

**PERMIT TRACKING FORM**

Permit Amendment    Exploration Permit    NOV Abatement    Division Order    Permit Transfer    Incidental Boundary Change  
 Permit Midterm (MT)    Permit Renewal (PR)    New Permit    Significant Revision    Bond Release

Date Received: 5-1-98	By: tat	PERMIT NUMBER	PRO/007/039
Title of Proposal:		PERMIT CHANGE #	98-7
Description: Phase II; Permit Revision		PERMITTEE	Canyon Fuel Company, LLC
# Copies Required: 3	# Copies Received: 3	MINE NAME	Dugout Canyon Mine

PERMIT CHANGE APPLICATION SENT TO SLC   Date: \_\_\_\_\_ Letter to Permittee: \_\_\_\_\_

15 DAY INITIAL RESPONSE TO PERMIT CHANGE APPLICATION OR INITIAL COMPLETENESS REVIEW

Date Due:	Date Done:	Letter to Permittee:
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Notice of Affidavit of Publication. (If change is a Significant Revision, New Permit, or Permit Transfer.)

Date Due:	Date Done:	Public Comment Received:
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PFO Review Tracking	Round		Round		SLC Review Tracking	Round 1		Round	
	Due	Done	Due	Done		Due	Done	Due	Done
<input type="checkbox"/> Lead <input type="checkbox"/> Generalist					<input type="checkbox"/> Lead <input type="checkbox"/> Generalist mis	5/24		10/16	
<input type="checkbox"/> Administrative					<input type="checkbox"/> Administrative drh	5/24		10/16	
<input type="checkbox"/> Land Use/ AQ					<input type="checkbox"/> Land Use/ AQ				
<input type="checkbox"/> Biology					<input type="checkbox"/> Biology Pdb	5/24		10/16	
<input type="checkbox"/> Engineering					<input type="checkbox"/> Engineering whw	5/24		10/16	
<input type="checkbox"/> Geology					<input type="checkbox"/> Geology jds	5/24		10/16	
<input type="checkbox"/> Soils					<input type="checkbox"/> Soils rad	5/24		10/16	
<input type="checkbox"/> Hydrology					<input type="checkbox"/> Hydrology mis	5/24		10/16	

TA Review Due: \_\_\_\_\_ Date: \_\_\_\_\_ Permittee Response Due:  Stipulation    Condition    No Requirements   Date: \_\_\_\_\_ Division Decision Letter:  Approve    Deny

TA Review Done: \_\_\_\_\_ Date: \_\_\_\_\_ Response Received: \_\_\_\_\_ Date: \_\_\_\_\_

Coordinated Reviews:	Phone Cont.	Round		Round		Received:	Additional Tracking:	Date:
		Sent	Due	Sent	Due			
<input type="checkbox"/> OSM- C							Public Hearing	
<input type="checkbox"/> Water Rights-L							Letter from Comp. Super.	
<input type="checkbox"/> DEQ- L							AVS Completed	
<input type="checkbox"/> DWR- L							Approval Effective Date	
<input type="checkbox"/> SITLA- L							Approved Copy to File	

Comments:

Approve copy to Permittee
Approve copy to PFO/SLC
Approved copy to agencies
CHIA Modified
Update master TA Y/N



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210

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801-359-3940 (Fax)

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Michael O. Leavitt  
Governor

Lowell P. Braxton  
Division Director

October 28, 1998

Richard D. Pick  
Canyon Fuel Company, LLC  
6995 South Union Park Center, Suite 540  
Salt Lake City, Utah 84047

Re: Completion of Requirement to Submit Clean Copies of Mining and Reclamation Plan, Canyon Fuel Company, LLC, Dugout Canyon Mine, ACT/007/039-98-1, Folder #3, Carbon County, Utah

Dear Mr. Pick:

In our letter to you dated October 19, 1998 we asked for 4 clean copies of your approved Mining and Reclamation plans for distribution. Those plans have now been provided and we are returning a stamped (incorporated) version to you for your files. One copy will be forwarded to the BLM and another to our Price Field Office.

Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink that reads "Daron R. Haddock".

Daron R. Haddock  
Permit Supervisor

tam  
enclosure

cc: Ken Payne w/o  
Price BLM  
Price Field Office

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Michael O. Leavitt  
Governor  
Lowell P. Braxton  
Division Director

October 24, 1998

TO: File

THRU: Pam Grubaugh-Littig, Permit Supervisor *pgl*

THRU: Daron Haddock, Permit Supervisor *DH*

THRU: Joe Helfrich, Permit Supervisor *JH*

FROM: Wayne H. Western, Senior Reclamation Specialist *WHW*

RE: Dugout Canyon Mine Bond Calculations, Canyon Fuel Company, LLC, Dugout Canyon Mine, ACT/007/039, File #2, Carbon County, Utah

In a letter dated October 13, 1998, the Division told the Operator of the Dugout Canyon Mine that the reclamation bond amount was \$3,682,000 in 2003 dollars. The Division calculated the reclamation cost estimate that was used to establish the bond amount. A copy of the calculations and the supporting information will be placed in the folder #2 of the 1998 Dugout Canyon Mine file. In the future the reclamation cost estimates for each mine will be placed in the respective files.

The Division will update the files whenever the bond amount changes. Hopefully anyone will be able to verify how the bond has <sup>been</sup> calculated and when it was escalated.

Please let me know if you have any questions or concerns about how the reclamation cost estimates are stored.



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Michael O. Leavitt  
Governor  
Lowell P. Braxton  
Division Director

October 22, 1998

TO: File

THRU: Daron Haddock, Permit Supervisor

FROM: James D. Smith, Reclamation Specialist

RE: Round Two - Technical Analysis of Permit Application, Canyon Fuel Company, Dugout Canyon Mine - Phase II, ACT/007/039-98-1, File 2, Carbon County, Utah

DRH  
JDS

**SUMMARY**

The Permit Application Package (PAP) for the Dugout Canyon Mine was approved by UDOGM and the permit was issued March 16, 1998. Construction at the mine site began in May 1998. One purpose of this Phase II submittal is to incorporate a parcel of BLM land located at the downstream end of the disturbed area to better accommodate a sedimentation pond for the mine pad. Other changes are also being made to the mine plan, such as water storage tanks up the canyon from the main pad area, expanded coal storage, and relocation of the electric-power sub-station, to better facilitate mining operations.

A Technical Analysis (TA), dated August 25, 1998, of the Phase Two application was sent to Canyon Fuel Company. The response from Canyon Fuel Company was received by UDOGM on September 11, 1998. The sections in this TA are intended to replace the corresponding sections in the August 25 TA, additions or changes having been made due to the permittee's responses to deficiencies and the resulting changes in pagination in the MRP.

**TECHNICAL ANALYSIS**

**ENVIRONMENTAL RESOURCE INFORMATION**

**GEOLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.22; R645-301-623, -301-724.

**Analysis:**

Geologic information includes a description of the geology of the proposed permit and adjacent areas down to and including the stratum immediately below the lowest coal seam to be mined and the aquifer below the lowest coal seam to be mined that may be adversely impacted by mining. This description includes the areal and structural geology of the permit and adjacent areas, and other

parameters that influence the required reclamation. It also shows how areal and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water. The description is based on maps and plans required as resource information for the plan, detailed site specific information, and, geologic literature and practices.

Descriptions of the stratigraphy and lithology of strata from the Mancos Shale up to the Colton Formation and of Quaternary pediment gravels and alluvium are in Section 624.100. That section also contains a discussion of geologic structure and a very brief description of the nature, depth, and thickness of the coal seams and the interburden between the Sunnyside, Rock Canyon, and Gilson seams. Plate 6-4 is an isopach map of the Rock Canyon seam overburden thickness and Plate 6-5 is an isopach map of the Rock Canyon to Gilson seam interburden thickness. Plates 6-6 and 6-7 in the Confidential binder are, respectively, isopach thickness maps of the Rock Canyon and Gilson seams.

The Gilson and Rock Canyon seams are both sufficiently developed to allow for economic mining in the proposed permit area but only the Rock Canyon seam is to be mined under the proposed MRP. Movable coal in the Rock Canyon seam ranges from 5 to 8 feet in thickness (p. 6-15). Although the current permit application does not include federal acreage, an R2P2 for the logical mining unit that includes Soldier Canyon and Dugout Canyon Mines and federal lease U-07064-027821 is included in the Confidential binder.

Appendix 6-1 (Confidential binder) contains cutting and core logs for drill holes 3-1, 9-1, 9-2, 10-1, 11-1, 13-1, 13-2, 14-1, 15-1, 15-2, 15-3, 19-2, HCC-4 (H-4), KCC-A and KCC-E. Collar or ground elevations are included in Appendix 6-1. Drill hole locations and elevations are shown on Plate 6-1.

Some bore holes have been logged from the surface to total depth, for others only the coal seams and adjacent strata have been logged. Together, the logs describe lithologic characteristics and thickness of each stratum from the surface to below the coal seams. Ground water occurrence was not marked on these logs at the time the holes were bored (p. 6-17). Bore hole logs were used to construct the cross sections on Plate 6-3, which show the interval from the Sunnyside coal zone to below the Gilson coal zone. Figure 6-1 is a more general cross section from the surface to the Mancos Shale.

Analysis reports on coal, floor, and roof samples from the Rock Canyon and Gilson seams are found in Appendix 6-2 (Confidential binder). Floor and roof samples of the Rock Canyon seam were collected from one of the portals of the abandoned Rock Canyon seam mine in Dugout Canyon (portals shown on Plate 5-1) and a sample of coal was taken from a fresh coal outcrop located a few-hundred feet inside. The location where the coal, roof, and floor samples were collected for the Gilson seam is shown on Figure A1 in Appendix 6-2 in the Confidential binder.

Samples were analyzed for acid- or toxic-forming and alkalinity-producing materials, including total sulfur but not pyritic or other specific forms of sulfur. BTU, ash, and sulfur content of the Rock Canyon coal are briefly summarized at the end of Section 624.100. No unacceptable values were reported for the parameters listed in Table 2 of UDOGM's "Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining."

Data from one location are probably insufficient to determine the potential for acid- and toxic-forming materials for the entire proposed mine. However, waste material from the mine is not to be

used in reclamation. (Although not part of this permit submittal, future development of a waste-rock disposal site has been contemplated.) Limited topsoil will be available for reclamation, so selected overburden materials from the facilities area and B and C horizon soils from the sediment pond area will be used as substitute topsoil and growth media during reclamation. Current information indicates these materials are within acceptable acid- and toxic-forming parameters (Table 2-1). Data from the adjacent Soldier Creek Mine and other operations in the Book Cliffs support the determination of low potential for acid- and toxic-forming or alkalinity-producing material. The MRP contains a commitment (p. 2-33) that where overburden materials are used to supplement topsoil, they will be used only after it has been demonstrated that the resultant soil is suitable for supporting revegetation.

Clay content was determined for the roof and floor rock samples. The sample from the roof of the Gilson seam contained 20 % clay, but clay content of the other roof and 2 floor samples was less than 10 %. Drill-hole logs indicate lithology of strata immediately above and below the minable coal varies within the permit and adjacent areas. Several factors, such as thickness of overburden, use of a 35° angle of draw in formulating the subsidence control plan, anticipation that most of the land within the permit area will eventually be affected by subsidence, and the low potential for material damage from subsidence indicate additional determination of engineering properties of roof and floor rock would be of little value. No additional determinations of thickness and engineering properties of clays or soft rock are needed prior to approval of the proposed MRP.

Rock Canyon coal thickness in the proposed permit area ranges from 5 to 8 feet, except for a want in the north-central part of the proposed permit area, where coal thins to under 3 feet (Plate 6-6). Maximum subsidence can be projected as 3.5 to 5.6 feet, based on the assumption that the surface will subside up to 70% of the thickness of the extracted coal. Overburden thickness ranges from 600 feet in the south part of the proposed permit area to over 2,400 feet in the north. Overburden consists of the upper Blackhawk Formation, the Castlegate Sandstone, and the Price River, North Horn, and Flagstaff Formations, which are described in Section 624.100. Gilson to Rock Canyon interburden thickness is 30 to 80 feet over most of the proposed permit area, and up to 100 feet at the west edge (Plate 6-5), and Rock Canyon to Sunnyside thickness is 140 to 180 feet.

The application includes geologic information in sufficient detail to assist in determining the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface and ground water monitoring is necessary; and determining whether reclamation as required by the R645 Rules can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

At this time the Division does not require the collection, analysis, and description of additional geologic information to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards.

The applicant has made no request the Division to waive in whole or in part the requirements of the bore hole information or analysis required of this section. However, the applicant has requested, within the text of the PAP, that the information in Appendices 6-1 and 6-2 be kept confidential. The Applicant should provide this information in a folder or binder separate from the rest of the PAP and marked "Confidential".

**Findings:**

Information in the geologic resource section is considered adequate to meet the requirements of this section.

## **HYDROLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-720.

**Analysis:**

**Baseline information.**

**Ground-water information.**

For the initial PAP, water monitoring data that potentially met the minimum requirements of SMCRA and the Utah Coal Mining Rules was done at only 13 (6 springs and 7 in-mine locations) of the 97 sites listed in the initial PAP. On average only 3 samples were analyzed for those thirteen sites, so determination of baseline seasonal quality was minimal for specific sites; however, overall baseline ground-water quality and quantity information was considered sufficient to characterize baseline ground-water conditions for the permit area.

Four springs are to be monitored for operational water quality and quantity: SC-65, SP-20 (same as S-30), SC-14, and SC-100. Water rights have not been filed on these springs. The permittee selected these springs because "These springs are reasonably accessible and, based on the historical data, are representative of conditions within their respective formations." (Page 7-54). However, there is actually little historic data for these springs, and it is necessary to rely on data from the Soldier Canyon Mine and surrounding springs to extrapolate baseline information. These springs will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4 (page 7-54).

Water-quality samples were to have been collected during 1997. October 1997 data at SC-65, SC-100, and SP-20 were mistakenly collected as field parameters only rather than water-quality parameters, and no data at all were collected at SC-14 that month. The permittee collected no water samples nor made any determinations of field parameters during the first quarter of 1998, but by agreement with UDOGM monitoring was done early in the third quarter as representative of the second quarter. Unfortunately field parameters only, rather than water-quality parameters, were determined for these samples.

There are flow data for SC-65 from July 1976, September and October 1995, August and October 1997, and June 1998. Water-quality data were determined for August 1997, and a few water-quality parameters were determined for July 1976. Flows were measured in 1995 at other Colton Formation springs: in September and October at SC-45, SC-46, SC-50, and SC-99, and in October 1995 only at SC-110 and SC-111, but water-quality parameters were not measured. Additional water-quality data for SC-65 are needed before mining disturbs this area, which will not be at least until such time as federal lease U-07064-027821 to the east is added to the permit area. This spring will be

monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4 (page 7-54).

SP-20 has data from 1976 to 1981 that includes both flow and quality determinations, but total iron and manganese are notably absent; total iron and manganese were included in water-quality data from September and October 1995 and August 1997 (S-30) and operational parameters were monitored in October 1997 (S-30) and June 1998. Nearby springs that also flow from the Flagstaff Formation, SP-15, SP-17, and SP-18, have data back to June 1976 that include some total iron and total manganese concentrations. Data are available to deduce water-quality conditions for the area around SP-20, but water-quality conditions specific to SP-20 need to be determined. This spring will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4 (page 7-54).

For spring SC-14 there are flow data from September and October 1995 and June 1998, but there are no water-quality data. SC-14's flow is small but appears to be the largest from the North Horn Formation in the area. Nearby springs SC-15, SC-16, SC-16, and SC-17 that also issue from the North Horn Formation were dry when visited in 1995. SP-13, SP-16, SP-19, SC-87, and SC-102, other North Horn springs located within a few miles, were dry or had low flows or just seepage in 1995. There is basically no water-quality information for SC-14 or related springs. Additional water-quality data are needed before mining disturbs this area, which will not be until after the year 2001 according to the proposed mining sequence shown on Plate 5-7 of the MRP. This spring will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4 (page 7-54).

Spring SC-100 has flow data from September and October 1995, August and October 1997, and June 1998 but water-quality data for August 1997 only. Nearby springs SC-59, SC-82, SC-83, SC-84, SC-85, SC-104, SC-105, SC-114, and SC-115 (Flagstaff) and SC-101 (North Horn) have had low flows and no analyses for water quality. The USGS measured some water-quality parameters in nearby springs G-95, G-96, and G-97 in July 1980. Additional water-quality data are needed for SC-100 before mining disturbs this area, which will not be at least until such time as federal lease U-07064-027821 to the east is added to the permit area. This spring will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4 (page 7-54).

