General

- The outslopes of the topsoil stockpiles and berms are assumed to be 2:1. The angle of repose for soils in this area are in excess of 50°. Thus, the assumption is valid. Topsoil stockpiles for the Regas holes have successfully been built using 1:1 slopes.
- This site has been previously disturbed. Thus, topsoil resources are limited. One foot of topsoil will be stripped and stockpiled from areas impacted by construction with the exception of the current road area and areas only temporarily disturbed. Such as the area impacted by portal construction. (See Plate PC7-5A)
- Berms will be constructed of subsoil not topsoil.
- Topsoil stripped from temporarily disturbed areas will be stockpiled separately. This topsoil will be protected with silt fences until it is replaced, mulched, gouted and reseeded. These areas include the area above the portal and channel diversion area.

$$\text{Ave. topsoil depth} = 12''$$

$$\text{Area to be stripped of topsoil} = 57,460 \text{ ft}^2$$

$$\text{Volume of topsoil} = (57,460 \text{ ft}^2)(1 \text{ ft}) = 57,460 \text{ ft}^3 = 2128 \text{ CY}$$

The Average End Area method will be used to estimate the volume in the topsoil stockpiles. The areas used in the calculation were generated in AutoCad using 1 Foot contours

Shaff Area Topsoil Stockpile

<u>Elevation (ft)</u>	<u>Area (ft²)</u>	<u>Volume (ft³)</u>
7028	0	114
7029	228	315
7030	401	479
7031	558	607
7032	655	740
7033	826	871
7034	916	964
7035	1011	989
7036	967	928
7037	890	840
7038	790	733
7039	675	618
7040	562	554
7041	547	545
7042	543	542
7043	541	538
7044	535	537
7045	539	521
7046	503	488
7047	473	461
7048	449	440
7049	430	420
7050	410	386
7051	363	337
7052	310	289
7053	269	251
7054	233	218
7055	202	186
7056	170	153
7057	137	124
7058	110	96
7059	83	

15,284 ft³ = 566 CY

Portal Area Topsoil Stockpile

<u>Elevation (ft)</u>	<u>Area (ft²)</u>	<u>Volume (ft³)</u>
7016	6	59
7017	117	197
7018	278	326
7019	374	397
7020	420	447
7021	473	507
7022	542	580
7023	617	656
7024	695	742
7025	789	888
7026	986	1016
7027	1046	1071
7028	1096	1158
7029	1220	1311
7030	1402	1417
7031	1433	1371
7032	1309	1237
7033	1165	1091
7034	1017	940
7035	867	785
7036	706	624
7037	541	460
7038	379	
		<u>17,280 ft³ ⇒ 640 CY</u>

Total Stockpile capacity = 566 CY + 640 CY = 1206 CY

1206 CY < 2,128 ∴ 922 CY will need to be hauled to an alternate storage site.

CHAPTER 3

BIOLOGY

Migratory and Song Birds

Birds were studied during the 1979 - 1980 UDWR transect study. However, a more extensive study was done by Hayden-Wing Associates in 1984. Their report can be found in Appendix 3-3.

Reptiles and Amphibians

Increasing elevation rapidly reduces the number and kind of reptiles and amphibians. Furthermore, in Utah the effects of the more northern latitude reduces the number of herptiles in much the same way as does the increase in elevation.

These geographical and associated climatic factors have eliminated most desert species, leaving species that are adapted either to mountain habitats or montane type habitats. Based on extensive literature review and limited field work, it was determined that potentially 8 species of amphibians and 18 species of reptiles inhabit the area. Of these species only 5 were recorded by the UDWR in 1980: Eastern fence lizard, Sagebrush lizard, Tree lizard, Short-horned lizard, and the Gopher snake. A WESTECH biologist observed two other species in 1979, the Western whiptail and the Midget faded rattlesnake. All amphibians and reptiles are legally protected, but since the species listed are all widespread throughout the mountains of Utah, none are treated as high-interest species. It is doubtful that the proposed action would seriously impact populations, but localized individuals may be involved in habitat destruction due to subsidence. An exception to this would be if subsidence caused drying of present wet habitats essential to reproduction. Refer to Section 332 for a discussion of "Possible Short-Term and Long Term Impacts to Species Dependent on Springs, Creeks and Drainages".

Pace Canyon

Wildlife indigenous to the general area of the project include amphibians, reptiles, birds and mammals. **A copy of the 2004 raptor survey map for the area is included in the 2004 Annual Report.** in Appendix 3-3 (~~moved to confidential folder February 2005~~). Calling surveys of the area were also done in 2003 and 2004 for the Mexican spotted owl (Appendix 3-3).

Amphibians - There are six common species of amphibians known to occur within the general area (mesic area). These species could be present within the Pace Canyon area, but their occurrence is doubtful due to arid conditions that prevail over the majority of the area. ~~The pinyon/juniper and sagebrush/grass areas that make up most of the affected habitat are not considered important or limiting to their survival (Dalton et al, 1990).~~

Reptiles - There are ten species of reptiles known to inhabit the region. The limited acreage of disturbance, however, should not be considered a threat to these species, due to the abundance of pinyon and juniper habitat, as well as sagebrush and grass habitat throughout the area.

Birds - There are approximately 185 bird species that could either be potential yearlong residents or frequent the site during portions of the year. Of these, loggerhead shrike (BLM Sensitive species) and raptors are discussed below.

An survey of the fan portal area indicated no nesting loggerhead shrikes, *Lanius ludovicianus*, near the proposed roads. This species is dependent upon the broad, open sagebrush and grass plain, as well as the presence of widely spaced pinyons and junipers. A summary of the inventory conducted for this species and a negative determination of its presence is included in Appendix 3-4 (BLM EA, UT-070-2003-55).

Raptor surveys, completed in May of 2004 by the UDWR, revealed a number of raptor nest sites on the open lower benches and cliff faces in and surrounding Pace Canyon. Two inactive golden eagles (*Aquila chrysaetos*) nests on the outer edge of one mile radius from the fan site were inventoried in 2004 (Section 24, R12E T13S) and two potential raven nests were located in previous years in Section 23, R12E T13S.

The 2004 spring inventory identified no active and or tended Golden Eagle nests within a 1/4 mile of the proposed site. An inventory in 2002, 2003 and 2004 for Mexican Spotted owl and Goshawk did not reveal the presence of these species within the fan project area.

Mammals - Ninety-two (92) species of mammals have the potential to inhabit the region. Of these, the following species; mule deer, *Odocoileus hemionus*, elk, *Cervus elaphus* and pronghorn antelope, *Antilocapra americana*, have been identified to live within or adjacent to the affected area.

As shown on Plate 3-2, the area of the fan site is designated summer range for mule deer and year-long range for elk. ~~high priority winter ranges located on the lower elevation benches below the site, as well as year-long range located on the lower elevation foothills below the Book Cliffs.~~

~~Elk high priority winter ranges are found on the higher elevation benches above the fan facilities surface area and lease area. No winter range is located within the area of the surface facilities or roads.~~

Pronghorn antelope occupy the salt desert shrub habitat of the lower elevation ranges along the Clark Valley Road. This habitat is classified as high priority year-long range for pronghorn.

Threatened and Endangered Plant and Wildlife Species. Passage of the Endangered Species Act of 1973 (Public Law 23-20S) provided the legal basis for establishment of lists of endangered and threatened plant and wildlife species (-Appendix 3-3).

Although three species (black-footed ferret, bald eagle, and peregrine falcon) on the list could potentially inhabit the area, an inventory of endangered wildlife species performed in 1979 by the UDWR recorded no threatened and endangered species within the proposed permit area. No confirmed sightings of black-footed ferrets have occurred within Carbon County during 1995, 1996, and the first quarter of 1997, however bald eagles have been seen flying in the vicinity of the mine (Bill Bates, UDWR).

A literature review and field studies for both the Soldier Canyon and the Sage Point - Dugout Canyon permit documents were performed to assess the possible presence of any threatened, endangered, or sensitive plant and wildlife species in the respective permit and adjacent areas.

proper seedbed preparation to encourage rapid plant establishment, inclusion of rapidly establishing species in the seed mixture to be planted, and mulch application.

The long-term goals are to establish useful, productive range and wildlife habitat. These goals will be attained through the selection and placement of desirable and productive plant species, and a commitment to monitor and maintain revegetated areas throughout the bond liability period.