#### **Surface-water information.**

For the initial PAP, water monitoring data that potentially met the minimum requirements of SMCRA and the Utah Coal Mining Rules was minimal at most specific sites; however, overall surface-water quality and quantity information was considered sufficient to characterize surface-water baseline conditions for the permit area.

For DC-1, DC-2, and DC-3 surface-water quality and quantity data from August and October 1997 and April and June 1998 have been included with the proposed amendment. There are also data for DC-1 from March 1998, and additional data for DC-1 extend back to July 1976. August 1997 flows and March 1998 water-quality data for DC-4 and DC-5 have also been included; these data were collected because of a misunderstanding by the operator and these 2 sites are not scheduled for quarterly monitoring of either field or operational water-quality parameters.

### **Probable hydrologic consequences determination.**

A PHC determination prepared by Mayo and Associates in 1996 is in Appendix 7-2. Previous studies in the vicinity of the Soldier Canyon Mine were reviewed for information on geology, hydrology, and hydrogeology and for data on discharge, sediment, and other surface and ground water parameters. Seventeen additional ground and surface water samples were collected in 1995 for chemical and isotopic analyses. In spite of a large data base, most of the analyses lack information on the basic parameters required by the Coal Mining Rules and SMCRA, and on seasonal variation. The PHC determination for the MRP begins on page 7-41. It is based on the data collected by Mayo and Associates and additional data collected in 1996 and 1997. Collection of operational data began in 1998.

#### *Ground water and surface-water availability*

Potential adverse effects to the hydrologic balance from the proposed mining operations are: both decreased and increased stream flows and spring discharges due to capture of surface or ground water by mine-related subsidence, bedrock fracturing, and aquifer dewatering; increased stream flows due to increased discharge of ground water from the Blackhawk Formation through the mine workings; and increased ground-water recharge to overlying ground water systems. It appears that the Soldier Canyon Mine has not decreased groundwater discharge in overlying or underlying groundwater systems. It is unlikely that coal mining will effect the discharges of any spring as a result of mining in the Dugout Canyon permit and adjacent areas (Appendix 7-3 and MRP - pp. 7-45 through 7-47).

Considerable seasonal and climatic variability are noted in the hydrographs of springs in the permit and adjacent areas, but data for both Soldier Creek and springs that overly the Soldier Canyon Mine workings do not show discharge declines which may be attributed to either subsidence or bedrock fracturing. The Blackhawk groundwater system in the vicinity of mined coal seams is compartmentalized both vertically and horizontally. Coal mining locally dewateres overlying rock layers in the Blackhawk Formation but does not appear to draw additional recharge from overlying or underlying groundwater systems (p. 7-46).

Steady-state inflow to the Dugout Canyon mine is expected to be approximately 220 gpm (p. 7-49). Mine consumption is estimated to be 30 gpm, leaving 190 gpm (306 acre-feet/yr) discharge to Dugout Creek, which would represent an increase of approximately 6% over average annual flow of 5,100 acre-feet/yr (p. 7-50). Estimated maximum discharge from the Dugout Canyon Mine will be approximately 400 gpm. If this maximum rate were sustained for a full year it would be a 13% increase in the estimated average annual flow of Dugout Creek (p. 7-50).

The potential for mine water discharge and increased flow rates in Dugout Creek are based on the studies of Lines (1985 - see MRP for reference). Actual data that could be used to correlate coal production rates to mine water discharge rates at the Soldier Canyon Mine and to predict mine water discharge rates for the Dugout Canyon Mine are not in the PAP. Annual reports provide some information.

#### *Potential Hydrocarbon Contamination*

Diesel fuel, oils, greases, and other hydrocarbon products will be stored and used at the site for

a variety of purposes. Diesel and oil stored in above-ground tanks at the mine surface facilities may spill onto the ground during filling of the storage tank, leakage of the storage tank, or filling of vehicle tanks. Similarly, greases and other oils may be spilled during use in surface and underground operations. The probable future extent of the contamination caused by diesel and oil spillage is expected to be small because the tanks will be located above ground and spillage during filling of the storage or vehicle tanks will be minimized to avoid loss of an economically valuable product. A Spill Prevention Control and Countermeasure Plan (SPCC) to be developed for the site upon completion of Phase II construction will provide inspection, training, and operation measures to minimize the extent of contamination resulting from the use of hydrocarbons at the site. This plan is not required to be submitted as part of the MRP; however, a copy will be maintained at the mine site as required by the Utah Division of Water Quality (p. 7-50). Phase I is currently proceeding under a construction SPCC.

#### **Findings:**

Hydrologic resource information provided in the PAP is considered adequate to meet the requirements of this section.

## **OPERATION PLAN**

### **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Underground mining and reclamation activities are planned to be conducted to minimize disturbance of the hydrologic balance within the permit and adjacent areas, to prevent material damage to the hydrologic balance outside the permit area, and to support approved postmining land uses in accordance with the terms and conditions of the approved permit and the performance standards of this part. The Division has not required additional preventive, remedial, or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented.

#### **Analysis:**

By defining terms, stating objectives, and identifying responsibilities, UDOGM Coal Regulatory Program Directive Tech-004 (Tech-004) is meant to clarify the Division's position on what constitutes an appropriate monitoring program and provides methodology for consistently amending these monitoring programs. Under Tech-004, amendments to monitoring programs will be approved on a site specific basis.

The monitoring plan at Dugout Canyon Mine conforms to the amended monitoring plan approved for the Soldier Canyon Mine, which is based on Tech-004. The amended Soldier Canyon

Mine monitoring plan was approved in accordance with the procedure in section 5E of Tech-004:

- a. Canyon Fuel Company appears to be the owner of the surface in all areas where monitoring was stopped. Canyon Fuel Company also owns the water rights for the springs that have been removed from the monitoring plan. The only surface-water right involved that is not owned by the mine is upstream of the mine, beyond the area affected by subsidence, and the monitoring point on that reach of stream is to be replaced by one downstream, closer to the mine.
- b. Historical quality data show that, except for some problem samples, a good cation/anion balance exists with these data.
- c. Data can be used in a regression analysis to demonstrate that conductivity correlates to the specific water quality of that site, as measured by TDS.
- d. The site is not critical to the ongoing PHC determination.
- e. Monitoring is no longer necessary to achieve the purposes set forth in the approved monitoring plan.
- f. Subsidence monitoring information indicates that further subsidence is not likely and that future mining will not occur in adjacent areas that could affect these water sources.

Sites above and below the disturbed areas and discharge points of both the Soldier Canyon (G-5, G-6, and G-10) and Dugout Canyon Mine (DC-1, DC-2, and DC-3) are monitored quarterly for flow and operational field and laboratory parameters.

#### **Ground-water monitoring.**

Operational ground-water monitoring protocols are given on pages 7-52 through 7-56. Locations of wells and springs to be monitored are on Plate 7-1. Quarterly operational monitoring of springs at Dugout Canyon Mine, as at the adjacent Soldier Canyon Mine, has been reduced to field parameters only: flow, pH, specific conductance, and temperature. Four springs are to be monitored for operational water quality and quantity: SC-14, SC-65, SC-100, and SP-20 (same as S-30). Water rights have not been filed on these springs.

During the first "wet" year and first "dry" year following permit issuance, spring flows will be measured weekly between April 1 and August 31 as conditions permit, with the intent of preparing baseflow hydrographs from the data. Wet and dry years will be defined based on snow-pack measurements as of March 1 for the Price-San Rafael area, with a wet year being the first year after permit issuance when the snow pack water content is greater than 110% of normal and a dry year being the first year following permit issuance when the snow pack is less than 70% of normal.

SC-14, SC-65, SC-100, and SP-20 will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4. Following these 2 years, operational water-quality parameters for the springs will be determined semi-annually during the "wet" and "dry" years only, if the first 2 years of quarterly monitoring have not already included these "wet" and "dry" years; this is one notable variation from the recommended schedule in Tech-004. Operational ground-water quality parameters to be monitored at the Dugout Canyon Mine are listed in Table 7-4 of the MRP. They correspond with the operational parameters in Table 4 of Tech-004 except that total alkalinity and hardness are not included.

Four springs are to be monitored for operational water quality and quantity: SC-65, SP-20

(same as S-30), SC-14, and SC-100. Water rights have not been filed on these springs. The permittee selected these springs because "These springs are reasonably accessible and, based on the historical data, are representative of conditions within their respective formations." (Page 7-54). However, there is actually little historic data for these springs, and it is necessary to rely on data from the Soldier Canyon Mine and surrounding springs to extrapolate baseline information. Springs SC-65, SP-20, SC-14, and SC-100 will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4 (page 7-54).

There are flow data for SC-65 from July 1976, September and October 1995, August and October 1997, and June 1998. Water-quality data were determined for August 1997, and a few water-quality parameters were determined for July 1976. Flows were measured in 1995 at other Colton Formation springs: in September and October at SC-45, SC-46, SC-50, and SC-99, and in October 1995 only at SC-110 and SC-111, but water-quality parameters were not measured. Additional water-quality data for SC-65 are needed before mining disturbs this area, which will not be at least until such time as federal lease U-07064-027821 to the east is added to the permit area. This spring will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4 (page 7-54).

SP-20 has data from 1976 to 1981 that includes both flow and quality determinations, but total iron and manganese are notably absent; total iron and manganese were included in water-quality data from September and October 1995 and August 1997 (S-30) and operational parameters were monitored in October 1997 (S-30) and June 1998. Nearby springs that also flow from the Flagstaff Formation, SP-15, SP-17, and SP-18, have data back to June 1976 that include some total iron and total manganese concentrations. Data are available to deduce water-quality conditions for the area around SP-20, but water-quality conditions specific to SP-20 need to be determined. This spring will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4 (page 7-54).

For spring SC-14 there are flow data from September and October 1995 and June 1998, but there are no water-quality data. SC-14's flow is small but appears to be the largest from the North Horn Formation in the area. Nearby springs SC-15, SC-16, SC-16, and SC-17 that also issue from the North Horn Formation were dry when visited in 1995. SP-13, SP-16, SP-19, SC-87, and SC-102, other North Horn springs located within a few miles, were dry or had low flows or just seepage in 1995. There is basically no water-quality information for SC-14 or related springs. Additional water-quality data are needed before mining disturbs this area, which will not be until after the year 2001 according to the proposed mining sequence shown on Plate 5-7 of the MRP. This spring will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-4 (page 7-54).

Spring SC-100 has flow data from September and October 1995, August and October 1997, and June 1998 but water-quality data for August 1997 only. Nearby springs SC-59, SC-82, SC-83, SC-84, SC-85, SC-104, SC-105, SC-114, and SC-115 (Flagstaff) and SC-101 (North Horn) have had low flows and no analyses for water quality. The USGS measured some water-quality parameters in nearby springs G-95, G-96, and G-97 in July 1980. Additional water-quality data are needed for SC-100 before mining disturbs this area, which will not be at least until such time as federal lease U-07064-027821 to the east is added to the permit area. This spring will be monitored quarterly, when accessible, for at least 2 years, and water samples will be analyzed for the parameters listed in Table 7-

4 (page 7-54).

Tech-004 recommends that for springs, water-quality samples be analyzed for baseline parameters every fifth year. Page 7-56 includes a commitment to collect one water sample at each spring sampling point during low flow period every fifth year, during the year preceding re-permitting, to be analyzed for baseline parameters.

Water depth in wells will be monitored quarterly. Wells GW-10-2, GW-11-2, and GW-24-1 (all completed in the Castlegate Sandstone) and springs SC-65 (Colton Formation), SP-20 (Flagstaff Formation), SC-14 (North Horn Formation), and SC-100 (Flagstaff Formation at contact with North Horn Formation) will be used to monitor ground water conditions in the proposed Dugout Canyon Mine permit area.

During Phase I construction in September 1998 ground water was discovered discharging from the old Gilson coal-seam workings on the east side of Dugout Canyon. This water had been seeping undetected through the alluvium and into the stream channel. Beginning in the fourth quarter of 1998, this water will be monitored at point MD-1, shown on Plate 7-1 (page 7-56).

#### **Surface-water monitoring.**

Operational surface-water monitoring protocols are given on pages 7-57 through 7-59. Sites DC-1, DC-2, and DC-3, located above and below the disturbed areas and UPDES discharge points, are to be monitored quarterly for flow and operational field and laboratory parameters. Operational surface-water quality parameters to be monitored at the Dugout Canyon Mine are listed in Table 7-5 of the MRP. They correspond with the operational parameters in Table 3 of Tech-004 except that total alkalinity and hardness are not included.

In addition DC-2, DC-3, DC-4, and DC-5 are to be monitored weekly between April 1 and August 31 during the first "wet" year and first "dry" year following permit issuance. Flows will be measured with the intent of preparing baseflow hydrographs from the data, and samples will be collected during the high-flow and low-flow seasons at DC-4 and DC-5 to be analyzed for tritium and operational water-quality parameters.

For surface water, Tech-004 recommends one water-quality sample at low flow every fifth year, either during the year preceding re-permitting or at midterm review, to be analyzed for baseline parameters. In addition to the regular monitoring, the MRP contains a commitment to collect one water sample at each sampling point during low flow period every fifth year, during the year preceding re-permitting, to be analyzed for baseline parameters (p. 7-59).

#### **Transfer of wells.**

Before final release of bond, exploration or monitoring wells will be sealed in a safe and environmentally sound manner. Ownership of wells will be transferred only with prior approval of the Division, and conditions of such a transfer will comply with State and local laws. Canyon Fuel Company will remain responsible for the management of transferred wells until bond release (p. 7-60).

**Findings:**

Operations hydrologic information provided in the PAP is considered adequate to meet the requirements of this section.

## **RECLAMATION PLAN**

### **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

**Analysis:**

**Ground-water monitoring.**

Reclamation ground-water monitoring protocols are given along with the operational monitoring protocols on pages 7-52 through 7-56. Locations of wells and springs to be monitored are on Plate 7-1. Groundwater monitoring during the post-mining period will continue until bond release (p. 7-56). See the discussion of Ground Water Information under Baseline Information in the Environmental Resource Information section.

During the post-mining period field data and water samples will be collected from springs SC-65 (Colton Formation), SP-20 (Flagstaff Formation), and SC-14 and SC-100 (Flagstaff Formation at contact with North Horn Formation) once each year during September or October (low-flow season while the sites are still accessible).

Water levels will be measured in wells GW-10-2, GW-11-2, and GW-24-1 (all completed in the Price River Formation or the underlying Castlegate Sandstone) once each year. Exploration or monitoring wells are planned to be sealed before final bond release, but if ownership of the wells is transferred the permittee will remain responsible for the management of the wells until bond release (p. 7-60).

**Transfer of wells.**

Before final release of bond, exploration or monitoring wells will be sealed in a safe and environmentally sound manner. Ownership of wells will be transferred only with prior approval of the Division, and conditions of such a transfer will comply with State and local laws. Canyon Fuel Company will remain responsible for the management of transferred wells until bond release (p. 7-60).

**Water-quality standards and effluent limitations.**

Discharges of water from disturbed areas will be in compliance with all Utah and federal water-quality laws and regulations and with effluent limitations for coal mining contained in 40 CFR Part 434 (p. 7-86).

**Casing and sealing of wells.**

When no longer needed for monitoring or other use approved by the Division and upon a finding of no adverse environmental or health and safety effects, or unless approved for transfer as a water well, each well will be capped, sealed, backfilled, or otherwise properly managed as required by the Division. Permanent closure measures will be designed to prevent access to the mine workings by people, livestock, fish and wildlife, machinery and to keep acid or other toxic drainage from entering ground or surface waters (p. 7-97).

**Findings:**

Reclamation hydrologic information provided in the PAP is considered adequate to meet the requirements of this section.



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210  
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Salt Lake City, Utah 84114-5801  
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801-359-3940 (Fax)  
801-538-7223 (TDD)

Michael O. Leavitt  
Governor  
Lowell P. Braxton  
Division Director

October 19, 1998

Richard D. Pick  
Canyon Fuel Company, LLC  
6995 South Union Park Center, Suite 540  
Salt Lake City, Utah 84047

Re: Requirement to Submit Clean Copies of Mining and Reclamation Plan, Dugout Canyon Mine, Canyon Fuel Company, LLC, ACT/007/039-98-1, Folder #3, Carbon County, Utah

Dear Mr. Pick:

The permit for the Dugout Canyon Mine (Phase II) was approved on October 16, 1998. Much of the approved Mining and Reclamation Plan, upon which the permit was based, contains redline/strikeout text and will need to be updated with a clean version. Please provide 4 clean copies of your plans for distribution by no later than November 19, 1998.

The copies that we currently have on file could be used if you want to update them to the clean versions. If you have any questions, please call.

Sincerely,

Daron R. Haddock  
Permit Supervisor

tam

cc: Ken Payne  
Daron Haddock  
Price Field Office

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DEPARTMENT OF NATURAL RESOURCES  
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Michael O. Leavitt  
Governor

Lowell P. Braxton  
Division Director

October 14, 1998

TO: File

THRU: Daron Haddock, Permit Supervisor 

FROM: James D. Smith, Reclamation Specialist 

RE: Round Two - Technical Analysis of Permit Application, Canyon Fuel Company, Dugout Canyon Mine - Phase II, ACT/007/039-98-1, File 2, Carbon County, Utah

**SUMMARY**

The Permit Application Package (PAP) for the Dugout Canyon Mine was approved by UDOGM and the permit was issued March 16, 1998. Construction at the mine site began in May 1998. One purpose of this Phase II submittal is to incorporate a parcel of BLM land located at the downstream end of the disturbed area to better accommodate a sedimentation pond for the mine pad. Other changes are also being made to the mine plan, such as water storage tanks up the canyon from the main pad area, expanded coal storage, and relocation of the electric-power sub-station, to better facilitate mining operations.

A Technical Analysis (TA), dated August 25, 1998, of the Phase Two application was sent to Canyon Fuel Company. The response from Canyon Fuel Company was received by UDOGM on September 11, 1998. The sections in this TA are intended to replace the corresponding sections in the August 25 TA, additions or changes having been made due to the permittee's responses to deficiencies and the resulting changes in pagination in the MRP.

**TECHNICAL ANALYSIS**

**ENVIRONMENTAL RESOURCE INFORMATION**

**GEOLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.22; R645-301-623, -301-724.

**Analysis:**

Geologic information includes a description of the geology of the proposed permit and adjacent areas down to and including the stratum immediately below the lowest coal seam to be mined and the aquifer below the lowest coal seam to be mined that may be adversely impacted by mining. This description includes the areal and structural geology of the permit and adjacent areas, and other parameters that influence the required reclamation. It also shows how areal and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water. The description is based on maps and plans required as resource information for the plan, detailed site specific information, and, geologic literature and practices.

Descriptions of the stratigraphy and lithology of strata from the Mancos Shale up to the Colton Formation and of Quaternary pediment gravels and alluvium are in Section 624.100. That section also contains a discussion of geologic structure and a very brief description of the nature, depth, and thickness of the coal seams and the interburden between the Sunnyside, Rock Canyon, and Gilson seams. Plate 6-4 is an isopach map of the Rock Canyon seam overburden thickness and Plate 6-5 is an isopach map of the Rock Canyon to Gilson seam interburden thickness. Plates 6-6 and 6-7 in the Confidential binder are, respectively, isopach thickness maps of the Rock Canyon and Gilson seams.

The Gilson and Rock Canyon seams are both sufficiently developed to allow for economic mining in the proposed permit area but only the Rock Canyon seam is to be mined under the proposed MRP. Movable coal in the Rock Canyon seam ranges from 5 to 8 feet in thickness (p. 6-15). Although the current permit application does not include federal acreage, an R2P2 for the logical mining unit that includes Soldier Canyon and Dugout Canyon Mines and federal lease U-07064-027821 is included in the Confidential binder.

Appendix 6-1 (Confidential binder) contains cutting and core logs for drill holes 3-1, 9-1, 9-2, 10-1, 11-1, 13-1, 13-2, 14-1, 15-1, 15-2, 15-3, 19-2, HCC-4 (H-4), KCC-A and KCC-E. Collar or ground elevations are included in Appendix 6-1. Drill hole locations and elevations are shown on Plate 6-1.

Some bore holes have been logged from the surface to total depth, for others only the coal

seams and adjacent strata have been logged. Together, the logs describe lithologic characteristics and thickness of each stratum from the surface to below the coal seams. Ground water occurrence was not marked on these logs at the time the holes were bored (p. 6-17). Bore hole logs were used to construct the cross sections on Plate 6-3, which show the interval from the Sunnyside coal zone to below the Gilson coal zone. Figure 6-1 is a more general cross section from the surface to the Mancos Shale.

Analysis reports on coal, floor, and roof samples from the Rock Canyon and Gilson seams are found in Appendix 6-2 (Confidential binder). Floor and roof samples of the Rock Canyon seam were collected from one of the portals of the abandoned Rock Canyon seam mine in Dugout Canyon (portals shown on Plate 5-1) and a sample of coal was taken from a fresh coal outcrop located a few-hundred feet inside. The location where the coal, roof, and floor samples were collected for the Gilson seam is shown on Figure A1 in Appendix 6-2 in the Confidential binder.

Samples were analyzed for acid- or toxic-forming and alkalinity-producing materials, including total sulfur but not pyritic or other specific forms of sulfur. BTU, ash, and sulfur content of the Rock Canyon coal are briefly summarized at the end of Section 624.100. No unacceptable values were reported for the parameters listed in Table 2 of UDOGM's "Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining".

Data from one location are probably insufficient to determine the potential for acid- and toxic-forming materials for the entire proposed mine. However, waste material from the mine is not to be used in reclamation. (Although not part of this permit submittal, future development of a waste-rock disposal site has been contemplated.) Limited topsoil will be available for reclamation, so selected overburden materials from the facilities area and B and C horizon soils from the sediment pond area will be used as substitute topsoil and growth media during reclamation. Current information indicates these materials are within acceptable acid- and toxic-forming parameters (Table 2-1). Data from the adjacent Soldier Creek Mine and other operations in the Book Cliffs support the determination of low potential for acid- and toxic-forming or alkalinity-producing material. The MRP contains a commitment (p. 2-33) that where overburden materials are used to supplement topsoil, they will be used only after it has been demonstrated that the resultant soil is suitable for supporting revegetation.

Clay content was determined for the roof and floor rock samples. The sample from the roof of the Gilson seam contained twenty percent clay, but clay content of the other roof and two floor samples was less than ten percent. Drill-hole logs indicate lithology of strata immediately above and below the minable coal varies within the permit and adjacent areas. Several factors, such as thickness of overburden, use of a 35° angle of draw in formulating the subsidence control plan, anticipation that most of the land within the permit area will eventually be affected by subsidence, and the low potential for material damage from subsidence indicate additional determination of engineering properties of roof and floor rock would be of little value. No additional determinations of thickness and engineering properties of clays or soft rock are needed

prior to approval of the proposed MRP.

Rock Canyon coal thickness in the proposed permit area ranges from 5 to 8 feet, except for a want in the north-central part of the proposed permit area, where coal thins to under three feet (Plate 6-6). Maximum subsidence can be projected as 3.5 to 5.6 feet, based on the assumption that the surface will subside up to 70% of the thickness of the extracted coal. Overburden thickness ranges from 600 feet in the south part of the proposed permit area to over 2400 in the north. Overburden consists of the upper Blackhawk Formation, the Castlegate Sandstone, and the Price River, North Horn, and Flagstaff Formations, which are described in Section 624.100. Gilson to Rock Canyon interburden thickness is 30 to 80 feet over most of the proposed permit area, and up to 100 feet at the west edge (Plate 6-5), and Rock Canyon to Sunnyside thickness is 140 to 180 feet.

The application includes geologic information in sufficient detail to assist in determining the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface and ground water monitoring is necessary; and determining whether reclamation as required by the R645 Rules can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

At this time the Division does not require the collection, analysis, and description of additional geologic information to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards.

The applicant has made no request the Division to waive in whole or in part the requirements of the bore hole information or analysis required of this section. However, the applicant has requested, within the text of the PAP, that the information in Appendices 6-1 and 6-2 be kept confidential. The Applicant should provide this information in a folder or binder separate from the rest of the PAP and marked "Confidential".

**Findings:**

Information in the geologic resource section is considered adequate to meet the requirements of this section.

## **HYDROLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-720.

### **Analysis:**

#### **Baseline information.**

#### **Ground-water information.**

For the initial PAP, water monitoring data that potentially met the minimum requirements of SMCRA and the Utah Coal Mining Rules was done at only 13 (6 springs and 7 in-mine locations) of the 97 sites listed in the initial PAP. On average only three samples were analyzed for those thirteen sites, so determination of baseline seasonal quality was minimal for specific sites; however, overall baseline ground-water quality and quantity information was considered sufficient to characterize baseline ground-water conditions for the permit area.

Four springs are to be monitored for operational water quality and quantity: SC-65, SP-20 (same as S-30), SC-14, and SC-100. Water rights have not been filed on these springs. The permittee selected these springs because "These springs are reasonably accessible and, based on the historical data, are representative of conditions within their respective formations." (Page 7-54). However, there is actually little historic data for these springs, and it is necessary to rely on data from the Soldier Canyon Mine and surrounding springs to extrapolate baseline information.

Water-quality samples were to have been collected during 1997. October 1997 data at SC-65, SC-100, and SP-20 were mistakenly collected as field parameters only rather than water-quality parameters, and no data at all were collected at SC-14 that month. The permittee collected no water samples nor made any determinations of field parameters during the first quarter of 1998, but by agreement with UDOGM monitoring was done early in the third quarter as representative of the second quarter. Unfortunately field parameters only, rather than water-quality parameters, were determined for these samples. Collection of regular operational water-quality data began in August 1998.

There are flow data for SC-65 from July 1976, September and October 1995, August and October 1997, and June 1998. Water-quality data were determined for August 1997, and a few water-quality parameters were determined for July 1976. Flows were measured in 1995 at other Colton Formation springs: in September and October at SC-45, SC-46, SC-50, and SC-99, and in October 1995 only at SC-110 and SC-111, but water-quality parameters were not measured. Additional water-quality data for SC-65 are needed before mining disturbs this area, which will not be at least until such time as federal lease U-07064-027821 to the east is added to the permit area.

SP-20 has data from 1976 to 1981 that includes both flow and quality determinations, but

total iron and manganese are notably absent; total iron and manganese were included in water-quality data from September and October 1995 and August 1997 (S-30) and operational parameters were monitored in October 1997 (S-30) and June 1998. Nearby springs that also flow from the Flagstaff Formation, SP-15, SP-17, and SP-18, have data back to June 1976 that include some total iron and total manganese concentrations. Data are available to deduce water-quality conditions for the area around SP-20, but water-quality conditions specific to SP-20 need to be determined. (S-30 is listed as a separate spring in Appendix 7-2, but has been identified as the same as SP-20 by the permittee: these data need to be consolidated with that of SP-20 for clarity.)

For spring SC-14 there are flow data from September and October 1995 and June 1998, but there are no water-quality data. SC-14's flow is small but appears to be the largest from the North Horn Formation in the area. Nearby springs SC-15, SC-16, SC-16, and SC-17 that also issue from the North Horn Formation were dry when visited in 1995. SP-13, SP-16, SP-19, SC-87, and SC-102, other North Horn springs located within a few miles, were dry or had low flows or just seepage in 1995. There is basically no water-quality information for SC-14 or related springs. Additional water-quality data are needed before mining disturbs this area, which will not be until after 2001 according to the proposed mining sequence shown on Plate 5-7 of the MRP.

Spring SC-100 has flow data from September and October 1995, August and October 1997, and June 1998 but water-quality data for August 1997 only. Nearby springs SC-59, SC-82, SC-83, SC-84, SC-85, SC-104, SC-105, SC-114, and SC-115 (Flagstaff) and SC-101 (North Horn) have had low flows and no analyses for water quality. The USGS measured some water-quality parameters in nearby springs G-95, G-96, and G-97 in July 1980. Additional water-quality data are needed for SC-100 before mining disturbs this area, which will not be at least until such time as federal lease U-07064-027821 to the east is added to the permit area.

(On page 7-53 of the MRP, SC-100 is identified as being at the contact between the North Horn and Price River Formations. Plates 6-1 and 7-1 of the MRP, when used together, indicate this spring is at the contact of the Flagstaff and North Horn Formations. This needs to be clarified.)

#### **Surface-water information.**

For the initial PAP, water monitoring data that potentially met the minimum requirements of SMCRA and the Utah Coal Mining Rules was minimal at most specific sites; however, overall surface-water quality and quantity information was considered sufficient to characterize surface-water baseline conditions for the permit area.

For DC-1, DC-2, and DC-3 surface-water quality and quantity data from August and October 1997 and April and June 1998 have been included with the proposed amendment. There are also data for DC-1 from March 1998, and additional data for DC-1 extend back to July 1976. August 1997 flows and March 1998 water-quality data for DC-4 and DC-5 have also been included; these data were collected because of a misunderstanding by the operator and these two sites are not scheduled for quarterly monitoring of either field or operational water-quality parameters.

### **Probable hydrologic consequences determination.**

A PHC determination prepared by Mayo and Associates in 1996 is in Appendix 7-2. Previous studies in the vicinity of the Soldier Canyon Mine were reviewed for information on geology, hydrology, and hydrogeology and for data on discharge, sediment, and other surface and ground water parameters. Seventeen additional ground and surface water samples were collected in 1995 for chemical and isotopic analyses. In spite of a large data base, most of the analyses lack information on the basic parameters required by the Coal Mining Rules and SMCRA, and on seasonal variation. The PHC determination for the MRP begins on page 7-41. It is based on the data collected by Mayo and Associates and additional data collected in 1996 and 1997. Collection of operational data began in 1998.

### *Ground water and surface-water availability*

Potential adverse effects to the hydrologic balance from the proposed mining operations are: both decreased and increased stream flows and spring discharges due to capture of surface or ground water by mine-related subsidence, bedrock fracturing, and aquifer dewatering; increased stream flows due to increased discharge of ground water from the Blackhawk Formation through the mine workings; and increased ground water recharge to overlying ground water systems. It appears that the Soldier Canyon Mine has not decreased groundwater discharge in overlying or underlying groundwater systems. It is unlikely that coal mining will effect the discharges of any spring as a result of mining in the Dugout Canyon permit and adjacent areas (Appendix 7-3 and MRP - pp. 7-45 through 7-47).

Considerable seasonal and climatic variability are noted in the hydrographs of springs in the permit and adjacent areas, but data for both Soldier Creek and springs that overly the Soldier Canyon Mine workings do not show discharge declines which may be attributed to either subsidence or bedrock fracturing. The Blackhawk groundwater system in the vicinity of mined coal seams is compartmentalized both vertically and horizontally. Coal mining locally dewateres overlying rock layers in the Blackhawk Formation but does not appear to draw additional recharge from overlying or underlying groundwater systems (p. 7-46).

Steady-state inflow to the Dugout Canyon mine is expected to be approximately 220 gpm (p. 7-49). Mine consumption is estimated to be 30 gpm, leaving 190 gpm (306 acre-feet/yr) discharge to Dugout Creek, which would represent an increase of approximately 6% over

average annual flow of 5,100 acre-feet/year (p. 7-50). Estimated maximum discharge from the Dugout Canyon Mine will be approximately 400 gpm. If this maximum rate were sustained for a full year it would be a 13% increase in the estimated average annual flow of Dugout Creek (p. 7-50).

The potential for mine water discharge and increased flow rates in Dugout Creek are based on the studies of Lines (1985 - see MRP for reference). Actual data that could be used to correlate coal production rates to mine water discharge rates at the Soldier Canyon Mine and to predict mine water discharge rates for the Dugout Canyon Mine are not in the PAP. Annual reports provide some information.

#### *Potential Hydrocarbon Contamination*

Diesel fuel, oils, greases, and other hydrocarbon products will be stored and used at the site for a variety of purposes. Diesel and oil stored in above-ground tanks at the mine surface facilities may spill onto the ground during filling of the storage tank, leakage of the storage tank, or filling of vehicle tanks. Similarly, greases and other oils may be spilled during use in surface and underground operations. The probable future extent of the contamination caused by diesel and oil spillage is expected to be small because the tanks will be located above ground and spillage during filling of the storage or vehicle tanks will be minimized to avoid loss of an economically valuable product. A Spill Prevention Control and Countermeasure Plan (SPCC) to be developed for the site upon completion of Phase II construction will provide inspection, training, and operation measures to minimize the extent of contamination resulting from the use of hydrocarbons at the site. This plan is not required to be submitted as part of the MRP; however, a copy will be maintained at the mine site as required by the Utah Division of Water Quality (p. 7-50). Phase I is currently proceeding under a construction SPCC.