341.100 Schedule and Timetable

The reclamation timetable is outlined in Figure ~~5-3~~ 5-4. The reclamation monitoring schedule is outlined in Table 3-3.

The planting of seeds and seedlings will be undertaken at the most feasible time following disturbance activities. Planting will begin after the plant growth medium has been replaced. Final reclamation grasses, forbs, shrubs, and seedlings will be planned for planting in late August through early October. Should the planting window close prior to completion of seeding, a sterile, quick growing ground cover will be planted to control erosion during the winter months. The final reclamation seed mixture will be planted the following spring and fall.

341.200 Descriptions

Species and Amounts of Seed. All revegetated areas within the disturbed area boundary will be planted with the seed mixes listed below:

Interim Seed Mix (Drilled Quantities)

<u>SPECIES</u>	<u># pls/acre</u>
Indian ricegrass	2
Western wheatgrass	3
Slender wheatgrass	3
Thickspike wheatgrass	4

The rate of seeding per acre when broadcast will be doubled of the rate of seeding when drilled.

Final Reclamation Seed Mix #3 (Broadcast Quantities)

<u>SPECIES</u>	<u># pls/acre</u>	<u># pls/sq. ft.**</u>
Grasses, Forbs, and Shrubs		
Salina Wildrye (379,500 seeds/lb)*	2.5	22
Indian Rice Grass (162,000 seeds/lb)*	3.5	13
Galleta Grass (150,000 seeds/lb)*	3.5	12
Muttongrass (2,000,000 seeds/lb)*	0.5	23
Mtn. Snowberry (54,000 seeds/lb)*	4.0	5
Wyoming Big Sage (2,500,000 seeds/lb)*	0.5	29
Rocky Mountain Penstemon (260,000 seeds/lb)*	0.5	14
Yarrow (2,770,000 seed/lb)*	0.1	6
Louisiana Sagewort (3,000,000 seed/lb)*	0.1	6
TOTAL	15.2	130

* Native Plants

** Rounded nearest whole seed

Seed Mix No.1 will be used on the majority of the Dugout Canyon disturbed area (Pinyon-Utah juniper - upland very steep shallow loam, Plate 3-1A) . Seed Mix No. 2 will be used to reseed the riparian area of Dugout Creek (Plate 3-1A). Hydrophytic vegetation will be planted during the low flow of the reclamation channel. Seed Mix No. 3 will be used to reclaim the Pace Canyon Fan Portal facilities. Although, native forbs were found in the reference area for the proposed Pace Canyon disturbance, the species were not readily available for purchase, therefore they have not been included in the seed mix.

Productivity sampling will involve use of a sample random technique whereby 1 to 2 m² plots (rectangular in shape) will be clipped by life form for all current annual production. Sample parameters determined for these variables will be used to test the success of revegetation during each of these years and will prove establishment of adequate cover, suitable productivity, reasonable density, and adequate species composition.

The estimated parameters for the variables of ground cover, herbaceous productivity, and woody plant density will be obtained in a statistically-adequate manner. Refer to Section 356.200 for a discussion on revegetation success standards.

The revegetative success standard for cover in the Pinyon-Juniper area is 66% and 85% for the riparian area in Dugout Canyon.

Pace Canyon

Method Used for Planting and Seeding. The surface will be ripped to approximately 18 inches. On slopes too steep for ripping the soil materials will be at a minimum pocked/gouged.

Following ripping, a minimum of 12" of topsoil/growth medium will be applied to the ripped surface and left in a roughened state. One ton of certified noxious weed free hay/straw per acre will be crimped into the topsoil. The surface will then be pocked and gouged, the pocking will be done with the bucket of a backhoe, the holes(pocks) will be approximately the width and depth of the bucket. The area soils will then be sprayed with Seed Mix #3 mixed with a small amount of wood fiber mulch by hydroseeding equipment. Following the seeding the area soils will be sprayed with wood fiber mulch (one ton per acre) mix with tackifier (60 lbs. per acre). Mulching and revegetation will not be attempted on sheer rock outcrops.

Success of revegetation and stabilization of the fan portal facilities area will be evaluated during each growing season as outlined on Table 3-3, when cover and compositions studies are most feasible. Sample parameters determined from reference area data will be used to test the success

357.200 Vegetative Parameters

Vegetation parameters will equal or exceed the approved success standard during the last 2 years of the responsibility period. The success standards are outlined in Section 356.

357.300 Husbandry Practices

SCM will comply with Division-approved husbandry practices which will be normal conservation practices within the region of the mine. These practices may include disease, pest, and vermin control; and any pruning, reseeding, and transplanting required.

358 Protection of Fish, Wildlife and Related Environmental Values

SCM will minimize disturbances and adverse impacts on fish, wildlife, and their related environments as outlined in Section 333.

The intermittent flow of streams within the lease area does not support a population of game fish; therefore, there are no fisheries within the disturbed area to protect. In addition, the streams in Pace and Rock Canyons have intermittent flow and do not support a population of game fish. See Chapter 7 of this M&RP for methods to protect water sources in the area.

Proposed surface disturbance associated with mining activities will be reviewed by the DWR and UDOGM in reference to wildlife exclusionary periods. ~~A see letter in Appendix 3-3 concerning mitigation for drilling disturbance in 2004 - 2006 is located in Appendix 3-3.~~

358.100 Existence of Endangered or Threatened Species

Coal mining will not be conducted where it's operation might jeopardize the existence of any endangered or threatened species. The mining of coal will not result in the planned destruction or adverse modification of these species critical habitat, unless approved by appropriate agency(ies).

Any state or federally listed endangered or threatened specie will be reported to the Division upon its discovery. A ground nest survey for raptors and bird species of special interest was performed prior to site disturbance by a qualified person. A letter report of the ground nest survey is included

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
~~November 2004~~ March 2005

APPENDIX 3-2

UDWR Report

The Study to Determine the Effects of Coal development on Wildlife in Southeastern Utah
(1979 - 1981)

Pages 1-10 and 12-14 are missing from this document. When copied the document did not have these pages and the pages are currently assumed to be blank.

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CHAPTER 4

LAND USE AND AIR QUALITY

CHAPTER 4 LAND USE AND AIR QUALITY

410 LAND USE

This section of the permit application includes descriptions of the premining and proposed postmining land use(s). Additional information can be found in the following amendments: Methane Degassification Amendment (August 2003), Refuse Pile Amendment (February 2003), and the Leachfield Addendum A-1 (March 2001). The remainder of the State Lease ML-48435-OBA (SITLA Lease) was incorporated into the Dugout Canyon Mine permit area in 2005.

411 Environmental Description

A statement of the conditions and capabilities of the land to be affected by coal mining and reclamation operations follows in this section.

411.100 Premining Land Use

The permit area has been primarily utilized as rangeland for livestock and wildlife habitat. Some crops related to the livestock industry have been developed along the creek bottoms adjacent to Soldier Creek Road. However, no crops have been raised within the permit area. Recreational use of the permit area is limited due to lack of access through private property.

The predisturbed area boundary outlined on Plate 5-4 reflects disturbance prior to 1965. The boundary was compiled from a 1980 map of the pre-mining topography prepared by Eureka Energy Company. According to historical data the Dugout Canyon area was last mined in 1964.

411.110 Land Use Map

Plate 4-1 designates the prominent land uses within and adjacent to the permit boundary. **Pace Canyon has a corral just above a locked gate in Section 25, Township 13 South Range 12 East (Plate**

4-1). The main livestock watering source is Pace Creek and its tributaries in Sections 19, 20, 21 and 22, Township 13 South Range 13 East (Plate 4-1) and the Clark's Valley Reservoir, approximately 3 miles southwest of the Pace Fan Portal site (outside of area covered by Plate 4-1).

411.120 Land Capability

The area surrounding Dugout Canyon supports a variety of land uses including industrial, agricultural, and recreational. Carbon County has zoned the permit area for mining and grazing.

Energy resource development occurs throughout the region in the form of coal mining, oil and gas production and tar sands development. A methane gas recovery operation was formerly running in conjunction with the Soldier Canyon Mine which lies west of the Dugout Canyon Mine permit boundary. The Soldier Canyon Mine has been in operation since 1976.

The major plant communities in the Dugout Canyon lease area are identified in Section 321. No cultivated lands lie within the permit boundary, due to the limiting terrain and lack of water for irrigation. Refer to Section 321.100 for forage production per acre.

The permit area is used for grazing cattle, but sheep have grazed in the area previously. Valley bottoms receive little grazing due to their limited forage and narrowness except in the vicinity of water sources. Steep slopes receive limited grazing pressure from livestock because of the steep inclines and the lack of water. Flatter mesa tops and rolling terrain receive heavier pressure because of easier movement by livestock and more available forage. Grasses are preferred forage for cattle; however, cattle will eat forbs and shrub species.

The use of land for grazing is dictated by the condition of and access to the specific areas. At the land owners discretion land may be used for grazing one year and not used again for five years. However grazing should continue to be considered a potential land use for the permit and adjacent areas.

The permit area supports limited recreation due to inaccessibility to privately owned lands.

is addressed to Kenny Wintch, the SITLA Archeologist and a copy has been sent to Mr. Dykman at SHPO. The letter states " No sites eligible for nomination to the National Register of Historic Places have been found in or adjacent to the permit expansion area. It is very unlikely that future survey will reveal sites eligible..... Furthermore all activity will be underground with no surface disturbance. For these reasons a finding of "no effect on historic properties" is appropriate and archeologic clearance without stipulations is recommended."

Cultural and Historic Resource Maps. Maps and photographs for the evaluated cultural and historical sites are contained in the confidential folder.

There are no cemeteries, public parks, or units of the National System of Trails or the Wild and Scenic Rivers System located within the Dugout Canyon Mine permit boundary. The National Register of Historic Places was consulted by AERC and no registered historic or prehistoric properties will be affected by the proposed mine development.

SCM agrees to notify the Division and SHPO of previously unidentified cultural resources discovered in the course of mining operations. **Arch Coal Company has a register professional geologist on staff assigned to Dugout Canyon Mine available to confirm vertebrate fossil material discovered during earth moving activities during construction of the Pace Canyon Fan Portal site.** SCM also agrees to have any such cultural resources evaluated in terms of NRHP eligibility criteria. Protection of eligible cultural resources will be in accordance with Division and SHPO requirements. SCM will also instruct its employees that it is a violation of federal and state laws to collect individual artifacts or to otherwise disturb cultural resources.

Coordination with State Historic Preservation Officer. AERC contacted SHPO concerning the Dugout Canyon Mine site and a copy of their report was forwarded to SHPO. The National Register of Historic Places was consulted by AERC and no registered historic or prehistoric properties will be affected by the proposed mine development.

411.200 Previous Mining Activity

Coal mining has occurred within Dugout Canyon since 1925. D. J. Collins prospected for and initially hand-developed the Red Glow Mine in the Gilson seam on the east side of Dugout Canyon in 1925. The west side of Dugout Canyon was first mined in 1952 by E.S.O. Coal Company when they mined the Rock Canyon seam.

3-3. Since the disturbed area is privately owned the timing and extent of use for grazing will be made after reclamation by the landowner.

412.200 Land Owner or Surface Manager Comments

The land surface within the permit boundary is owned by various entities, including the State of Utah and Canyon Fuel Company, LLC (CFC). The disturbed area is on surface lands owned by both CFC and the State.

The leases contained in Appendix 1-1 list responsibilities accepted by CFC in regard to the State of Utah's lands within the permit boundary. The leases contain requirements concerning use and maintenance of their administered lands. CFC is obligated by these leases to notify the Division for their determination as to whether this mining operation will be detrimental to the State of Utah's interest. By submitting this M&RP, CFC is indicating that the operation will not be detrimental to the State's interests and the obligation is being met. A letter of affirmation from the State of Utah concerning proposed land use is included in Appendix 4- 2.

The Bureau of Land Management (BLM) Right-of-Way application (UTU-76601) in Appendix 1-3 lists the responsibilities accepted by CFC concerning the BLM lands included in the permit boundary. A letter from the BLM concerning proposed land use for Pace Canyon Fan Portal area and UTU-76601 will be included in Appendix 4-2.

Refer to Chapter 1 for responsibilities CFC accepts in association with Federal Lease U-07064-027821.

For clarification as to relationship of SCM to CFC, refer to Section 112.

412.300 Suitability and Capability

Final fills will not contain excess spoils.

413 Performance Standards

The performance standards for the areas to be reclaimed for postmining land use are contained in this section.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 2005 ~~November 2004~~

APPENDIX 4-2
Land Uses



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Price Field Office
125 South 600 West
Price, Utah 84501
www.ut.blm.gov



IN REPLY REFER TO:

3482

U-50722, SL-051279-063188

U-07064-027821, UTU-69635

(UT-070)

MAR 03 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Certified No. 7003 1010 0005 2128 9823

MAR 14 2005

Erwin Sass
Dugout Canyon Mine
Canyon Fuel Co., L.L.C.
P.O. Box 1029
Wellington, Utah 84542

Subject: Post-Mining Land Use for the Pace Canyon Fan Project (T. 13 S., R. 13 E., Section 30, Federal Coal Lease U-07064-027821), Permit Amendment C/007/039, February 2005.

Dear Mr. Sass:

The Bureau of Land Management (BLM) has reviewed your plans for reclamation and post mining land use of the above subject area. The BLM concurs with the post-mining reclamation and land-use plans proposed for the effected lands as stated in the Permit Application Package for the Dugout Mine C/007/039. Post-mining land use would be wildlife habitat, livestock grazing and incidental recreational use.

The BLM should be notified in the future if your plans are modified regarding the reclamation or post-mining land use for the area. Additionally, please notify the BLM when reclamation work is performed at the conclusion of this activity.

If you have any questions, please contact Mr. Stan Perkes at 801-539-4036

Sincerely,

Jan Patrick Gubbins
Patrick Gubbins
Field Manager

cc: USO-Chief, Branch of Solid Minerals

CHAPTER 5
ENGINEERING

513.400 Refuse Piles

Waste rock generated from the Dugout Canyon Mine may be temporarily stored on the surface of the mine site at the location shown on Plate 5-2. This storage will be for a short period of time prior to disposal. Refer to the "Refuse Pile Amendment, February 2003 for information pertaining to the Dugout Mine refuse pile. High-ash coal product may also be produced during mine construction and development. This material may also be transferred to Sunnyside Cogeneration Associates (ACT/007/035) or a similar permitted facility. Runoff from the surface-stored materials will drain to the site sedimentation pond or other appropriate sediment-control structures.

A representative sample will be collected of the waste rock removed from the mine at a rate **designated in the Refuse Pile Amendment, Section 536.** ~~of one sample per 2,000 cubic yards of waste-rock material.~~ These samples will be analyzed in accordance with Table 6 of the Division's topsoil and overburden guidelines (Leatherwood and Duce, 1988). Waste rock with acid- and toxic-forming characteristics will be handled in accordance with the permits associated with the disposal locations.

Small quantities of coal mined during the life of the Snow Mine lie in two surface locations (Plate PC5-4) within the Pace Canyon Fan Portal disturbed area. The coal from the two areas will be collected and disposed of at the Dugout waste rock site. A sample will be collected from each location and analyzed in accordance with Table 6 of the Division's topsoil and overburden guidelines (Leatherwood and Duce, 1988). Coal from the site with acid- and toxic-forming characteristics will be handled in accordance with the permits associated with the Dugout waste rock site.

513.500 Underground Openings to the Surface

Upon abandonment, each opening to the surface from the underground will be capped, sealed, backfilled, or otherwise properly managed in accordance with 30 CFR 75.1771. Details regarding final abandonment of mine openings are provided in Section 542.700.

Cross sections of the proposed surface facilities are provided on Plate 5-3 and Figure 7-9-2 (Appendix 7-9). The disturbed area shown on Plate 5-2 is the same as the land area for which a performance bond or other guarantee has been posted.

Under the currently approved construction plan, several areas within the existing disturbed area boundary will not be significantly disturbed during site construction. The first such area consists of 0.08 acres located on the hillside west of the portal pad, north of the substation access road, and east of the storage area adjacent to that road. The second such area consists of 0.13 acres located on the hillside above the mine haulage/manway portal. Each of the above areas is located on a hillside above the area of actual disturbance.