#### **Findings:**

Hydrologic resource information provided in the PAP is not considered adequate to meet the requirements of this section. Prior to approval Canyon Fuel Company must provide the following information:

**R645-301-731.211, -731.21, 303-220** - a commitment to 2 years of quarterly water-quality monitoring, at a minimum the operational parameters listed in Table 7-4 of the MRP, for springs SC-14, SC-65, SC-100, and SP-20 (S-30).

**R645-301-121.200** - S-30 is listed as a separate spring in Appendix 7-2, but has been identified as the same as SP-20 by the permittee: the data for S-30 need to be consolidated into that of SP-20 for clarity.

## OPERATION PLAN

### HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Underground mining and reclamation activities are planned to be conducted to minimize disturbance of the hydrologic balance within the permit and adjacent areas, to prevent material damage to the hydrologic balance outside the permit area, and to support approved postmining land uses in accordance with the terms and conditions of the approved permit and the performance standards of this part. The Division has not required additional preventative, remedial, or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented.

#### **Analysis:**

By defining terms, stating objectives, and identifying responsibilities, UDOGM Coal Regulatory Program Directive Tech-004 (Tech-004) is meant to clarify the Division's position on what constitutes an appropriate monitoring program and provides methodology for consistently amending these monitoring programs. Under Tech-004, amendments to monitoring programs will be approved on a site specific basis.

The monitoring plan at Dugout Canyon Mine conforms to the amended monitoring plan approved for the Soldier Canyon Mine, which is based on Tech-004. The amended Soldier Canyon Mine monitoring plan was approved in accordance with the procedure in section 5E of Tech-004:

- a. Canyon Fuel Company appears to be the owner of the surface in all areas where monitoring was stopped. Canyon Fuel Company also owns the water rights for the springs that have been removed from the monitoring plan. The only surface-water right involved that is not owned by the mine is upstream of the mine, beyond the area affected by subsidence, and the monitoring point on that reach of stream is to be replaced by one downstream, closer to the mine.
- b. Historical quality data show that, except for some problem samples, a good cation/anion balance exists with these data.
- c. Data can be used in a regression analysis to demonstrate that conductivity correlates to the specific water quality of that site, as measured by TDS.
- d. The site is not critical to the ongoing PHC determination.
- e. Monitoring is no longer necessary to achieve the purposes set forth in the

- approved monitoring plan.
- f. Subsidence monitoring information indicates that further subsidence is not likely and that future mining will not occur in adjacent areas that could affect these water sources.

Sites above and below the disturbed areas and discharge points of both the Soldier Canyon (G-5, G-6, and G-10) and Dugout Canyon Mine (DC-1, DC-2, and DC-3) are monitored quarterly for flow and operational field and laboratory parameters.

#### **Ground-water monitoring.**

Operational ground-water monitoring protocols are given on pages 7-52 through 7-56. Locations of wells and springs to be monitored are on Plate 7-1. Quarterly operational monitoring of springs at Dugout Canyon Mine, as at the adjacent Soldier Canyon Mine, has been reduced to field parameters only: flow, pH, specific conductance, and temperature. Four springs are to be monitored for operational water quality and quantity: SC-14, SC-65, SC-100, and SP-20 (same as S-30). Water rights have not been filed on these springs.

During the first "wet" year and first "dry" year following permit issuance, spring flows will be measured weekly between April 1 and August 31 as conditions permit, with the intent of preparing baseflow hydrographs from the data. Wet and dry years will be defined based on snow-pack measurements as of March 1 for the Price-San Rafael area, with a wet year being the first year after permit issuance when the snow pack water content is greater than 110% of normal and a dry year being the first year following permit issuance when the snow pack is less than 70% of normal.

Operational water-quality parameters for the springs will be determined semi-annually during the "wet" and "dry" years only; this is one notable variation from the recommended schedule in Tech-004. Operational ground-water quality parameters to be monitored at the Dugout Canyon Mine are listed in Table 7-4 of the MRP. They correspond with the operational parameters in Table 4 of Tech-004 except that total alkalinity and hardness are not included.

Four springs are to be monitored for operational water quality and quantity: SC-65, SP-20 (same as S-30), SC-14, and SC-100. Water rights have not been filed on these springs. The permittee selected these springs because "These springs are reasonably accessible and, based on the historical data, are representative of conditions within their respective formations." (Page 7-54). However, there is actually little historic data for these springs, and it is necessary to rely on data from the Soldier Canyon Mine and surrounding springs to extrapolate baseline information.

Water-quality samples were to have been collected during 1997. October 1997 data at SC-65, SC-100, and SP-20 were mistakenly collected as field parameters only rather than water-quality parameters, and no data at all were collected at SC-14 that month. The permittee collected no water samples nor made any determinations of field parameters during the first

quarter of 1998, but by agreement with UDOGM monitoring was done early in the third quarter as representative of the second quarter. Unfortunately field parameters only, rather than water-quality parameters, were determined for these samples. Collection of regular operational water-quality data began in August 1998.

There are flow data for SC-65 from July 1976, September and October 1995, August and October 1997, and June 1998. Water-quality data were determined for August 1997, and a few water-quality parameters were determined for July 1976. Flows were measured in 1995 at other Colton Formation springs: in September and October at SC-45, SC-46, SC-50, and SC-99, and in October 1995 only at SC-110 and SC-111, but water-quality parameters were not measured. Additional water-quality data for SC-65 are needed before mining disturbs this area, which will not be at least until such time as federal lease U-07064-027821 to the east is added to the permit area.

SP-20 has data from 1976 to 1981 that includes both flow and quality determinations, but total iron and manganese are notably absent; total iron and manganese were included in water-quality data from September and October 1995 and August 1997 (S-30) and operational parameters were monitored in October 1997 (S-30) and June 1998. Nearby springs that also flow from the Flagstaff Formation, SP-15, SP-17, and SP-18, have data back to June 1976 that include some total iron and total manganese concentrations. Data are available to deduce water-quality conditions for the area around SP-20, but water-quality conditions specific to SP-20 need to be determined. (S-30 is listed as a separate spring in Appendix 7-2, but has been identified as the same as SP-20 by the permittee: these data need to be consolidated with that of SP-20 for clarity.)

For spring SC-14 there are flow data from September and October 1995 and June 1998, but there are no water-quality data. SC-14's flow is small but appears to be the largest from the North Horn Formation in the area. Nearby springs SC-15, SC-16, SC-16, and SC-17 that also issue from the North Horn Formation were dry when visited in 1995. SP-13, SP-16, SP-19, SC-87, and SC-102, other North Horn springs located within a few miles, were dry or had low flows or just seepage in 1995. There is basically no water-quality information for SC-14 or related springs. Additional water-quality data are needed before mining disturbs this area, which will not be until after 2001 according to the proposed mining sequence shown on Plate 5-7 of the MRP.

Spring SC-100 has flow data from September and October 1995, August and October 1997, and June 1998 but water-quality data for August 1997 only. Nearby springs SC-59, SC-82, SC-83, SC-84, SC-85, SC-104, SC-105, SC-114, and SC-115 (Flagstaff) and SC-101 (North Horn) have had low flows and no analyses for water quality. The USGS measured some water-quality parameters in nearby springs G-95, G-96, and G-97 in July 1980. Additional water-quality data are needed for SC-100 before mining disturbs this area, which will not be at least until such time as federal lease U-07064-027821 to the east is added to the permit area.

Tech-004 recommends that for springs, water-quality samples be analyzed for baseline parameters every fifth year. Page 7-56 includes a commitment to collect one water sample at each spring sampling point during low flow period every fifth year, during the year preceding re-permitting, to be analyzed for baseline parameters.

Water depth in wells will be monitored quarterly. Wells GW-10-2, GW-11-2, and GW-24-1 (all completed in the Castlegate Sandstone) and springs SC-65 (Colton Formation), SP-20 (Flagstaff Formation), SC-14 (North Horn Formation), and SC-100 (Flagstaff Formation and North Horn Formation contact) will be used to monitor ground water conditions in the proposed Dugout Canyon Mine permit area. (The permittee identifies SC-100 as being at the North Horn - Price River contact, but maps indicate the Flagstaff - North Horn contact is more likely.)

(On page 7-53 of the MRP, SC-100 is identified as being at the contact between the North Horn and Price River Formations. Plates 6-1 and 7-1 of the MRP, when used together, indicate this spring is at the contact of the Flagstaff and North Horn Formations. This needs to be clarified.)

#### **Surface-water monitoring.**

Operational surface-water monitoring protocols are given on pages 7-56 through 7-59. Sites DC-1, DC-2, and DC-3, located above and below the disturbed areas and UPDES discharge points, are to be monitored quarterly for flow and operational field and laboratory parameters. Operational surface-water quality parameters to be monitored at the Dugout Canyon Mine are listed in Table 7-5 of the MRP. They correspond with the operational parameters in Table 3 of Tech-004 except that total alkalinity and hardness are not included.

In addition DC-2, DC-3, DC-4, and DC-5 are to be monitored weekly between April 1 and August 31 during the first "wet" year and first "dry" year following permit issuance. Flows will be measured with the intent of preparing baseflow hydrographs from the data, and samples will be collected during the high-flow and low-flow seasons at DC-4 and DC-5 to be analyzed for tritium and operational water-quality parameters.

For surface water, Tech-004 recommends one water-quality sample at low flow every fifth year, either during the year preceding re-permitting or at midterm review, to be analyzed for baseline parameters. In addition to the regular monitoring, the MRP contains a commitment to collect one water sample at each sampling point during low flow period every fifth year, during the year preceding re-permitting, to be analyzed for baseline parameters (p. 7-59).

#### **Transfer of wells.**

Before final release of bond, exploration or monitoring wells will be sealed in a safe and environmentally sound manner. Ownership of wells will be transferred only with prior approval of the Division, and conditions of such a transfer will comply with State and local laws. Canyon

Fuel Company will remain responsible for the management of transferred wells until bond release (p. 7-60).

**Findings:**

Operations hydrologic information provided in the PAP is not considered adequate to meet the requirements of this section. Prior to approval Canyon Fuel Company must provide the following information:

**R645-301-121.200** - on page 7-53 of the MRP, SC-100 is identified as being at the contact between the North Horn and Price River Formations. Plates 6-1 and 7-1 of the MRP, when used together, indicate this spring is at the contact of the Flagstaff and North Horn Formations. This needs to be clarified.

**R645-301-731.211, -731.21, 303-220** - (repeat from Hydrologic Resource Information section) a commitment to 2 years of quarterly water-quality monitoring, at a minimum the operational parameters listed in Table 7-4 of the MRP, for springs SC-14, SC-65, SC-100, and SP-20 (S-30).

## **RECLAMATION PLAN**

### **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

**Analysis:**

**Ground-water monitoring.**

Reclamation ground-water monitoring protocols are given along with the operational monitoring protocols on pages 7-52 through 7-56. Locations of wells and springs to be monitored are on Plate 7-1. Groundwater monitoring during the post-mining period will continue until bond release (p. 7-56). See the discussion of Ground Water Information under Baseline Information in the Environmental Resource Information section.

During the post-mining period field data and water samples will be collected from springs

SC-65 (Colton Formation), SP-20 (Flagstaff Formation), and SC-14 and SC-100 (North Horn Formation) once each year during September or October (low-flow season while the sites are still accessible).

Water levels will be measured in wells GW-10-2, GW-11-2, and GW-24-1 (all completed in the Price River Formation or the underlying Castlegate Sandstone) once each year. Exploration or monitoring wells are planned to be sealed before final bond release, but if ownership of the wells is transferred the permittee will remain responsible for the management of the wells until bond release (p. 7-60).

#### **Transfer of wells.**

Before final release of bond, exploration or monitoring wells will be sealed in a safe and environmentally sound manner. Ownership of wells will be transferred only with prior approval of the Division, and conditions of such a transfer will comply with State and local laws. Canyon Fuel Company will remain responsible for the management of transferred wells until bond release (p. 7-60).

#### **Water-quality standards and effluent limitations.**

Discharges of water from disturbed areas will be in compliance with all Utah and federal water-quality laws and regulations and with effluent limitations for coal mining contained in 40 CFR Part 434 (p. 7-86).

#### **Casing and sealing of wells.**

When no longer needed for monitoring or other use approved by the Division and upon a finding of no adverse environmental or health and safety effects, or unless approved for transfer as a water well, each well will be capped, sealed, backfilled, or otherwise properly managed as required by the Division. Permanent closure measures will be designed to prevent access to the mine workings by people, livestock, fish and wildlife, machinery and to keep acid or other toxic drainage from entering ground or surface waters (p. 7-97).

#### **Findings:**

Reclamation hydrologic information provided in the PAP is considered adequate to meet the requirements of this section.



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Michael O. Leavitt  
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Division Director

September 30, 1998

TO: File

THRU: Joe Helfrich, Permit Supervisor *JH*

FROM: Priscilla Burton, Soils Reclamation Specialist *PB*

RE: Soils Technical Analysis of Phase II Revision of the Permit Application Package (PAP) and the Mining and Reclamation Plan (MRP), Dugout Canyon Mine, Canyon Fuel Company, PRO/007/039-SR98-1. Folder #2, Carbon County, Utah

SUMMARY

Canyon Fuel Co. responded on September 11th to the Divisions' recent TA regarding the Dugout Phase II submittal. This TA document has been revised accordingly. There remains one outstanding deficiency which I have discussed with Chris Hansen.

TECHNICAL ANALYSIS:

**ENVIRONMENTAL RESOURCE  
INFORMATION**

**Analysis:  
SOILS RESOURCE INFORMATION**

Regulatory Reference: R645-301-411, -301-220.

**Analysis:**

Chapter 2, Soils, Sections 220 through 224, discusses the soil resources within the proposed Dugout Canyon Mine disturbances. Relevant soils information includes current and published soil surveys, characterizations, and substitute topsoil identification. The Analysis section discusses resource information as follows:

- Soil Survey Information
- Disturbed Soils
- Undisturbed Soils
- Soil Productivity
- Substitute Topsoil

### **Soil Survey Information**

Soil survey information is provided by both a general-area Order-III and a site-specific Order-I soil surveys. The Order-III survey is reproduced from the SCS "Soil Survey of the Carbon County Area" and is delineated on a general area soils map (Plate 2-1). According to the SCS soil survey, soils present on the east/south-east facing slopes of Dugout Canyon are part of the Rock outcrop-Rubbleland-Travessilla complex (#96) while those on the west/north-west facing slopes are shown as Croydon loam (#21) at lower elevations and Midfork family-Comodore complex (#62) at higher elevations in the upper reaches of the canyon. The SCS map (#11) shows a subjective line that separates the #21 soil from the #62 soil with no apparent vegetation break separating the soils. Mr. Leland Sassar, Soil Scientist, NRCS, was contacted on 3/3/98 concerning the apparent discrepancy and lack of coherency for placing #21 soils on steeper, Douglas-fir dominated slopes. Mr. Sassar indicated that some #20 (Comodore-Datino Variant Complex) soils probably exist within the #21 soils. The #21 soils are characterized as higher-elevation, non-rocky, deep loams, dominated by quaking aspen, whereas the #20 soils are characterized as lower-elevation, rocky, shallow soils, dominated by Douglas-fir.

Generally, the predominantly stoney to gravelly sandy loam soils formed from sandstone, shale colluvium, and alluvium. Soils within the Rock outcrop-Rubbleland-Travessilla complex and the Midfork family-Comodore complex are typically well drained with moderate permeability, rapid runoff, and are highly susceptible to water erosion. Soils within the Croydon loam have moderately slow permeability, and therefore, depending on slope, erosion characteristics vary from slight to severe. The main point is that because of steepness of slope and soil quality, all of these soils are highly erosive. Shallow soils dominate the east facing side slopes while generally deeper soils characterize the west facing toe slopes.