Plate PC5-2 in Appendix 5-10 shows the layout of the Pace Canyon Fan Portal Site. Cross sections of this facility are also shown on this map. Figure PC-2 in Appendix 5-10 depicts the Gilson seam mine planned workings. (February 2005). Facilities at the Pace Canyon Fan Portal Site will include:

- Portal - see Section 529,
Fan Shaft - 20 foot diameter shaft, 60 to 70 feet deep,
Fan and motor building - metal structure containing a fan,
Transformers - metal structure sitting within a concrete containment structure,
Emergency Generators - two trailer mounted generators sitting within a concrete containment structure,
Fuel Storage Tank - Tank sitting within a concrete containment structure adjacent to the generators,
Topsoil Storage Piles,
Sediment Trap - see Appendix 7-12.

The pad will accommodate the mine fan, associated ducting and motor building, diesel generators, transformers, fuel storage tank, and intake portal which will also accommodate an escape way.

Transportation Facilities. Roads that will be constructed, used, or maintained by SCM in the permit area for the mining and reclamation operations are shown on Plate 5-2. No rail systems or overland conveyor systems (other than the material-handling conveyors in the mine yard) will be associated with the permit area. Drainage structures associated with the roads are discussed in

Section 752.200 of this M&RP. Typical cross sections of the primary roads are provided on Figure 5-1. Refer to Sections 527.100 and 527.200 for additional information concerning roads to be used during the mining operation. As shown on Plate PC5-2 the existing road in Pace Canyon will be realigned to allow construction of the facility. **However, after construction is complete the realigned road will be treated the same as the rest of the private road.** A typical cross-section of the realigned private road is provided in Appendix 5-10.

A draft environmental assessment (EA) was prepared by the BLM for the Pace Canyon Fan facilities, however OSM and BLM determined a final EA was not required (e-mail, January 24, 2005). BLM comments associated with the proposed fan facilities will be submitted to UDOGM following their review of the M&RP (Personal communications, January 31, 2005, between Vicky Miller (Canyon Fuel Company), David Spillman (Dugout Canyon Mine) and Stan Perks (BLM).

Three material handling conveyors will be constructed on the surface at the mine site. As noted on Plate 5-2, the mine conveyor will transport coal from the mine to the coal stock pile. The reclaim belt will convey coal from the stock pile (via a reclaim tunnel) to the crushing facility. The loadout belt will convey coal from the crusher to the truck loading bin, from which the coal will be loaded into trucks for off-site transport. Each conveyor will be of sufficient size to handle the production levels coming from the mine and the anticipated truck loading rates. Conveyor widths will range from 42 to 60 inches.

Other Relevant Information. Information regarding the BLM surface lease in NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 23, T. 13 S., R. 12 E. is provided in Appendix 1-3. A legal description of the permit boundaries is provided in Section 114 of this M&RP.

521.200 Signs and Markers

Mine and Permit Identification Signs. A mine and permit identification sign will be displayed at the point where the county road ends and the private road enters the surface-facilities area, and at all other possible entrances to the mine site. This sign will be a design that can be easily seen

and read, will be made of durable material, will conform to local regulations, and will be maintained until after the release of all bonds for the permit area. The sign will contain the following information:

- Mine name,
- Company name,
- Company address and telephone number,
- MSHA identification number, and
- Permanent program permit identification number as obtained from the Division.

Perimeter Markers. The perimeter of all areas affected by surface operations or facilities will be clearly marked before beginning mining activities. The markers will be a design that can be easily seen and read, will be made of durable material, will conform to local regulations, and will be maintained until after the release of all bonds for the permit area.

Buffer Zone Markers. Stream buffer zone markers will be placed adjacent to Dugout Creek within the disturbed area noted on Plate 5-2 (i.e., at the up- and downstream ends of the Dugout Creek bypass culverts). Each buffer zone marker will be a design that can be easily seen and read, will be made of durable material, will conform to local regulations, and will be maintained until after the release of all bonds for the permit area.

The Dugout Creek markers will be placed adjacent to the stream channel at points where roads enter the disturbed area and in other areas where the stream channel is exposed within the disturbed area. If reaches of the channel in excess of 100 feet in length are exposed within the disturbed area, multiple signs will be placed along those reaches at intervals such that each subsequent sign can be seen from a previous sign.

Markers will parallel Pace Creek on the disturbed area boundary associated with the Pace Canyon Fan facilities. Markers will be easily seen and read, will be made of durable material, will conform to local regulations, and will be maintained until after the release of all bonds for the Pace Canyon Fan facility disturbed area. Multiple signs will be placed along creek reaches at intervals such that each subsequent sign can be seen from a previous sign.

with the associated contaminated soil and disposed of at a state-approved facility that is permitted to receive such waste. Adequate spill collection materials (including absorbents to stop or contain contaminants that may enter a stream) will be readily available at the site during these activities to contain any such spills.

During construction and other activities at the site, wet concrete will not be allowed to enter or come into contact with stream flows. Any water at the site which is contaminated with wet concrete or other contaminants will not be discharged into stream channels. Concrete trucks and other equipment used in the mixing and placement of concrete will be washed in areas well away from stream channels.

The air shaft constructed at the Pace Canyon Fan site will either be lined with concrete or steel.

526.200 Utility Installation and Support Facilities

Utility Installations. All coal mining and reclamation operations will be conducted to minimize damage, destruction, or disruption of services provided by electric lines, telephone transmission stations, water lines, and sewer lines which pass over, under, or through the permit area. Areas where these utilities will be located are within non-subsidence zones. No other utility installations exist in the permit area. All utility installations associated with the Dugout Canyon Mine will be removed following mining in accordance with the reclamation plan discussed in Section 540 of this M&RP.

At the Pace Canyon Fan facilities, the fan will operate on electricity transported through the mine. A building with a concrete floor and side walls would be constructed to house the fan's backup diesel generators (fuel tanks hold 1,250 gallon a piece) and a 8,000 gallon diesel fuel storage tank. The concrete building is designed to contain the contents of the 8,000 gallon diesel tank and the spillage of other hydrocarbons within the building (refer to Section 526.200 for cleanup and disposal information). The diesel generators would be linked to the fan via conduit capable of housing the electrical supply and relay devices.

As noted previously in this section, temporary storage of debris generated at the mine will be in a dumpster. As a result, this debris will be protected from the wind and other elements. Because debris that is generated at the mine site will be only temporarily stored at the mine prior to off-site disposal, there is no significant potential for this debris to spontaneously combust. Fire extinguishers will be kept on mobile equipment in the mine yard to extinguish any fires should combustion of the waste materials occur. No waste materials that constitute a fire hazard will be accumulated in the permit area. No hazardous materials, as defined in 40 CFR, will be disposed of underground. These materials will be disposed of in accordance with all applicable state and federal regulations.

528.400 Dams, Embankments, and Impoundments

No dams, embankments, or impoundments will be used for the handling or disposal of coal, overburden, excess spoil, or coal mine waste in the permit area.

529 Management of Mine Openings

It is currently anticipated that five underground mine openings will be associated with the Rock Canyon and Gilson Seams. A portal and shaft will be constructed into the Gilson seam at the Pace Canyon Fan Portal Site (see Plate PC5-2 in Appendix 5-10). The primary purpose of the shaft and portal will be for ventilation. The portal will also be used as an emergency escape way. A fence will be installed to surround the Pace Canyon Fan facilities to assist in managing the mine openings, refer to Figure PC-3 in Appendix 5-10 for the approximate location of the fence. **Two types of fence may be used at the Pace Canyon site, both fences will be eight feet tall, one will be constructed of chain link, the other will be field fence. The field/wildlife fence will be constructed per BLM specifications, with a smooth wire on the top and rows of barb wire between the fence material and smooth wire. Since the facilities are behind a locked gate, barb wire is optional for the top of the chain link.** Should additional protection become necessary at the Pace Canyon Portal opening, a gate across

facilities to the downstream end, thus allowing the sedimentation pond and sediment traps to remain effective for as long as possible.

At the Pace Canyon Fan Portal facilities the gravel associated with sediment control of the site will be placed in the shaft for disposal during reclamation of the site. The Hilfiker wall will be constructed using on-site material. Soil at the site will be screened to collect rock which will be used to fill the wall. During reclamation the steel mesh used to build the wall will be recycled or placed into the shaft during backfilling. The rock and soil used to build the will be used as fill during reclamation.

Construction of Reclamation Channels. Reclamation channels will be constructed at the locations shown on Plate 5-5 for the Dugout Canyon facility and Plate PC7-7 in Appendix 7-12 for the Pace Canyon Fan Portal Site. These channels will be constructed to capture runoff from undisturbed areas and convey this runoff to and through Dugout Creek or Pace Creek. Details regarding the design and construction of these channels are provided in Section 760 of this M&RP.

As noted on Plate 5-5, slopes adjacent to the reclaimed Dugout Creek have typically been designed with a grade of 2H:1V. These slopes are generally shallower than the natural slopes adjacent to the creek both up- and downstream from the disturbed area (where natural slopes on the hillsides adjacent to the stream are typically 1.5H:1V or steeper). Hence, access to the stream by wildlife and livestock under post-mining conditions should not be hindered within the reclaimed area.

Attempts to reduce the post-reclamation slopes entering the steam channel were not fruitful since reducing the slopes would result in increased cut quantities which would require off-site disposal. Furthermore, since the reclaimed slopes will generally be less than the natural slopes both up- and downstream from the disturbed area, a further reduction was not considered necessary to support post-mining wildlife and livestock usage of the area.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 2005 ~~February 2005~~

APPENDIX 5-6

Reclamation Bond Estimate

Pace Canyon Fan Portal Site

Reclamation will proceed as follows:

1. Structure demolition: The fan, generators, transformers, and tanks will be salvaged or disposed of in an appropriate landfill. However, for the bond disposal has been assumed.
2. Concrete demolitions: The portal headwall, foundations, retaining walls, footings, and pads will be broken up and placed in the bottom of the shaft. The concrete will create a plug in the bottom of the shaft that will prevent the soil used for backfilling from flowing into the mine entry. Any concrete that will be buried under more than 4 feet of cover may be rubblized and left in place if it is not needed to plug the bottom of the shaft. The West side of the site, specifically where the fan building is located will have more than 4 feet of cover placed atop the rubblized concrete. To reiterate what has been discussed above, all concrete will be disposed of on site, either rubblized and left in place or placed in the shaft.
3. Seal the portal: Approximately 25' in from the portal entrance a seal will be constructed using concrete block.
4. Backfill the shaft and portal: Using material from beneath the realigned road and generator pad the portal and shaft will be backfilled.
5. Remove the Hilfiker wall: The Hilfiker wall will be dismantled. The wire mesh will be recycled, hauled to a landfill or used to backfill the shaft. Since the Hilfiker wall will be constructed of native material portions of the wall, the materials will be left in place or used in the general area for backfill.
6. Backfill and grading: Undisturbed ditches, and culverts and the sediment trap will be left in place as long as possible during backfilling and grading. The cutslope and highwall will be covered during backfilling.
7. Begin placing topsoil: Place topsoil from the shaft area topsoil stockpile to allow removal of the undisturbed ditch and culvert.
8. Remove culverts and construct reclamation channels.
9. Finish topsoil placement.
10. Install reclamation treatment: All reclaimed areas will have hay mulch mixed into the soil during soil gouging. Following gouging the site will be seeded and hydro mulched.

DEMOLITION INFORMATION

CONCRETE - To be left in place or placed in shaft.

PORTAL

	<u>Concrete (cyds)</u>
Portal Face-up	46
Slope Retaining Wall	24

GENERATOR PAD

Pad/Walls/Containment/Footings	128
--------------------------------	-----

FAN BUILDING

Pad/Footings/Motor Pedestal	24
Ducting Foundations	87
Shaft Collar	141

Weight (tons)

BUILDINGS

Fan Building - 25' x 25' x 12' - Steel Shell, <u>no interior walls</u> To be hauled for disposal	3.5
---	-----

DUCTING

Fan Ducting - Hollow Steel - Various dimensions To be hauled for disposal	35
--	----

FAN

Fan Structure and Motor To be hauled for disposal	10
--	----

HILFIKER MESH

Wire Mesh To be placed in shaft	0.7
------------------------------------	-----

PORTAL

Liner Plate To be hauled for disposal	1.2
--	-----

VEGETATION

Area to be revegetated is 1.5 acres.

The bond should include the following items under vegetation:

Seed Mix is similar to Degas Well Seed Mixes (\$394.00 per acre);
Site will be hydroseeded and then mulch with tackifier will follow the seeding;
One ton per acre of hay/straw will be incorporated into the soils; and
There are no transplants associated with this site.

EARTHWORK

The reclamation of this site will require the movement of approximately 6360 CY of material, including topsoil. Specific numbers are:

Topsoil on-site = 1206 CY
Topsoil stored elsewhere (G-3 site, etc.) = 922 CY
Shaft backfill volume = 641 CY
Portal backfill volume = 331 CY
Subsoil to be moved = 3260 CY (not including shaft and portal backfill)

Assume that the 20% of the subsoil to be moved will be double handled (3900 CY)

Material Handling Assumptions

1. The material to be used to backfill the shaft will be moved the farthest (800 ft round trip). A Cat 325 excavator will be used to load the 12 CY dump trucks. The dump trucks will dump directly into the shaft. 641 CY will be moved in this manner.
2. The material to backfill the portal will be dozed into place using a Cat D8 dozer with a ripper. Material adjacent to the portal will be used so the haul distance will only be about a 100 ft. A haul distance of 200 ft should be assumed to be conservative. The dozer will be pushing uphill. 331 CY will be moved in this manner.
3. Subsoil will be dozed into place using a Cat D8 dozer with ripper. The average haul will be about 300 ft uphill. 3900 CY will be moved in this manner.
4. On-site topsoil will be dozed into place using a Cat D8 dozer. The dozer will be pushing topsoil downhill for a distance of 200' or less. 1206 CY will be handled in this manner.
5. Topsoil stored at degas hole G-3 will be loaded by a Cat 325 excavator and hauled to the site by 12 CY dump trucks. The loaded haul will be downhill. The haul is approximately 9.2 miles round trip. 922 CY will be handled in this manner.

6. Hauled topsoil will be placed as close to the final location as possible and dozed into place. Assume a 200' uphill haul for the dozer. 922 CY will be handled in this manner.

Productivity Calculations

Productivity will be calculated based on the CAT Handbook and professional judgement.

Loading trucks with a Cat 325 excavator.

Assume 2.5 CY bucket capacity and 75% efficiency for shaft backfilling and 50% for loading topsoil at the degas hole storage site.

Productivity = 300 CY/hour CAT Handbook 30 Page 5-150
Adjusted productivity = 300 CY/hr (0.75) = 225 CY/hr (portal backfilling)
Adjusted productivity = 300 CY/hr (0.50) = 150 CY/hr (topsoil loading)

Hauling soil with 12 CY dump trucks

Assume 3 trucks working to backfill the shaft to keep the excavator efficient. Assume 6 round trips per hour. Production for each truck = 72 CY/hr for a total hourly production of 216 CY/hour

When hauling topsoil from the degas hole storage site assume 1 round trip per hour which corresponds to 12 CY/hr/truck. Approximately 12 to 13 trucks would be needed to make the excavator 50% efficiency.