The Order-I survey was conducted for the Dugout Canyon Mine to describe soils found within the surface facilities area. A total of 12 soil test pits were excavated and are located on a soils map, Plate 2-2, Disturbed Area Soil Map. Soil test pits located in disturbed/overburden soils include TP-2, 3, and 11; pits located in Type TS soils include TP-1, 4, 5, 6, 7, 8, 9, 14, and 14A. Soils were delineated and described in accordance with the standards of the National Cooperative Soil Survey. Soil Test Pits TP-1, 2, 3, 4, 5, 6, 8, 9, and 11 were

sampled and characterized according to the DOGM's Guidelines for Topsoil and Overburden<sup>1</sup>; laboratory data and analytical summaries for each of these samples are provided in Table 2-1 of the PAP. Pits 7, 14 and 14A were not sampled, but pit descriptions were used to estimate soil volumes.

Chris Hansen of EarthFax Engineering, Inc., gathered the soil resource information. A Qualification statement for performing the Dugout Canyon soil survey and a personal Resume are provided in Appendix 2-3, Soil Test Pit Logs.

The Phase II submittal updates the Order-I survey by including sites TP7 (below the sediment pond in soil the Datino Variant complex<sup>1</sup>, designated as TS); TP13 (located at the proposed water tank area, also Datino Variant, designated as TS) ; and TP16 (located on the slope above the coal storage area and designated 96 for Rock Outcrop - Rubbleland- Travesilla Complex). These soil test pit locations are located on soils map, Plate 2-2, Disturbed Area Soils Map. Laboratory data and analytical summaries for each of these samples are provided in Table 2-1 of the PAP.

### **Disturbed Soils**

A large portion of the mine facility's area is covered by overburden and disturbed soils consisting of soil mixed with coal waste and/or waste rock from previous mining operations. These soils are described by soil test pits TP-2, TP-3, and TP-11. The overburden is a mixture of rock and/or coal waste with Travessilla soils. The Travessilla soils are classified by the SCS soil survey as loamy, mixed (calcareous) mesic, Lithic Ustic Torriorthents. The overburden is found in the flat areas and on most of the steep slopes; is moderately well drained, and supports sage brush, juniper, rabbit brush, and a variety of grasses. Soil thickness varies from a few feet to more than eight feet. Generally, the overburden soils are described as a "gravelly loam" with rock concentrations between 10 and 40 percent and rock size that varies from gravel to boulder. Rock fragments are composed of sandstone with some siltstone blocks.

### **Undisturbed Soils**

The remainder of the facilities area has soils that appear to be undisturbed or have been only slightly disturbed. Soils present in the canyon bottom lie within the disturbed and undisturbed areas of the mine. The undisturbed soils were identified by the Order-I survey as part of the SCS listed soil unit Datino Variant complex, and were given the distinction "Soil Type TS." According to the SCS Carbon County soils survey, the Datino Variant soil complex is characterized as very deep, well drained, moderate permeable soils on mountain slopes being

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<sup>1</sup>Leatherwood, J., and Duce, D., 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

formed in colluvium derived dominantly from sandstone and shale. The SCS survey defines Datino Variant soils as loamy-skeletal, mixed Typic Haploborolls. The typic subgroup of Haploborolls<sup>2</sup> is defined as freely drained soils with a moderately thick brownish mollic epipedon. Typic Haploborolls were formed in alluvium during the late-Pleistocene or Holocene ages, do not have a shallow lithic (stone) contact, and do not have deep wide cracks in most years. The USDA handbook further states that where slopes are suitable, Haploborolls are mostly under cultivation.

Undisturbed TS soils, as represented by soil test pits TP-1, 4, 5, 6, 7, 8, 9, 14, and 14A, are found on both sides of Dugout Creek in the northeastern portion and in the southwestern portion of the facilities area. The TS soils are found in flat lying areas and on slopes with grades up to 40 percent or more. The soil supports vegetation consisting of sage, cottonwood, gambel oak, grass, pinyon, and fir. Information condensed from soil test pit TP-4, TP-6 and lower sections of pit TP-1 show soil horizons O1 (1 inch), A1 (1 to 5 inches), B2 (5 to 14 inches), B3 (14 to 28 inches), and C (28 inches to 9 feet). Portions of TP-5 and TP-8 soil profiles appear to have been reworked by Dugout Creek; the upper four feet of TP-1 soil profile appear disturbed. Undisturbed Type TS soils have acceptable physical and chemical characteristic results consistent with requirements outlined by DOGM's soil and overburden guidelines as recorded in Table 2-1.

Other undisturbed soils located within the Disturbed Area Boundary and described by the SCS soils Order-III survey include Croydon loam, Comodore-Datino Variant complex, and Rock Outcrop-Rubbleland-Travessilla complex soils.

### **Soil Productivity**

Current soil productivity for the undisturbed and/or slightly disturbed soils is reported by the 1996 survey for living cover percentages as recorded in Section 321.100.

### **Substitute Topsoil**

The disturbed soils within the mine area have been significantly altered by previous mining activities and have lost their native identities. These disturbed soils, or overburden materials, typically contain waste rock and/or coal waste. With the exception of rock fragments and coal waste, these overburden materials have physical and chemical properties that are within DOGM's acceptable range for soil and overburden guidelines and could therefore be considered a substitute topsoil. The Division recognizes that native soils contain high percentages of rock fragments, is inevitable and does not present a reclamation hazard. Indeed, to reclaim and restore the land to pre-mining conditions will require soils with indigenous rock fragment volumes and

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<sup>2</sup>Soil Conservation Service, U.S. Department of Agriculture, Agriculture Handbook No.436, pp 288-289.

content. Therefore, it is not only acceptable, but desirable to salvage soils containing intrinsic rock. Waste and coal waste will be segregated from the soils and disposed of properly.

**Findings:**

The information provided meets the regulatory requirements of this section.

## **ALLUVIAL VALLEY FLOORS**

Regulatory Reference: R645-302-320.

**Analysis:**

The Phase 2 submittal presented several factors that preclude the mine site from being classified as alluvial valley floors. Based on information presented, the following findings can be made:

- No significant deposits of stream-laid alluvium exist within the permit area. The closest areas of alluvium occur outside the permit area, approximately 2,000 feet downstream area along Dugout Creek and 600 feet north in the headwaters of Pine Canyon.
- Stream-laid deposits within the proposed disturbed area do not "hold" Dugout Creek as required by the AVF definition. The Dugout Creek is generally held by underlying bedrock.
- No irrigated agriculture has or does occur within the permit and adjacent areas.
- No flood irrigation or subirrigation of stream-laid deposits have historically occurred within the proposed disturbed area.
- Soil and topographic conditions within the proposed disturbed area preclude future flood irrigation of the site.

Finally, the proposed disturbed area occurs mainly upland. Therefore, by definition, no Alluvial Valley Floor exists.

**Findings:**

The information provided meets the regulatory requirements of this section.

## **PRIME FARMLAND**

Regulatory Reference: R645-301-221, -302-270.

### **Analysis:**

No prime farmland has been identified within the presently proposed Dugout Canyon Mine permit area. A negative prime farmland determination was concluded in 1980 for the Sage Point-Dugout Mine permit (ACT/007/009). Within the immediate mine facilities area, the Soil Conservation Service's (SCS) "Soil Survey of the Carbon County Area"<sup>3</sup> identify Croydon Loam, Comodore-Datino Variant complex, Midfork family-Comodore complex, and the Rock outcrop-Rubbleland-Travessilla complex as non-irrigated soils. The Croydon Loam is rated good for livestock grazing and is well suited for timber harvesting of aspen. For Comodore-Datino Variant, Midfork family-Comodore complex, and Rock outcrop-Rubbleland-Travessilla complex, these soils are not considered grazeable by livestock and the soil-unit areas are limited for harvesting wood products because of slope steepness, surface stones and boulders, and abundant rock outcrops.

### **Findings:**

The information provided meets the regulatory requirements of this section.

## **OPERATION PLAN**

### **TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

### **Analysis:**

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<sup>3</sup>Jensen, E. H., and Borchert, J. W., 1988. Soil Survey of Carbon Area, Utah. Soil Conservation Service, U. S. Department of Agriculture, Washington D. C.

Chapter 2, Soils, Sections 230 through 234, discusses the soil's operation plan for the proposed Dugout Canyon Mine. Relevant information includes soil salvage, stockpiling, and topsoil substitutes and supplements. The Analysis section discusses operational information as follows:

- Topsoil and Subsoil Removal
- Culvert Expansion Soil Removal
- Topsoil Substitutes and Supplements
- Topsoil Storage

### **Topsoil and Subsoil Removal**

The PAP attempts to preserve and protect the natural soil resources by using soil salvage plans for maximizing soil recovery volumes for both topsoil and subsoils within Type TS soils. All B and C horizons will be salvaged in addition to salvaging the A horizon topsoil from the undisturbed, Type TS soils for salvage areas #2, 3, and 4. The undisturbed TS soils are deep rich Mollisols, with deep subsoils (B and C horizons) of excellent quality material available for salvage. These B and C horizon soils will be salvaged, segregated and stockpiled as substitute topsoil.

The estimated volumes of stockpiled soils are presented in Table 2-2 and in Appendix 2-6 which includes soil recovery calculations. Topsoil and subsoils are salvaged from the northwest facilities area (area 2) will yield 1,653 CY; the coal storage (area 3) will yield 4,869 CY; the sediment pond, slope area areas between road and creek (areas 4, 6, 7) will yield 20,118 CY; the water tank area (area 8) overburden soils will yield 247 CY; and the Dugout Creek culvert area (area 5) will yield 1,568 CY. In total, 28,455 CY of soil will be salvaged and stockpiled.

A non-biased, third party, professional soil scientist will be on-site during soil salvage to monitor and supervise soil salvage operations for the purpose of maximizing soil salvage volumes and quantities. Surface disturbance activities will only take place after topsoil removal.

Undisturbed soils marked #96 will not be disturbed although they are within the disturbed boundary. These southwest facing, undisturbed soils are therefore considered a buffer zone.

Soils to be salvaged prior to construction are those labeled with TS on Plate 2-2. The A, B and C horizons will be salvaged.

The estimated volumes of stockpiled soils are presented in Table 2-2 and in Appendix 2-5 (Soil Removal from Within the Culvert Expansion Area) and Appendix 2-6 (Topsoil, Substitute Topsoil, and Storage Pile Calculations). An estimated total of 28,455 CY of soil will be salvaged and stockpiled.

Additional areas of TS soils were identified as either needing protection during operations or as requiring salvage if they are threatened by future activities at the mine, as described below:

- the soils on the southwest facing slope where the north and east drainages of Dugout Creek unite.
- The soils on the west facing slope in the area of the coal storage pile. A discussion of the salvage of these soils is located in Appendix 2-6.

### **Culvert Expansion Soil Removal**

Canyon Fuel Company has committed to salvage soils from steep slopes within the culvert expansion area along Dugout Creek provided that salvage operations do not jeopardize slope stability and safety of construction workers. A qualified soils scientist will decide which soils from steep slopes are suitable for salvage. The construction supervisor will decide which slopes are safe to remove soil from. By mutual agreement, the decision for soil salvage on what slopes will be made based on slope steepness, the potential for slope failure, and timing within the construction sequence. Timing is critical to help maximize safety and slope integrity during salvage operations by coordinating culvert installation and fill placement immediately after soil removal. The placed fills will stabilize the hillsides and will remain in place at final reclamation. After construction, an as-built map will illustrate which areas received salvaged and what volumes of soil were salvaged.

Installation of a culvert in Dugout Creek will result in the removal and storage of 1,568 CY of riparian soil. The soil removal volumes are based on the assumption and calculations provided in Appendix 2-5. Soils removed during culvert construction will be stored separately from other soils and are expressly designated for reclamation of the Dugout Creek, riparian area. Soils on the northwest facing slope of the stream on the opposite bank from the operations pad at the location of the sediment pond will not be salvaged due to their importance in stabilizing the steep stream bank. The idea of protecting the soils with geotextile fabric was discarded after it was determined that the stream bank would not be re-exposed during reclamation, since the channel will be moved westward to improve stability of the slope. Therefore this 300 foot length of streambank soils will be buried in the fill in order to stabilize the entire slope above. The Division concurs with this judgement.

### **Topsoil Substitutes and Supplements**

The Facilities area (Area 1 on Plate 2-2). Soils from Area 1 will be utilized as substitute topsoil at final reclamation if they are not contaminated. Appendix 2-6 provides calculations showing that if 2 feet of material is recovered from this location, approximately 6.504 CY of additional substitute topsoil could be available after testing and approval for use. Any waste will be segregated from the soil material and material heavily contaminated with coal waste will not be used.

Culvert installation and pad construction will require importing fill. The PAP commits to demonstrate the suitability of the imported fill by determining if the fill is acid- and/or toxic-forming prior to placement. Acid and/or toxic-forming materials will not be used.

### **Topsoil Storage**

As stated in the PAP, the topsoil stockpile will be located at the Soldier Canyon Mine topsoil storage area (Plate 2-3) with the Dugout stockpile marked and kept separate from the Soldier Canyon Mine stored soils. A contiguous containment berm separates the Dugout soil pile from the Soldier Canyon Mine piles. The containment berm is designed as a self contained Alternate Sedimentation Control Area (ASCA). Section 231.400 gives the construction, modification, use, and maintenance of the storage piles. The pile is designed to hold a maximum volume of 17,000 CY of soil. The total projected volume of soil salvage from Dugout, culvert expansion area, and topsoil borrow is 28,455 CY of soil. An expansion of the Soldier Canyon Mine topsoil storage area is anticipated by both the applicant and the Division. An application for expansion must be filed and approved prior to approval of Phase II.

The current Soldier Canyon Mine soil stockpile is infested with Cheatgrass. Therefore, the operator has committed to maintain, to the extent possible, the stockpile's interim vegetation in a noxious weed- and Cheatgrass-free state. Discussion has focused on controlling the Cheatgrass using both selective and non-selective herbicides in early spring before dormancy breaks with other desirable plants, and by using pre-emergent herbicides in the fall to kill germinating Cheatgrass.

The PAP states that stockpiled soil in jeopardy of being detrimentally affected in terms of soil quantity and quality by mine operations may be temporarily redistributed. Such action will only take place by prior approval of DOGM with appropriate amendment changes to the MRP.

**Findings:**

The information provided meets the regulatory requirements of this section.

## **RECLAMATION PLAN**

### **TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

**Analysis:**

Chapter 2, Soils, Sections 240 through 250, discusses the soil's reclamation plan for the proposed Dugout Canyon Mine. Appendix 2-6 provides information on topsoil volumes. Chapter 5, section 542.200, and Chapter 3, section 341.200, address slope stability and erosion control, respectively. Reclamation Topography is shown on Plate 5-5 and Reclamation Cross-Sections are shown on six sheets of Plates 5-6. This Analysis section discusses reclamation information as follows:

- Soil Redistribution
- Soil Nutrients and Amendments
- Soil Stabilization

#### **Soil Redistribution**

Cut and fill calculations for the site are found on page 5-66 and Appendix 5-5. An estimated 99,630 CY are needed for fill and an estimated cut quantity is 97,575 CY. This leaves a difference of 2,055 C Y of fill.

Contaminated surface soil within the disturbed area will be removed and buried along with excess gravels, crushed stone, or other contaminants (page 2-38).

Topsoil will be replaced on disturbed areas which are illustrated on Plate 5-5 (see page 2-38). Based on the 26, 887 CY of salvaged soil (see Appendix 2-6) and 14.7 acres or 640,332 sq ft to receive topsoil, the average soil redistribution will be a depth of 13.6 inches as stated on page 2-39 of the MRP. If the underlying material is suitable, these soil depths will allow for the implementation of surface roughening reclamation techniques, such as deep pocking, or gouging of the soil surface without penetrating the subsurface fills. Should the additional 6,504 CY of topsoil substitute material become available during reclamation, the topsoil depth would increase to approximately 16 inches.

The soils salvaged from the culvert expansion, 1,568 CY, will be returned to the reclaimed channel area. Where dictated by the reclamation channel design, riparian soils will be placed within the interstitial spaces of the riprap to promote riparian vegetation establishment. Soils placed outside the riprap areas will be reseeded following soil preparation and surface. If excess soil is available after channel reclamation, then these excess soils may be used elsewhere in the disturbance area.

### **Soil Nutrients and Amendments**

Soil nutrients and amendments will be applied to the redistributed soils based on analyses of samples collected from the stockpiled topsoil.