Portal backfilling with a Cat D8 dozer with ripper

Dozer production with a 200' haul = 550 CY/hr (CAT Handbook 30 page 1-52)

Adjustments: Job efficiency = 83%
Operator = Average = 75%
Grade = +20 = 50%

Adjusted production = 550 CY/hr * 0.83 * 0.75 * 0.5 = 171 CY/hr

Dozing subsoil into place with a D8 dozer with ripper

Dozer production with a 300' haul = 480 CY/hr (CAT Handbook 30 page 1-52)

Adjustments: Job efficiency = 83%
Operator = Average = 75%
Grade = +30 = 30%

Adjusted production = 480 CY/hr * 0.83 * 0.75 * 0.3 = 90 CY/hr

Dozing on-site topsoil into place with Cat D8 dozer

Dozer production with a 200' haul = 550 CY/hr (CAT Handbook 30 page 1-52)

Adjustments: Job efficiency = 83%
Operator = Average = 75%
Grade = -20 = 1.4%

Adjusted production = $550 \text{ CY/hr} * 0.83 * 0.75 * 1.4 = 480 \text{ CY/hr}$

Dozing hauled topsoil into place with Cat D8 dozer

Dozer production with a 200' haul = 550 CY/hr (CAT Handbook 30 page 1-52)

Adjustments: Job efficiency = 83%
Operator = Average = 75%
Grade = +20 = 0.5%

Adjusted production = $550 \text{ CY/hr} * 0.83 * 0.75 * 0.5 = 171 \text{ CY/hr}$

Deep gouging and mixing in hay mulch

Experience on reclamation projects indicate that a Cat 325 excavator can gouge and mix in hay mulch for a site this size in approximately 1 day.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

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APPENDIX 5-9

Dugout Canyon Mine Blasting Plan

BLASTING PLAN
PACE CANYON - Competent Material and Boulders

LOCATION: Pace Canyon, approximately 7 miles east of Wellington, Utah and approximately 11 miles north of State Hwy 6 & 50

CFC has determined that it is necessary to enhance the mine ventilation system of the Dugout Canyon Mine. The intake portal and escape way portal will be constructed by excavating the hillside slope down to where a competent material is encountered. The competent material may be bedrock or the coal seam and the depth is unknown. In addition, there may be boulders on site which may require blasting to make them small enough to move. This blasting plan is in preparation for there being competent material which may require blasting.

There are no structures within ½ mile of the blast site which would require protection. There are no dwellings, public buildings, schools, churches, or community or institutional building within 1000 feet of the blast area. Therefore, there is no need to notify residents or owners of dwellings in writing relative as to how to request a pre-blast survey.

Although there are no residents within one-half mile of the blast site, the permittee will notify the adjacent landowners (Trustee of Milton and Ardith Thayn Trust) and the Carbon County Sheriff's Office via a written notification indicating the proposed times for blasting. Following initiation of the blasting process, those listed above will be notified at least 24 hours prior to blasting via telephone communication. A record of that telephone notification will be maintained for inclusion in the blasting record.

Access control measures mandated under R645-301-524.530 will involve placing traffic control personnel one half mile above and below the blast site on the Pace Canyon road, and underground in the Dugout Canyon Mine a minimum of 1,000 feet from the blast site. These individuals will stop livestock, unauthorized personnel, and CFC mine personnel from venturing into the blasting area. All areas will post "blasting signs" meeting the criteria of R645-301-524, et al. Following the blast, the Utah certified coal mine surface blaster, or the Industrial Commission of Utah certified mine foreman or fireboss will examine the blast site for unusual hazards (R645-301-524.531) such as imminent slides, or charges not detonated, and that access to and travel within the blasting area can be safely resumed (524.532). A record of that underground examination will be made as designated by regulation.

The fan portal blasting activities will be conducted within 500 feet of an active coal mine and if applicable, both UDOGM and MSHA will authorized the blasting. A blast design narrative addressing UDOGM and OSM regulations (R645-301-524.212 and 30 CFR 780.13(c) and 816.61 (d) (1) (ii)) is provided below.

R645-301-524.100 through R645-301-524.700 apply to surface blasting activities incident to underground coal mining, including, but not limited to, initial rounds of slopes and shafts. Thus the requirements of the aforementioned UDOGM regulations are pertinent to the first two six foot development rounds in the shaft. At the depth of 12 feet, the 30 CFR Part 75

regulations become applicable. These regulations include requirements for ventilating the working face.

Dugout Canyon Mine is unable to determine if blasting will be necessary until construction begins, therefore the description of blasting patterns cannot be provided in this plan. The blast pattern design will be prepared as needed to accomplish the given task. Individual design(s) will be provided for each task on the "**BLAST DESIGN and USE OF EXPLOSIVES RECORDS OF BLASTING OPERATIONS**" forms attached to this plan. The completed forms will be retained with the blasting records for the Dugout Canyon Mine.

The explosive used will meet the following specifications;

1. a MSHA "permissible explosive", approved for the specific type of blasting,
2. cartridge type, approximately 1 1/4 inches in diameter, eight inch long and with a uniform density of approximately 7.27 ounces per cartridge.

There should be no flyrock generated by the blasts being used to develop the Pace Canyon portal(s) and surface facilities. However, flyrock matting will be on site and used by the certified blasting personnel when determined necessary.

The amount of explosives which will be used per round to develop the portal and facilities in Pace Canyon is minuscule compared to the magnitude of blasts which are the intent of the R645-301-524 regulations.

Various forms to be used in association with blasting are presented below.

**DUGOUT CANYON MINE
PACE CANYON FAN PORTAL FACILITIES - BLAST DESIGN**

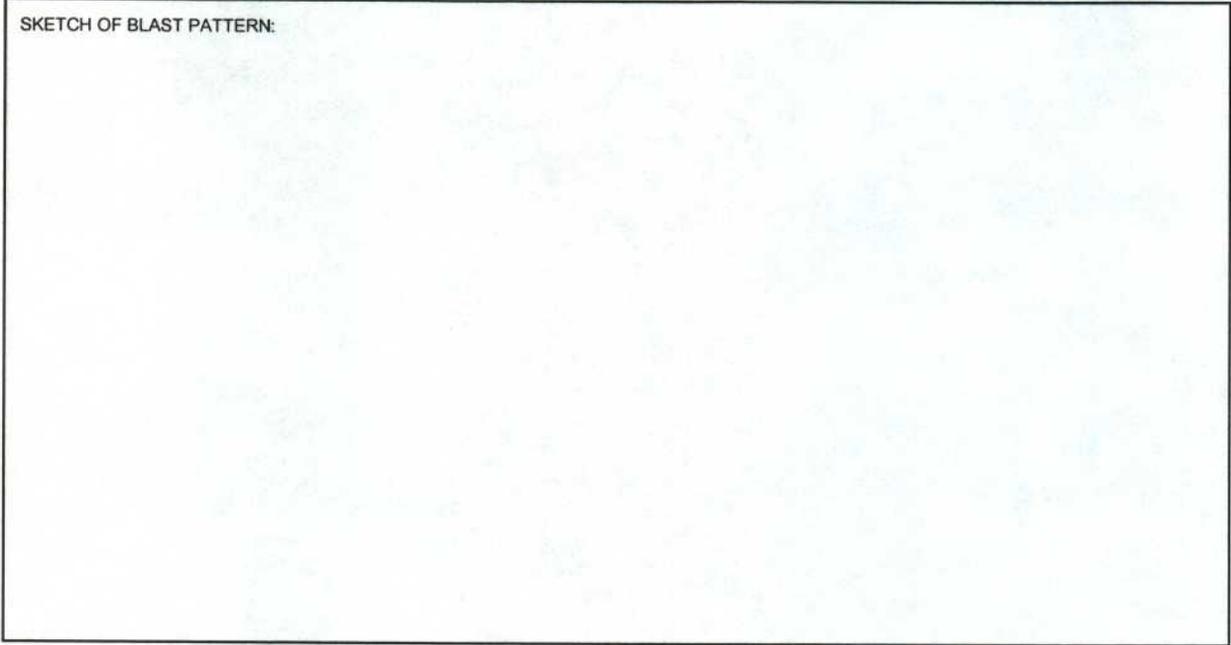
TYPE OF MATERIAL: _____
TYPE OF BLASTING CAP: _____
TYPE OF PRIMER: _____
TYPE OF EXPLOSIVE: _____
SIZE OF HOLE: _____
DEPTH OF HOLE: _____
BURDEN: _____
STEMMING: _____
SEQUENCE: _____
BLASTER'S NAME (PRINT): _____
BLASTER'S SIGNATURE: _____