### **Soil Stabilization**

Soil stabilization practices include surface roughening techniques such as gouging and/or deep pocking, and "high-quality" erosion mat placement on slopes 2:1 or steeper (page 2-28, p2-41, pg 3-40, p3-45 and pg 3-51). No calculations for the added cost of the erosion matting and installation were found in Appendix 5-6 Bond Calculations. The Division is unclear as to how the application of erosion control matting will occur over the gouged surface.

Soil may be replaced at grades of up to 1.5H:1V (page 5-76). The steepness of these slopes will be reduced at their base, providing a concave slope. Soil stabilization techniques also include ripping the subsoils (see page 2-39), gouging all slopes 3H:1V or greater after topsoil application (page 2-40 and 5-76) and hydromulching the seeded surface (page 2-41 and 3-44 and 3-50).

### **Findings:**

The permittee must provide the following, prior to approval, in accordance with the requirements of:

**R645-301-240**, Plate 5-5 should be revised to indicate that the slope below the substation is not presently disturbed. Plate 5-5 could indicate that the slope may be disturbed at reclamation to facilitate slope reconstruction; if so, topsoil will be salvaged, stored and protected and the slope will receive topsoil after regrading.



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210

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Michael O. Leavitt  
Governor

Lowell P. Braxton  
Division Director

October 13, 1998

David M. Arnolds  
Canyon Fuel Company, LLC  
555 Seventeenth Street  
Denver, Colorado 80202

Re: Determination of Reclamation Bond Amount, Phase II, Canyon Fuel Company, LLC.,  
Dugout Canyon Mine, ACT/007/039-SR98-1, Folder #3, Carbon County, Utah

Dear Mr. Arnolds:

The Division has completed a review of the reclamation cost estimate and the reclamation plans upon which it is based, for the Dugout Canyon Mine. In accordance with R645-301-830, the amount of bond to be posted has been determined by the Division. In order for the Phase II of the Dugout Canyon Mine to be constructed, the amount that will need to be posted is \$3,682,000. Please see the attached summary sheet for a breakdown of the reclamation costs.

Please call if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Daron R. Haddock". The signature is written in a cursive style.

Daron R. Haddock  
Permit Supervisor

enclosure

cc: Ken Payne, Canyon Fuel, Scofield  
Chris Hansen, Canyon Fuel, Scofield  
Mary Ann Wright, DOGM, SLC  
Price Field Office

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## Bonding Calculations

Dugout Mine - ACT/007/039

Revised

Oct. 12, 1998

## Bond Summary

## Direct Costs

Subtotal Demolition and Removal	\$560,890
Subtotal Backfilling and Grading	\$1,496,427
Subtotal Soils and Survey	\$59,960
Subtotal Revegetation	\$79,896
Direct Costs	\$2,197,173

## Indirect Costs

Maintenance and Monitoring (10%)	\$219,717
Contingency (20%)	\$439,435
Engineering Redesign (10%)	\$219,717
Startup Costs (5%)	\$109,859
Contract Management (5%)	\$109,859
Subtotal Indirect Costs	\$1,098,587

Total Cost in 1998 Dollars	\$3,295,760
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Escalation 2.24% for 5 years	\$386,037
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Total Cost in 2003 Dollars	\$3,681,797
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Bond Amount (rounded to nearest \$1,000)	\$3,682,000
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State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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Michael O. Leavitt  
Governor  
Lowell P. Braxton  
Division Director

August 19, 1998

TO: File

THRU: Joe Helfrich, Permit Supervisor *JH*

FROM: Priscilla Burton, Soils Reclamation Specialist *PB*

RE: Soils Technical Analysis of Phase II Revision of the Permit Application Package (PAP) and the Mining and Reclamation Plan (MRP), Dugout Canyon Mine, Canyon Fuel Company, PRO/007/039-SR98-1. Folder #2, Carbon County, Utah

SUMMARY

This Technical Analysis (TA) merges Robert Davidson's recent TA regarding the Alluvial Valley Floor determination (dated 8/19/98) and two previous documents (my TA dated August 7, 1998 for Dugout Phase II and the soils portions of the Final Dugout TA dated March 16th, 1998 for which Robert Davidson took responsibility). This document was used to create the final Dugout Phase II Technical Analysis.

TECHNICAL ANALYSIS:

**ENVIRONMENTAL RESOURCE  
INFORMATION**

**Analysis:  
SOILS RESOURCE INFORMATION**

Regulatory Reference: R645-301-411, -301-220.

**Analysis:**

Chapter 2, Soils, Sections 220 through 224, discusses the soil resources within the proposed Dugout Canyon Mine disturbances. Relevant soils information includes current and published soil surveys, characterizations, and substitute topsoil identification. The Analysis

section discusses resource information as follows:

- Soil Survey Information
- Disturbed Soils
- Undisturbed Soils
- Soil Productivity
- Substitute Topsoil

### **Soil Survey Information**

Soil survey information is provided by both a general-area Order-III and a site-specific Order-I soil surveys. The Order-III survey is reproduced from the SCS "Soil Survey of the Carbon County Area" and is delineated on a general area soils map (Plate 2-1). According to the SCS soil survey, soils present on the east/south-east facing slopes of Dugout Canyon are part of the Rock outcrop-Rubbleland-Travessilla complex (#96) while those on the west/north-west facing slopes are shown as Croydon loam (#21) at lower elevations and Midfork family-Comodore complex (#62) at higher elevations in the upper reaches of the canyon. The SCS map (#11) shows a subjective line that separates the #21 soil from the #62 soil with no apparent vegetation break separating the soils. Mr. Leland Sassar, Soil Scientist, NRCS, was contacted on 3/3/98 concerning the apparent discrepancy and lack of coherency for placing #21 soils on steeper, Douglas-fir dominated slopes. Mr. Sassar indicated that some #20 (Comodore-Datino Variant Complex) soils probably exist within the #21 soils. The #21 soils are characterized as higher-elevation, non-rocky, deep loams, dominated by quaking aspen, whereas the #20 soils are characterized as lower-elevation, rocky, shallow soils, dominated by Douglas-fir.

Generally, the predominantly stoney to gravelly sandy loam soils formed from sandstone, shale colluvium, and alluvium. Soils within the Rock outcrop-Rubbleland-Travessilla complex and the Midfork family-Comodore complex are typically well drained with moderate permeability, rapid runoff, and are highly susceptible to water erosion. Soils within the Croydon loam have moderately slow permeability, and therefore, depending on slope, erosion characteristics vary from slight to severe. The main point is that because of steepness of slope and soil quality, all of these soils are highly erosive. Shallow soils dominate the east facing side slopes while generally deeper soils characterize the west facing toe slopes.

The Order-I survey was conducted for the Dugout Canyon Mine to describe soils found within the surface facilities area. A total of 12 soil test pits were excavated and are located on a soils map, Plate 2-2, Disturbed Area Soil Map. Soil test pits located in disturbed/overburden soils include TP-2, 3, and 11; pits located in Type TS soils include TP-1, 4, 5, 6, 7, 8, 9, 14, and 14A. Soils were delineated and described in accordance with the standards

of the National Cooperative Soil Survey. Soil Test Pits TP-1, 2, 3, 4, 5, 6, 8, 9, and 11 were sampled and characterized according to the DOGM's Guidelines for Topsoil and Overburden<sup>1</sup>; laboratory data and analytical summaries for each of these samples are provided in Table 2-1 of the PAP. Pits 7, 14 and 14A were not sampled, but pit descriptions were used to estimate soil volumes.

Chris Hansen of EarthFax Engineering, Inc., gathered the soil resource information. A Qualification statement for performing the Dugout Canyon soil survey and a personal Resume are provided in Appendix 2-3, Soil Test Pit Logs.

The Phase II submittal updates the Order-I survey by including sites TP7 (below the sediment pond in soil the Datino Variant complex<sup>1</sup>, designated as TS); TP13 (located at the proposed water tank area, also Datino Variant, designated as TS) ; and TP16 (located on the slope above the coal storage area and designated 96 for Rock Outcrop - Rubbleland- Travesilla Complex). These soil test pit locations are located on soils map, Plate 2-2, Disturbed Area Soils Map. Laboratory data and analytical summaries for each of these samples are provided in Table 2-1 of the PAP.

### **Disturbed Soils**

A large portion of the mine facility's area is covered by overburden and disturbed soils consisting of soil mixed with coal waste and/or waste rock from previous mining operations. These soils are described by soil test pits TP-2, TP-3, and TP-11. The overburden is a mixture of rock and/or coal waste with Travessilla soils. The Travessilla soils are classified by the SCS soil survey as loamy, mixed (calcareous) mesic, Lithic Ustic Torriorthents. The overburden is found in the flat areas and on most of the steep slopes; is moderately well drained, and supports sage brush, juniper, rabbit brush, and a variety of grasses. Soil thickness varies from a few feet to more than eight feet. Generally, the overburden soils are described as a "gravelly loam" with rock concentrations between 10 and 40 percent and rock size that varies from gravel to boulder. Rock fragments are composed of sandstone with some siltstone blocks.

### **Undisturbed Soils**

The remainder of the facilities area has soils that appear to be undisturbed or have been only slightly disturbed. Soils present in the canyon bottom lie within the disturbed and undisturbed areas of the mine. The undisturbed soils were identified by the Order-I survey as part of the SCS listed soil unit Datino Variant complex, and were given the distinction "Soil Type TS." According to the SCS Carbon County soils survey, the Datino Variant soil complex is

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<sup>1</sup>Leatherwood, J., and Duce, D., 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

characterized as very deep, well drained, moderate permeable soils on mountain slopes being formed in colluvium derived dominantly from sandstone and shale. The SCS survey defines Datino Variant soils as loamy-skeletal, mixed Typic Haploborolls. The typic subgroup of Haploborolls<sup>2</sup> is defined as freely drained soils with a moderately thick brownish mollic epipedon. Typic Haploborolls were formed in alluvium during the late-Pleistocene or Holocene ages, do not have a shallow lithic (stone) contact, and do not have deep wide cracks in most years. The USDA handbook further states that where slopes are suitable, Haploborolls are mostly under cultivation.

Undisturbed TS soils, as represented by soil test pits TP-1, 4, 5, 6, 7, 8, 9, 14, and 14A, are found on both sides of Dugout Creek in the northeastern portion and in the southwestern portion of the facilities area. The TS soils are found in flat lying areas and on slopes with grades up to 40 percent or more. The soil supports vegetation consisting of sage, cottonwood, gambel oak, grass, pinyon, and fir. Information condensed from soil test pit TP-4, TP-6 and lower sections of pit TP-1 show soil horizons O1 (1 inch), A1 (1 to 5 inches), B2 (5 to 14 inches), B3 (14 to 28 inches), and C (28 inches to 9 feet). Portions of TP-5 and TP-8 soil profiles appear to have been reworked by Dugout Creek; the upper four feet of TP-1 soil profile appear disturbed. Undisturbed Type TS soils have acceptable physical and chemical characteristic results consistent with requirements outlined by DOGM's soil and overburden guidelines as recorded in Table 2-1.

Other undisturbed soils located within the Disturbed Area Boundary and described by the SCS soils Order-III survey include Croydon loam, Comodore-Datino Variant complex, and Rock Outcrop-Rubbleland-Travessilla complex soils.

### **Soil Productivity**

Current soil productivity for the undisturbed and/or slightly disturbed soils is reported by the 1996 survey for living cover percentages as recorded in Section 321.100.

### **Substitute Topsoil**

The disturbed soils within the mine area have been significantly altered by previous mining activities and have lost their native identities. These disturbed soils, or overburden materials, typically contain waste rock and/or coal waste. With the exception of rock fragments and coal waste, these overburden materials have physical and chemical properties that are within DOGM's acceptable range for soil and overburden guidelines and could therefore be considered a substitute topsoil. The Division recognizes that native soils contain high percentages of rock fragments, is inevitable and does not present a reclamation hazard. Indeed, to reclaim and restore

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<sup>2</sup>Soil Conservation Service, U.S. Department of Agriculture, Agriculture Handbook No.436, pp 288-289.

the land to pre-mining conditions will require soils with indigenous rock fragment volumes and content. Therefore, it is not only acceptable, but desirable to salvage soils containing intrinsic rock. Waste and coal waste will be segregated from the soils and disposed of properly.

**Findings:**

The information provided meets the regulatory requirements of this section.

## **ALLUVIAL VALLEY FLOORS**

Regulatory Reference: R645-302-320.

**Analysis:**

The Phase 2 submittal presented several factors that preclude the mine site from being classified as alluvial valley floors. Based on information presented, the following findings can be made:

- No significant deposits of stream-laid alluvium exist within the permit area. The closest areas of alluvium occur outside the permit area, approximately 2,000 feet downstream area along Dugout Creek and 600 feet north in the headwaters of Pine Canyon.
- Stream-laid deposits within the proposed disturbed area do not “hold” Dugout Creek as required by the AVF definition. The Dugout Creek is generally held by underlying bedrock.
- No irrigated agriculture has or does occur within the permit and adjacent areas.
- No flood irrigation or subirrigation of stream-laid deposits have historically occurred within the proposed disturbed area.
- Soil and topographic conditions within the proposed disturbed area preclude future flood irrigation of the site.

Finally, the proposed disturbed area occurs mainly upland. Therefore, by definition, no Alluvial Valley Floor exists.

**Findings:**

The information provided meets the regulatory requirements of this section.

## **PRIME FARMLAND**

Regulatory Reference: R645-301-221, -302-270.

### **Analysis:**

No prime farmland has been identified within the presently proposed Dugout Canyon Mine permit area. A negative prime farmland determination was concluded in 1980 for the Sage Point-Dugout Mine permit (ACT/007/009). Within the immediate mine facilities area, the Soil Conservation Service's (SCS) "Soil Survey of the Carbon County Area"<sup>3</sup> identify Croydon Loam, Comodore-Datino Variant complex, Midfork family-Comodore complex, and the Rock outcrop-Rubbleland-Travessilla complex as non-irrigated soils. The Croydon Loam is rated good for livestock grazing and is well suited for timber harvesting of aspen. For Comodore-Datino Variant, Midfork family-Comodore complex, and Rock outcrop-Rubbleland-Travessilla complex, these soils are not considered grazeable by livestock and the soil-unit areas are limited for harvesting wood products because of slope steepness, surface stones and boulders, and abundant rock outcrops.

### **Findings:**

The information provided meets the regulatory requirements of this section.

## **OPERATION PLAN**

### **TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

### **Analysis:**

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<sup>3</sup>Jensen, E. H., and Borchert, J. W., 1988. Soil Survey of Carbon Area, Utah. Soil Conservation Service, U. S. Department of Agriculture, Washington D. C.

Chapter 2, Soils, Sections 230 through 234, discusses the soil's operation plan for the proposed Dugout Canyon Mine. Relevant information includes soil salvage, stockpiling, and topsoil substitutes and supplements. The Analysis section discusses operational information as follows:

- Topsoil and Subsoil Removal
- Culvert Expansion Soil Removal
- Topsoil Substitutes and Supplements
- Topsoil Storage

### **Topsoil and Subsoil Removal**

The PAP attempts to preserve and protect the natural soil resources by using soil salvage plans for maximizing soil recovery volumes for both topsoil and subsoils within Type TS soils. All B and C horizons will be salvaged in addition to salvaging the A horizon topsoil from the undisturbed, Type TS soils for salvage areas #2, 3, and 4. The undisturbed TS soils are deep rich Mollisols, with deep subsoils (B and C horizons) of excellent quality material available for salvage. These B and C horizon soils will be salvaged, segregated and stockpiled as substitute topsoil.

The estimated volumes of stockpiled soils are presented in Table 2-2 and in Appendix 2-6 which includes soil recovery calculations. Topsoil and subsoils are salvaged from the northwest facilities area (area 2) will yield 1,653 CY; the coal storage (area 3) will yield 4,869 CY; the sediment pond, slope area areas between road and creek (areas 4, 6, 7) will yield 20,118 CY; the water tank area (area 8) overburden soils will yield 247 CY; and the Dugout Creek culvert area (area 5) will yield 1,568 CY. In total, 28,455 CY of soil will be salvaged and stockpiled.

A non-biased, third party, professional soil scientist will be on-site during soil salvage to monitor and supervise soil salvage operations for the purpose of maximizing soil salvage volumes and quantities. Surface disturbance activities will only take place after topsoil removal.

Undisturbed soils marked #96 will not be disturbed although they are within the disturbed boundary. These southwest facing, undisturbed soils are therefore considered a buffer zone.

Soils to be salvaged prior to construction are those labeled with TS on Plate 2-2. The A,

B and C horizons will be salvaged.

The estimated volumes of stockpiled soils are presented in Table 2-2 and in Appendix 2-5 (Soil Removal from Within the Culvert Expansion Area) and Appendix 2-6 (Topsoil, Substitute Topsoil, and Storage Pile Calculations). An estimated total of 28,455 CY of soil will be salvaged and stockpiled.

During a technical site visit on August 5, 1998 by Priscilla Burton, Robert Davidson, and Paul Baker of the Division and Scott Boylen of Canyon Fuels Inc., additional areas of TS soils were noted that were identified as either needing protection during operations or as requiring salvage during the expansion of the site in Phase II, as described below:

- the soils on the southwest facing slope where the north and east drainages of Dugout Creek unite. These soils will be impacted by proximity of the future coal storage pile and they should be salvaged during Phase II expansion.
- The soils on the west facing slope in the area of the coal storage pile. Most of this slope is undisturbed soil that must be salvaged during Phase II expansion. The area of salvage should be from the existing roadway at the north end of the pad to the rock outcrop at the location of the proposed transfer house (not as shown on Plate 5-2, but the new proposed location as explained by Scott Boylen, DugOut Project Engineer). The distance of salvage is approximately 300feet.

### **Culvert Expansion Soil Removal**

Canyon Fuel Company has committed to salvage soils from steep slopes within the culvert expansion area along Dugout Creek provided that salvage operations do not jeopardize slope stability and safety of construction workers. A qualified soils scientist will decide which soils from steep slopes are suitable for salvage. The construction supervisor will decide which slopes are safe to remove soil from. By mutual agreement, the decision for soil salvage on what slopes will be made based on slope steepness, the potential for slope failure, and timing within the construction sequence. Timing is critical to help maximize safety and slope integrity during salvage operations by coordinating culvert installation and fill placement immediately after soil removal. The placed fills will stabilize the hillsides and will remain in place at final reclamation. After construction, an as-built map will illustrate which areas received salvaged and what volumes of soil were salvaged.

Installation of a culvert in Dugout Creek will result in the removal and storage of

1,568 CY of riparian soil. The soil removal volumes are based on the assumption and calculations provided in Appendix 2-5. Soils removed during culvert construction will be stored separately from other soils and are expressly designated for reclamation of the Dugout Creek, riparian area. Soils on the northwest facing slope of the stream on the opposite bank from the operations pad at the location of the sediment pond will not be salvaged due to their importance in stabilizing the steep stream bank. The idea of protecting the soils with geotextile fabric was discarded after it was determined that the stream bank would not be re-exposed during reclamation, since the channel will be moved westward to improve stability of the slope. Therefore this 300 foot length of streambank soils will be buried in the fill in order to stabilize the entire slope above. The Division concurs with this judgement.

### **Topsoil Substitutes and Supplements**

The Facilities area (Area 1 on Plate 2-2). Soils from Area 1 will be utilized as substitute topsoil at final reclamation if they are not contaminated. Appendix 2-6 provides calculations showing that if 2 feet of material is recovered from this location, approximately 6.504 CY of additional substitute topsoil could be available after testing and approval for use. Any waste will be segregated from the soil material and material heavily contaminated with coal waste will not be used.

Culvert installation and pad construction will require importing fill. The PAP commits to demonstrate the suitability of the imported fill by determining if the fill is acid-and/or toxic-forming prior to placement. Acid and/or toxic-forming materials will not be used.

### **Topsoil Storage**

As stated in the PAP, the topsoil stockpile will be located at the Soldier Canyon Mine topsoil storage area (Plate 2-3) with the Dugout stockpile marked and kept separate from the Soldier Canyon Mine stored soils. A contiguous containment berm separates the Dugout soil pile from the Soldier Canyon Mine piles. The containment berm is designed as a self contained Alternate Sedimentation Control Area (ASCA). Section 231.400 gives the construction, modification, use, and maintenance of the storage piles. The pile is designed to hold a maximum volume of 17,000 CY of soil. The total projected volume of soil salvage from Dugout, culvert expansion area, and topsoil borrow is 28,455 CY of soil. An expansion of the Soldier Canyon Mine topsoil storage area is anticipated by both the applicant and the Division. An application for expansion must be filed and approved prior to approval of Phase II.

The current Soldier Canyon Mine soil stockpile is infested with Cheatgrass.

Therefore, the operator has committed to maintain, to the extent possible, the stockpile's interim vegetation in a noxious weed- and Cheatgrass-free state. Discussion has focused on controlling the Cheatgrass using both selective and non-selective herbicides in early spring before dormancy breaks with other desirable plants, and by using pre-emergent herbicides in the fall to kill germinating Cheatgrass.

The PAP states that stockpiled soil in jeopardy of being detrimentally affected in terms of soil quantity and quality by mine operations may be temporarily redistributed. Such action will only take place by prior approval of DOGM with appropriate amendment changes to the MRP.

**Findings:**

The permittee must provide the following, prior to approval, in accordance with the requirements of:

**R645-301-234**, a designated location for the storage of the additional topsoil to be generated by the expansion of Phase II. The present capacity of existing storage location (17,000 CY) will be exceeded by approximately 11,455 CY.

**R645-301-232.100** Descriptions of topsoil and subsoil removal and estimates of salvage volumes during Phase II should include the two locations as discussed during a technical site visit on August 5, 1998 and as described above under the **Topsoil and Subsoil** heading.

## **RECLAMATION PLAN**

### **TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

**Analysis:**

Chapter 2, Soils, Sections 240 through 250, discusses the soil's reclamation plan for the proposed Dugout Canyon Mine. Appendix 2-6 provides information on topsoil volumes. Chapter 5, section 542.200, and Chapter 3, section 341.200, address slope stability and erosion control, respectively. Reclamation Topography is shown on Plate 5-5 and Reclamation Cross-

Sections are shown on six sheets of Plates 5-6. This Analysis section discusses reclamation information as follows:

- Soil Redistribution
- Soil Nutrients and Amendments
- Soil Stabilization

### **Soil Redistribution**

Cut and fill calculations for the site are found on page 5-61 and Appendix 5-5. An estimated 99,630 CY are needed for fill and an estimated cut quantity is 97,575 CY. This leaves a difference of 2,055 C Y of fill.

Topsoil will be replaced on all areas with slopes less than 2:1 (page 2-38). Based on the 28, 455 CY of salvaged soil (see Appendix 2-6) and 14.7 acres or 640,332 sq ft to receive topsoil, the average soil redistribution will be a depth of 14.4 inches as stated on page 2-39 of the MRP. However, the soils salvaged from the culvert expansion, 1,568 CY, were included in the soil redistribution depths, but should not have been, since these soils will be returned to the reclaimed channel area. This reduces the reclamation topsoil depth to 13.6 inches.  $(26,887 \text{ CY} \times 27 \text{ CF/CY} = 725,949 \text{ CF}$ .  $725,949 \text{ CF} \times 640,332 \text{ SF} = 1.13 \text{ ft}$  or 13.6 inches.) If the underlying material is suitable, these soil depths will allow for the implementation of surface roughening reclamation techniques, such as deep pocking, or gouging of the soil surface without penetrating the subsurface fills. Should the additional 6,504 CY of topsoil substitute material become available during reclamation, the topsoil depth would increase to approximately 16 inches. If excess soil is available after channel reclamation, then these excess soils may be used else where in the disturbance area.

Where dictated by the reclamation channel design, riparian soils (1,568 CY salvaged and stored separately) will be placed within the interstitial spaces of the riprap to promote riparian vegetation establishment. Soils placed outside the riprap areas will be reseeded following soil preparation and surface.

As noted in the backfilling and grading section of the engineering review within this Technical Anaysis, all slopes should receive topsoil (R645-301-553.100). Any areas which will not receive topsoil should be identified on the Reclamation Topography Map, Plate 5-5.

### **Soil Nutrients and Amendments**

Soil nutrients and amendments will be applied to the redistributed soils based on analyses of samples collected from the stockpiled topsoil.

### **Soil Stabilization**

Soil stabilization practices include surface roughening techniques such as gouging and/or deep pocking, and "high -quality" erosion mat placement on slopes 2:1 or steeper (page 2-28, p2-41, pg 3-40, p3-45 and pg 3-51). No calculations for the added cost of the erosion matting and installation were found in Appendix 5-6 Bond Calculations. The Division is unclear as to how the application of erosion control matting will occur over the gouged surface.

Soil may be replaced at grades of up to 1.5H:1V (page 5-70). The steepness of these slopes will be reduced at their base, providing a concave slope. Slopes which are 3H:1V or or steeper will be gouged using a trackhoe (page 5-70).

Soil redistribution with the culvert expansion area will require placing soils on slopes greater than 2:1. According to the reclamation cross sections, these steep slopes exist throughout the reclaimed channel for Dugout Creek. Figure 3-1 shows a cross-section of the ripped channel. The PAP does not discuss soil placement techniques on these steep slopes that drop directly into Dugout Creek.

The plan explains that any contaminated surface soil within the disturbed area will be removed and stored during final reclamation. Furthermore, the plan says that if the contaminated soils can not be rehabilitated, the contaminated material will be buried along with excess gravels, crushed stone, or other contaminants.

Soil stabilization techniques after topsoil is placed on steep slopes greater than 2:1 are needed, especially within the stream corridor where the culvert will be removed. Specific techniques should be stated in accordance with slope steepness to ensure that soil will remain intact on the steep slopes while vegetation is being established.

### **Findings:**

The permittee must provide the following, prior to approval, in accordance with the requirements of:

**R645-301-242**, The soils salvaged from the culvert expansion, 1,568 CY, were included in the soil redistribution depths in App 2-6, but should not have been, since these soils will be returned to the reclaimed channel area. This reduces the reclamation topsoil depth to 13.6 inches. Appendix 2-6 should be modified to reflect the segregation and selective replacement of the riparian area soils.

**R645-301-233**, Specific locations of erosion control matting use should be identified in the MRP and calculated into the bonding. Other possible soil stabilization techniques for slopes greater than 2:1 should be stated, should erosion control matting be eliminated from the plan.

Page 13  
PRO/007/039-SR98-1  
August 19, 1998

**R645-301-240**, The MRP should be revised to indicate that all slopes will receive topsoil.  
Slopes which will not receive topsoil should be identified on the Reclamation  
Topography Map, Plate 5-5.

cc: Robert Davidson  
O:\007039.DUG\DRAFT\DUGPHI1.981



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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Michael O. Leavitt  
Governor  
Lowell P. Braxton  
Division Director

June 17, 1998

TO: File

THRU: Daron Haddock, Permit Supervisor 

FROM: Paul Baker, Reclamation Biologist 

RE: Dugout Canyon Mine Phase II, Canyon Fuel Company, LLC, Dugout Canyon Mine, ACT/007/039-SR98-1, File #2, Carbon County, Utah

**SUMMARY:**

On March 16, 1998, the Division issued the permit for the Dugout Canyon Mine with several conditions. The revision reviewed in this memorandum is both an attempt to satisfy some of the deficiencies and a proposal to expand the size of the surface facilities area. This review is primarily a revised version of the original technical analysis for Chapters 3 and 4.

The only substantive change to Chapter 1 is in the right of entry section; therefore, this is the only part of Chapter 1 that was reviewed.

**TECHNICAL ANALYSIS:**

**ADMINISTRATIVE INFORMATION**

**RIGHT OF ENTRY**

Regulatory Reference: R645-301-114

**Analysis:**

The permittee has filed an application with the Bureau of Land Management to lease the NW ¼ SW ¼ of Section 23, Township 13 South, Range 12 East. The application is under review, but before the Division revises the permit to include this area, the permittee will need to have acquired the right of entry for this area.

**Findings:**

Information provided in the application is not considered adequate to meet the requirements of this section of the regulations. Prior to final approval, the permittee must supply the following in accordance with:

**R645-301-113**, The permittee needs to supply complete right of entry information for the NW ¼ SW ¼ of Section 23, Township 13 South, Range 12 East.

## **ENVIRONMENTAL RESOURCE INFORMATION**

### **HISTORIC AND ARCHAEOLOGICAL RESOURCE INFORMATION**

Regulatory Reference: R645-301-411

#### **Analysis:**

Appendix 4-1 provides a cultural resource evaluation of the Dugout Canyon Mine. An intensive archaeological surface evaluation of the mine area was conducted in 1980 under the direction of Eureka Energy Company by Archeological-Environmental Research Corporation (AERC). Four of the sites reported as being potentially eligible for listing in the National Register of Historic Places (NRHP) are in the area of the current proposed mine. The four sites include one prehistoric rock art locus (42CB 92) and three historic coal mine loci: the Dugout Creek Mine (42CB 2005/291), the Fish Creek Mine (42CB 204/290), and the Pace Canyon Mine (42CB 206/292/574). The Fish Creek Mine and the Pace Canyon Mine were subsequently determined to not be eligible for nomination to the NRHP.

Files at the State Historic Preservation Office, Bureau of Land Management Office, and records of the NRHP were consulted. Further field evaluations were conducted by AERC on the prehistoric rock art and the Dugout Creek Mine in November 1995. In this study, the Dugout Creek Mine was determined to not be eligible for inclusion on the NRHP due to the lack of context and cultural integrity.

#### **Findings:**

Information provided in the plan meets the minimum requirements of this section.

### **VEGETATION RESOURCE INFORMATION**

Regulatory Reference: R645-301-321

#### **Analysis:**

Numerous vegetation communities are represented within the proposed permit area. The permit area ranges in elevation from 7000 to 8600 feet. The plan describes the plant communities as having been heavily impacted by human activities. Baseline sampling was done on several of the vegetative communities within the permit area. Dr. Steve Richardson and Steven Viert conducted vegetation inventories in 1980, Dr. Patrick Collins surveyed the vegetation in 1996, and Patricia Johnston did further studies in 1997. The area proposed to be disturbed has been changed throughout the various studies. The permit area vegetation map (Plate 3-1) delineates broad vegetative communities within and surrounding the permit area. The plan describes vegetative cover, production and shrub density of the Douglas fir, mixed conifer, pinyon juniper, deciduous streambank, and shrub/grass/juniper communities within the permit and adjacent areas.

The pinyon/Utah juniper community had a total vegetative cover of 66 percent when sampled in 1997. Big sagebrush, pinyon and juniper were the dominant species by cover. Shrub density was 2300 stems per acre.

The riparian (deciduous streambank) community occurs within the proposed area to be disturbed. Generally, this community consists of deciduous trees and shrubs such as narrowleaf cottonwood, Rocky Mountain maple, Douglas fir, red-osier dogwood, woods rose and mountain snowberry. In 1997, total vegetative cover, including canopy, was 85 percent. Shrub density was 1625 stems per acre. Productivity of the understory in this community was measured at 912 pounds per acre in 1980. In 1997 the Natural Resources Conservation Service (NRCS) estimated the productivity was 1500 pounds per acre, and they rated the range condition as fair. In 1991 this community was described in fair to poor range condition by the Bureau of Land Management. A site visit in 1996 suggested the area had not been as heavily grazed as reported in the past but that it was still in a somewhat degraded condition. This community type is the most productive in terms of forage availability in the area.

The area of past disturbance is described as once dominated by pinyon and juniper, and it has a potential forage production of 800 pounds per acre. The proposed disturbed area was sampled in 1996 (excluding the riparian area). This area had been disturbed by past mining and coal exploration activities. The area was seeded after the exploration activities. The dominant shrub species by cover was big-tooth maple while rubber rabbitbrush had the greatest number of individuals present. The area is dominated by species that indicate the site has been disturbed. Yellow sweetclover contributed the most vegetative cover to the total cover of 37% (Appendix 3-1).

A literature review and field studies for the area indicate no threatened or endangered plant species are present or are likely to be present (Section 322.200). Field studies were conducted 1979 through 1984. A 1995 letter from Robert Thompson, Forest Service botanist, in Appendix 3-1 says there are no threatened or endangered plant species. The inventory conducted June 24, 1995, found canyon sweetvetch along Dugout Creek approximately one-half mile below the gate.

#### **Findings:**

Information provided in the application is considered adequate to meet the requirements of this section of the regulations. The permittee has adequately responded to conditions 11 and 12.

### **FISH AND WILDLIFE RESOURCE INFORMATION**

Regulatory Reference: R645-301-322

#### **Analysis:**

All riparian areas are considered by Wildlife Resources to be of critical value for wildlife. By definition in R645-301-322.220, cliffs that support raptors are also considered habitats of unusually high value. Both critical summer and winter big game habitat is present in the permit area.