CROSS SECTION OF CRT

**USE OF EXPLOSIVES
RECORDS OF BLASTING OPERATIONS**

NAME OF OPERATOR CONDUCTING THE BLAST:	DATE AND TIME OF BLAST:
DURATION:	LICENSE NUMBER:
SIGNATURE OF BLASTER IN CHARGE:	
DIRECTION AND DISTANCE FROM NEAREST BLAST HOLE TO THE NEAREST DWELLING, PUBLIC BUILDING, SCHOOL, CHURCH, COMMUNITY OR INSTITUTIONAL BUILDING OUTSIDE PERMIT AREA.	
WEATHER CONDITIONS:	
WIND DIRECTION AND APPROXIMATE VELOCITY:	TEMPERATURE:
NUMBER OF HOLES, BURDEN AND SPACING (Sketch Below)	TYPE OF MATERIAL BLASTED:
DIAMETER AND DEPTH OF HOLES:	TYPES OF EXPLOSIVES USED:
TOTAL WEIGHT OF EXPLOSIVES USED:	MAXIMUM WEIGHT OF EXPLOSIVES DETONATED WITHIN ANY 8-MILLISECOND PERIOD:
INITIATION SYSTEM:	TYPE AND LENGTH OF STEMMING:
MATS OR OTHER PROTECTION USED:	
IF APPLICABLE:	
TYPE OF SEISMOGRAPHIC INSTRUMENT, SENSITIVITY, AND CALIBRATION SIGNAL:	
EXACT LOCATION OF INSTRUMENT:	DATE, TIME AND DISTANCE FROM BLAST:
NAME OF PERSON AND COMPANY TAKING READING:	
NAME OF PERSON AND COMPANY ANALYZING RECORD:	
VIBRATION AND/OR BLAST LEVEL RECORDED:	
REASON FOR SCHEDULED BLAST:	

SKETCH OF BLAST PATTERN:



DUGOUT CANYON MINE
P.O. BOX 1029
WELLINGTON, UT 84542
TELEPHONE: (435) 637-6360

BLASTING SCHEDULE

DATE

TIME PERIOD

INFORMATION TO BE COMPLETED ONCE BLASTING SCHEDULE IS DETERMINED.

The blasting site is located in Pace Canyon, approximately 7 miles east of Wellington, Utah and approximately 11 miles north of State Hwy 6 & 50. An area will be blasted to establish surface facilities and a portal associated with the Dugout Mine's underground workings in the Gilson Coal Seam.

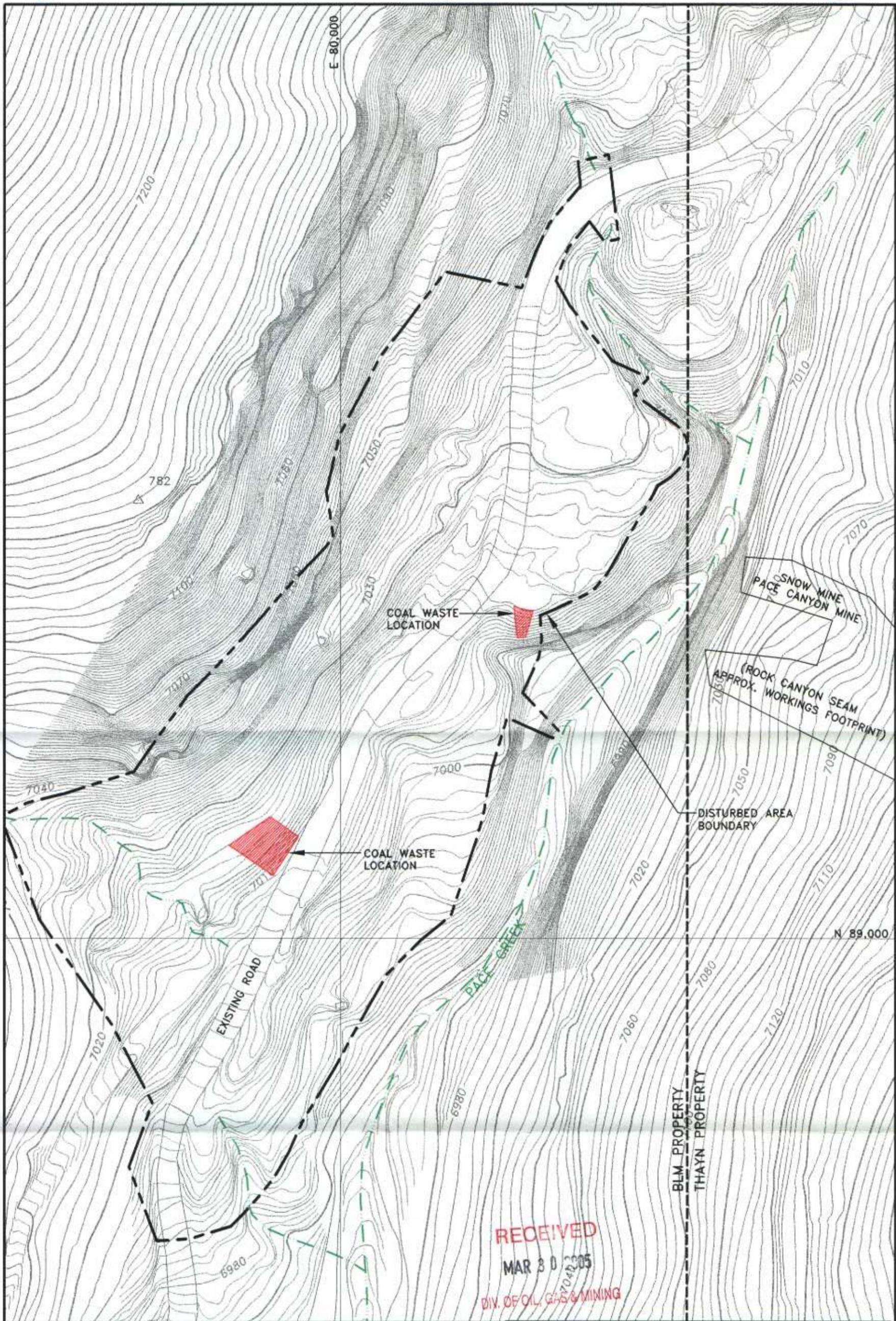
Audible Signals: Warning: Three short horn blasts. All Clear: One long horn blast.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

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APPENDIX 5-10

Pace Canyon Fan Facilities



TOWNSHIP 13 SOUTH, RANGE 13 EAST, SECTION 30

TOPOGRAPHY FROM OLYMPUS AERIAL SURVEYS INC.
FLOWN 08-12-04



REVISIONS OR UP-DATES			DATE
NO.	DATE	BY	DESIGNED BY
1	1-28-05	LDJ	LDJ
			DRAWN BY: SMY
			CHECKED BY: VSH
			SCALE: 1"=60'

CF Canyon Fuel Company, LLC
Dugout Canyon Mine

**PACE CANYON FAN
EXISTING
SURFACE TOPOGRAPHY**

P.O. BOX 1029
WELLINGTON, UTAH 84542

DRAWING OR
MAP NUMBER
PLATE PC5-4

EarthFax Engineering, Inc.

CHAPTER 7
HYDROLOGY

Sediment-control measures will be implemented during the relocation of the west fork of Dugout Creek. These measures will include installation of three straw-bale dikes and/or reinforced silt fences in appropriate locations within the creek channel below the relocation site to minimize potential contributions of sediment to Dugout Creek. The straw-bale dikes/silt fences will remain in-place until channel relocation and pad construction is completed.

Pace Canyon Fan Portal Facilities

The entire site is an ASCA area. Sediment from the site will be controlled by a combination of contemporaneous reclamation, revegetation, gravel, and the use of a sediment trap. Plate PC7-5A identifies the various alternative sediment control methods that will be used and where the methods will be implemented. Other than the realigned road and a small area on the outslope of the sediment trap embankment the entire site will drain to the sediment trap. Although calculations in Appendix 7-12, Attachment 2 demonstrate that the contemporaneous reclamation, gravel, and revegetation will reduce the sediment yield to less than pre-mining conditions a sediment trap will be constructed to contain sediment generated by the site.

Sedimentation Ponds. A single sedimentation pond has been designed for the Dugout Canyon Mine facilities. The sedimentation pond will be located in the southwest corner of the disturbed area. This pond will function individually.

The sedimentation pond will be located as near as possible to the disturbed areas as indicated on Plates 7-4 and 7-5. The pond will not be located within a perennial stream channel.

Design, Construction, and Maintenance

Sediment Storage Volume. The sedimentation pond has been designed to control sediment from disturbed and undisturbed areas. The disturbed area contributing runoff to the sedimentation pond contains 16.9 acres from watersheds DWS-1 through DWS-7 (portions of which will be undisturbed or contemporaneously reclaimed - see Appendix 7-9). The undisturbed area contributing runoff to the sedimentation pond contains 33.7 acres from watersheds WS-1, -3, -5, -6, -7, -8, -9a, and -11. Refer to Plates 7-7 and 7-8 for a delineation of watershed boundaries.

Carbon County. Within the disturbed area, Dugout Creek will be diverted through culverts UC-4 and UC-5 to prevent uncontrolled sediment from reaching the stream and to allow for efficient use of the site. A riprap-lined energy dissipater will be constructed downstream from the outlet of culvert UC-5 to withstand the peak flow from a 100-year, 6-hour storm event. Calculations regarding the design of the energy dissipater can be found in Appendix 7-9.

The drainage control system for the primary roads within the permit area includes diversion ditches and culverts. Except for culverts UC-4 and UC-5, the diversions will adequately pass the peak runoff from the 10-year, 24-hour precipitation event. Culverts UC-4 and UC-5 have been designed to convey the peak flow resulting from the 100-year, 6-hour precipitation event. Culverts will be constructed to avoid plugging or collapse and erosion at the inlet or outlet. Drainage details for the access road are presented in Section 732.300.

Pace Canyon Road

Runoff and erosion on the road will be controlled by the use of water bars. The water bars will divert any runoff from the road before an erosive volume of water can accumulate. Three water bars will be placed approximately 200 feet apart on the road. The water bars will be placed as shown on Plate PC7-5. The first water bar will be placed approximately 5 feet upgradient of the start of the realigned road to prevent any runoff from the existing road from flowing onto the road. The other two water bars will divert any runoff that has fallen on the realigned road off the road into well vegetated areas. Due to the berm running parallel to the road only precipitation falling directly on the realigned road could impact the road. Therefore, very little runoff is expected to be generated. The little runoff generated by the realigned road will be controlled by the water bars.

743 Impoundments

All pertinent information regarding the sedimentation pond is presented in Sections 732.200 and 742.200.

744 Discharge Structures

The discharge structures within the permit area will be the primary and emergency spillways on the sedimentation pond and a discharge line from the underground workings. The spillways on the sedimentation pond will adequately pass the peak discharge from the 25-year, 6-hour precipitation event. Detailed information concerning the sedimentation pond is presented in Sections 732.200 and 742.200.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

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APPENDIX 7-6

UPDES Permit Applications



Canyon Fuel Company, LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542
Phone: (435) 637-6360
Fax: (435) 636-2897

February 22, 2005

Jeff Studenka, Environmental Scientist
Permits & Compliance Section
Division of Water Quality
Utah Department of Environmental Quality
288 North 1460 West, PO Box 144870
Salt Lake City, UT 84114-4870

Re: New Discharge Point - Outfall 005, Dugout Canyon Mine, Permit UT0025593

Dear Mr. Studenka:

Canyon Fuel Co., LLC – Dugout Canyon Mine, is requesting a fifth discharge point to be approved under UPDES permit UT0025593. The discharge point will be located at the Pace Canyon Fan Portal breakout – Lat: 39d40'17.772" and Long: 110d30'29.051". This discharge point is planned for the discharge of mine waters and treated surface water in accordance with our approved UPDES permit. The outlet for both the surface water and mine water discharge is in close proximity of one another. Therefore, we are requesting a single discharge point. The quantity of mine water discharged at the Pace Canyon location should reduce the quantity of water normally discharged from the Dugout Canyon mine site outfall 001. The Pace Canyon discharge will be intermittent and will be monitored and reported as required by Dugout Canyon Mine's UPDES permit.

The location of the proposed discharge point is shown on Figure 1, attached. The mine anticipates discharge occurring at this site on or about July 01, 2005.

If you have any questions or require further information, please contact me at (435) 636-2873 or Dave Spillman at (435) 636-2872.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jared L. Sorensen".

Jared L. Sorensen
Mine Engineer

Enclosures

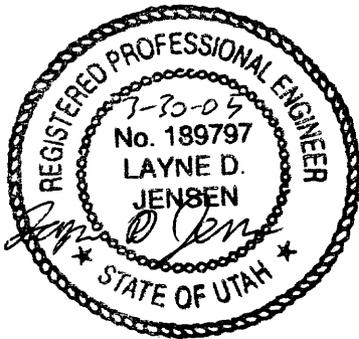
cc: Dave Spillman
Vicky Miller

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
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**APPENDIX 7-12
ATTACHMENT 1**

Hydrology Calculations



PCO-1

Contributing watershed: Depending on final grading up to 100% of the watershed will drain to this ditch
Assume 100% of PCWS-1

$$Q_{10-6} = 0.61 \text{ cfs}$$

$$\text{minimum slope} = 14.3 \%$$

$$\text{max slope} = 36.4 \%$$

Trapezoidal ditch

$$\text{Bottom Width} = 1.25'$$

$$\text{Side slope} = 2:1$$

Flow is against the berm on one side

$$\text{Depth} = 1 \text{ ft}$$

$$\text{max velocity} = 4.93 \text{ fps} \therefore \text{no riprap}$$

$$\text{max depth} = 0.13 \text{ ft}$$

$$\text{freeboard} = 0.87 \text{ ft}$$

See pages 17+18 for the calculation sheets

See page 21 for the figure.

Berm Along East side of the site.

The site is designed to cause runoff to sheet flow through the gravel on the pad. However, for this design it will be assumed that all runoff from PCWS-1 will flow along the berm.

$$Q_{10-6} = 0.61 \text{ cfs}$$

$$\text{min slope} = 1.3 \%$$

$$\text{max slope} = 11.6 \%$$

Triangular ditch

The slope on the berm may be up to 1:1 to promote sheet flow there shouldn't be a slope towards the berm. A side slope of 10:1 will be assumed.

$$\text{Depth} = \text{Berm Ht.} = 1'$$

$$\text{max. velocity} = 3.33 \text{ fps} \therefore \text{No Riprap}$$

$$\text{max depth} = 0.28 \text{ ft}$$

$$\text{freeboard} = 0.72 \text{ ft}$$

See pages 18a and 18b for calculation sheets.

See page 21a for the figure.

BERM DESIGN MINIMUM SLOPE Worksheet for Triangular Channel

Project Description	
Worksheet	PACE CANYON
Flow Element	Triangular Char
Method	Manning's Form
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.030 <i>Bare ground</i>
Slope	013000 ft/ft
Left Side Slope	1.00 H : V
Right Side Slope	10.00 H : V
Discharge	0.61 cfs

Results	
Depth	<u>0.28 ft</u> <i>< 1.0' ∴ OK</i>
Flow Area	0.4 ft ²
Wetted Perim	3.16 ft
Top Width	3.03 ft
Critical Depth	0.24 ft
Critical Slope	0.028171 ft/ft
Velocity	1.46 ft/s
Velocity Head	0.03 ft
Specific Energ	0.31 ft
Froude Numb	0.70
Flow Type	Subcritical

BERM DESIGN MAXIMUM SLOPE Worksheet for Triangular Channel

Project Description

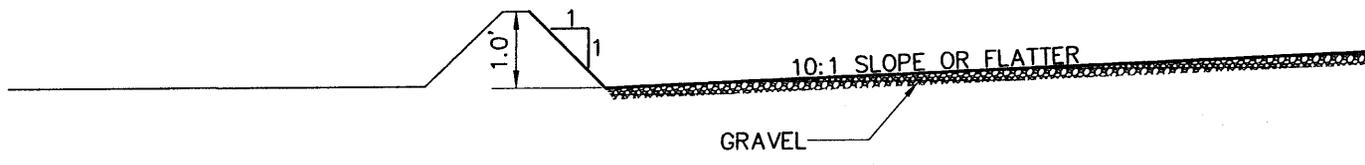
Worksheet	PACE CANYON
Flow Element	Triangular Char
Method	Manning's Form
Solve For	Channel Depth

Input Data

Mannings Coeff	0.030	<i>Bare ground</i>
Slope	116000	ft/ft
Left Side Slope	1.00	H : V
Right Side Slope	10.00	H : V
Discharge	0.61	cfs

Results

Depth	0.18	ft
Flow Area	0.2	ft ²
Wetted Perim	2.09	ft
Top Width	2.01	ft
Critical Depth	0.24	ft
Critical Slope	0.028171	ft/ft
Velocity	<u>3.33</u>	<i>ft/s < 5.0 fps ∴ no riprap</i>
Velocity Head	0.17	ft
Specific Energ	0.35	ft
Froude Numb	1.94	
Flow Type	supercritical	



NO SCALE

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