A fish and wildlife resources survey was conducted December 1979 through November 1981 for the proposed Sage Point-Dugout Canyon coal mining project (Appendix 3-3). Wildlife count data were collected along eight experimental and four control transects through four different vegetation types: riparian, desert shrub, pinyon/juniper and conifer-bush. Each transect monitored reptiles, non-game birds, big game, and medium-sized and small mammals. Upland and migratory game birds were not documented in this study due to their low frequency of occurrence in the survey area. A limited number of macroinvertebrates was found in 1979, and, since the creek is not a fishery resource, further

studies were not conducted.

Detailed information, such as numbers and species presence, was collected in these studies within the area proposed to be permitted at that time. Although this study has provided valuable site specific information, these data should not be considered as baseline information for the current mine plan. The permit and facilities areas are much smaller than they were in the earlier proposal. The study was designed to monitor the effects of coal mine development on wildlife and not to give a baseline description.

Appendix 3-3 contains two maps showing Carbon County deer and elk habitat. Portions of the permit area contain critical winter and summer deer habitat. Elk habitat is classified as high value winter and yearlong habitat. The Division of Wildlife Resources (DWR) says in an April 1996 letter that much of the area is classified as critical deer winter range and is heavily used by deer and occasionally by elk and antelope. Mule deer in the area are considered part of Herd Unit 11b and the elk as part of Herd Unit 11b. Designated critical range and/or any riparian areas are considered high value habitats for wildlife.

Section 322.200, Site-specific Resource Information, says that no threatened or endangered plant or wildlife species were discovered in recent inventories by DWR, the Forest Service, or other qualified personnel. Three listed species (black-footed ferret, bald eagle, and peregrine falcon) could potentially inhabit the area. The peregrine falcon has been observed in several recent surveys of the Carbon County area. No confirmed sitings of black-footed ferrets have occurred within Carbon County during 1995, 1996, and the first quarter of 1997 (Bill Bates, DWR, Section 322.200).

Raptor nest surveys were conducted by DWR in 1995 and 1997, and the plan includes results of a 1998 survey for birds of special interest.. The nest locations identified in that survey are shown on Plate 3-2 (confidential file). Plate 3-2 shows that the permit area contains the following nests:

- Section 20 1 prairie falcon nest (scrape?), old dilapidated
- Section 22 1 active golden eagle nest
- Section 16 1 golden eagle nest, old dilapidated  
2 buteo or red-tailed hawk nests
- Section 23 2 golden eagle nests, old dilapidated

Numerous active and tended golden eagle nests and prairie falcon scrapes are located outside but immediately adjacent to the permit area. No known raptor nests are within the area to be disturbed by facility construction although a pair of golden eagles is frequently seen soaring at the cliff edge in full view of the proposed facilities. (The other nests associated with the eagle pair using the active nest in Section 22 have not been observed.).

Appendix 3-3 contains a report for a survey of birds of special interest done at the mine site. A loggerhead shrike was tentatively identified in this survey, and golden eagles were flying in the area. No other species of special interest were identified.

A bat survey of the proposed disturbed area was conducted in September 1997. A few bats were found in the area; however, the spotted bat and Townsend's big eared bat (both listed in the survey as Category 2) were not found nor potential habitat. Additional surveys will be conducted in the zone of potential subsidence. Plate 3-3 shows the locations of escarpments within the permit area. The plan

says, ". . . no data or definition was available to determine the criteria for an area to be classified as of 'unusually high value' for bats." High value habitat is considered as habitat critical to the existence of the animal. Cliff escarpments are considered unusually high value for bats and raptors.

Most of the basic information in the bat survey about the status classifications of Townsend's big-eared and spotted bats is incorrect. The study says spotted bats are classified as a category 2 species for listing as threatened or endangered, but this category has not existed for about two years. Also, the Utah Natural Heritage Program ranking is shown as G4SI, but the actual ranking is G4S2.

Townsend's big-eared bats are also ranked as G4S2, but the study says the ranking is SX. The SX ranking would mean the species is extirpated or extinct, but George Oliver of the Natural Heritage Program said he considers Townsend's big-eared bats to be widespread, fairly common, and present in most habitats. The report also says UDWR considers it a category 2 species, but this ranking is not given by Wildlife Resources.

The plan should contain a statement showing the correct status of these species.

#### **Findings:**

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-322**, A report about bats in the area incorrectly lists the status of the Townsend's big eared bat and the spotted bat. The report should be corrected or the application should contain a statement giving correct information.

The permittee has adequately responded to permit condition 13.

#### **LAND USE RESOURCE INFORMATION**

Regulatory Reference: R645-301-411

#### **Analysis:**

Land use resource information is given in Chapter 4 of the plan. Premining land uses for the permit area are wildlife habitat and rangeland for cattle and sheep grazing. The land has not been developed or improved for these uses. Recreational use of the permit area is limited due to lack of access through private property. Carbon County has zoned the permit area for mining and grazing (Section 4.11.120). Logging operations were conducted within the permit area in 1996 as shown on a map in Exhibit B, Appendix 4-3. Cascade Resources, logging contractor, reported harvesting six million board feet from the areas shown in Exhibit B. Most of these areas are within the Dugout Creek drainage.

Current productivity of the land surrounding the proposed disturbed area was estimated by George Cook, National Resources Conservation Service, on August 6, 1996 to be 1400 pounds per acre air dry herbage and in low good condition. On December 3, 1997, Mr. Cook reported the Dugout Canyon Mine to have 800 and 1500 pounds per acre air dry herbage in the pinyon/juniper/sage and riparian areas respectively. Mr. Cook indicated in a telephone conversation on March 5, 1998, that there

was no snow on the ground at the December 3 visit. Previous productivity statements about Dugout Canyon showed the area to be severely overgrazed and degraded in the late 1970's and early 1980's. The proposed disturbed area is still grazed, but it is in a somewhat better condition.

A drive through of the permit area above the disturbed area where logging operations had been conducted revealed a degraded condition in the summer of 1997. Steep slopes along Dugout Creek had been logged, roads cut with material side cast, and limited visible revegetation had occurred at that point. Timber slash was in the stream, a culvert plugged, and several small slides had deposited sediment into Dugout Creek. Flatter riparian areas were overgrazed with streambanks sloughing and grass approximately an inch high. DWR stated that logged areas had little ground cover and there were numerous roads which concentrate water flows. Appendix 7-9, page 2, says the logged Douglas fir area was rated in fair condition. The description of the Douglas fir logged area did not accurately reflect on the ground conditions. Mike Suflita, Division Hydrologist, stated that the culvert sizing was conservative and adequate to account for the increased runoff and sedimentation from logging activities within the watershed.

Coal mining has occurred within Dugout Canyon since 1925. The Red Glow Mine on the east side of Dugout Canyon was hand-developed by D. J. Collins in 1925. The Rock Canyon seam on the west side of Dugout Canyon was first mined in 1952 by E.S.O. Coal Company. The Knight Ideal Coal Company mined the Rock Canyon and Gilson coal seams between 1958 and 1964. They extracted approximately 1,326,000 tons of coal in that period. No coal has been mined since 1964, although the portals have been opened and explored several times since then.

The Fish Creek and Pace Canyon Mines which operated in the early 1900's are also located within the permit area.

**Findings:**

Information in this section meets the minimum regulatory requirements.

## **OPERATION PLAN**

### **INTERIM REVEGETATION**

Regulatory Reference: R645-301-332

**Analysis:**

The plan includes an interim seed mixture in Section 341.200. No specific soil preparation, planting, or mulching methods are shown for interim revegetation areas, so it is assumed the same methods will be used as for final reclamation. The plan for final reclamation is discussed below.

The application says cheatgrass control has been initiated at the Soldier Canyon Mine lower topsoil stockpiles. While control has not been completely successful, it has reduced the amount of cheatgrass. The permittee will need to continue control efforts.

**Findings:**

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations. The permittee has satisfied the requirements of permit condition 5 but will need to continue cheatgrass control efforts.

**FISH AND WILDLIFE PROTECTION**

Regulatory Reference: R645-301-301-333, -301-342, -301-358.

**Analysis:**

**Protection and Enhancement Plan**

The Permittee commits to a wildlife awareness and protection training in its annual training curriculum for all employees and haulage contractors.

A culvert will contain Dugout Creek throughout the length of the disturbed area, and this will significantly affect wildlife within the area. Section 322.200 details a plan to mitigate for the loss of riparian habitat due to the culvert. The mitigation includes seeding some very steep road fills near the stream, planting willows in some sections of the stream, and possibly installing in-stream structures to promote channel stability. The seed mix that it is believed would be used includes two introduced species that would not normally be allowed, but they are rhizomatous species that are needed to stabilize the very steep slopes. There are a few willows along Dugout Creek in the mitigation area but not nearly as many as one would expect. This may be because they have been grazed or otherwise eliminated through people's actions rather than because of the ecology. Coyote willows are present in Soldier Canyon to the west.

The plan says all power lines within the disturbed area will be raptor safe. The permittee has committed to construct in accordance with the publication "Power Line Contacts by Eagles and Other Large Birds."

The permittee commits to minimize impacts to water resources by controlling and monitoring the surface water discharge and water quality.

During construction activities, all mining and supplier personnel and their corresponding equipment will be required to stay within the disturbed area boundary. Loading, unloading, and staging of materials and equipment designated for the construction of the Dugout Canyon Mine facilities will be done within the disturbed area. DWR suggests limiting the construction period between December 1 and April 15 (dates are approximate depending on actual snow conditions).

No endangered or threatened plant or animal species are known within the area. As required by R645-301-358.100, the permittee must promptly report to the Division any state or federally listed endangered or threatened species within the permit area of which they become aware. Seasonal or migrating bald eagles are expected and a wintering bald eagle would not need to be reported.

Dugout Creek is within the Upper Colorado River drainage which has been designated as critical habitat for four threatened or endangered fish. Water use in this area is considered to have a

potential effect on these fish. According to information in the Probable Hydrologic Consequences document, it is estimated the mine will use about 46.5 acre-feet per year. Mitigation to the Fish and Wildlife Service is required if water use exceeds 100 acre-feet each year, so Section 7 consultation should not be required.

Raptor nests within the permit area are identified in the environmental resource section of this analysis. Every nest but one is in the area that would be subsided, and five of the seven are in the subsidence zone for the current permit term. Section 332 describes potential effects as displacement, injury or death of birds and nest destruction. The plan says that upon notification or suspicion of raptor nests in the permit boundary, the permittee will verify the existence of any nests, determine their conditions, and locate their locations in relation to recoverable resources. Information collected in this inventory will be discussed with various agency personnel, and the permittee and the agencies will determine methods of avoidance, explore alternative methods of protection or removal, and develop mitigation plans when needed.

Since the permittee is aware of five nests in the area that would be subsided in the next five years, it is possible to begin developing methods of avoidance, protection, or removal, and determining mitigation plans. These plans should be included in the mining and reclamation plan.

A 1995 letter from Robert Thompson, a Forest Service botanist, says a site inventory was conducted, and no wetlands were found within the proposed disturbed area. It is possible an extremely narrow band of wetland exists along the stream corridor, but the overriding concern for disturbance is the stream and its associated riparian area rather than any possible wetland.

**Findings:**

Information provided in the proposal is not considered adequate to meet the requirements of this section of the regulations. Prior to final approval, the permittee must provide the following in accordance with:

**R645-301-333**, Because the permittee is aware of raptor nests in the subsidence area for the first permit term, it is possible to begin developing methods of avoidance, protection or removal, and determining mitigation plans. These plans should be included in the mining and reclamation plan.

The first of these deficiencies is not related to the currently-approved plan, so it is not a permit condition. The second deficiency is an extension of condition 10 on the permit. This stipulation requires the permittee to identify specific impacts to raptor nests and discuss avoidance of the nests when mining. This condition is to be addressed prior to mining, but it does not need to be satisfied before initial development mining.

In this section, the permittee has satisfied the requirements of conditions 3 and 4.

## RECLAMATION PLAN

### POSTMINING LAND USES

Regulatory Reference: R645-301-412

#### Analysis:

The postmining land use will be livestock grazing and wildlife habitat. The plan says final reclamation activities, such as grading and seeding, will be completed in a manner to provide lands able to support the postmining land use. Many of the slopes are considered too steep for livestock grazing. In developing a grazing management plan for the Randolph unit, the Bureau of Land Management produced suitability tables based on slope percent and slope length. They found any slopes steeper than 50% (2h:1v) were unsuitable for grazing. Plates 5-3 and 5-4 show numerous cross sections where slopes are steeper than 50%. The applicant justifies the slope lengths and steepness by saying they are similar to the surrounding area. The Division recognizes the premining area has steep slopes; however, given the land use and the unstable condition of the area until vegetation establishment, steep slopes should be confined to upland areas and should not be in the riparian zone (riparian zone as defined in Plate 3-1A and subsequent Division field measurements).

Much of the disturbed area was previously mined and not reclaimed to the current standards. Using current definitions, previous mining activities can be classified as having disturbed or just affected the land. Exploration activities occurred on the site in the 1980's and then again in the 1990's. No topsoil was saved in initial development. However, adequate substitute material should be available to make up the difference as growth medium.

A road exists (prior to current mining) through the permit and disturbed areas. This road will remain for the postmining land use. The plan says the road has a width of 16 to 25 feet within the disturbed area. The reclaimed road will also have a width of about 16 feet.

The Bureau of Land Management and State of Utah own the land in the disturbed area. Appendix 4-3 contains a letter from the State concurring with the postmining land use, but the plan need to contain comments from the Bureau of Land Management concerning the postmining land use.

#### Findings:

Information provided in the proposal is not considered adequate to meet the requirements of this section of the regulations. Prior to final approval, the permittee must provide the following in accordance with:

**R645-301-412.200**, The permittee needs to provide comments from the Bureau of Land Management concerning the postmining land use.

## **REVEGETATION**

Regulatory Reference: R645-301-341, R645-301-342

### **Analysis:**

#### **Revegetation**

A reclamation timetable is in Figure 5-4. Seeding and planting would be done in late August through late October with some seeding and planting done the following spring or fall if the planting window was to close before planting was completed. Traditionally, seeding is done in the fall with planting done in the spring. However, recent experience at another mine has shown that transplanting in the fall can be very successful.

Areas being reclaimed will be graded to final contours then ripped to a maximum depth of two feet on approximately four-foot centers. The plan needs to specify the minimum ripping depth for the Division to be able to determine it to be adequate.

Next, topsoil will be spread and left in a roughened state, and fertilizer will be applied. Slopes less steep than 2v:1h will then be disced to incorporate the fertilizer. Discing would almost completely eliminate the surface roughness and is not desirable, even to incorporate the fertilizer.

Slopes steeper than 2h:1v will not be ripped where ripping is prohibited by the size of the area or by the slope angle. These slopes will be treated either by dozer tracking parallel to the contour or by gouging with a trackhoe. Section 553.100 says all slopes steeper than 3h:1v will be gouged with a trackhoe. This contradicts the plan to use dozer tracking, and dozer tracking is not acceptable. It leads to smooth slopes where rill and gully erosional features are likely to develop. The plan to use dozer tracking needs to be eliminated.

The plan contains two seed mixtures, one for riparian areas and the other for all other areas. With this revision, the seed mixes have been changed in accordance with requirements in the permit. Every species in these mixtures is native to Utah, and they should provide vegetation that meets the performance standards, including the requirement that they have value for wildlife.

The plan says seed mix 1 will be used on the area above the mine site which has been logged and designated to be planted as a mitigation project; however, Section 322.200, page 3-21, contains a seed mix to be used in this same area. The permittee needs to clarify which seed mix would be used in the mitigation area.

Grass and forb seeds will be drilled where possible; otherwise, the seed will be broadcast. All slopes steeper than 3h:1v will be broadcast seeded. Although both drilling and broadcast seeding are acceptable, the Division has seen very good results with carefully controlled broadcast seeding and recommends this method. Drilling tends to reduce surface roughness.

Methods for establishing vegetation in the riparian areas are discussed in the "Riparian Restoration and Planting" section below.

Following seeding, disturbed areas will be mulched with a Division-approved mulching material. For bonding calculations, wood mulch applied at the rate of 2000 pounds per acre was assumed. On slopes steeper than 3h:1v, high quality erosion control matting will be used to anchor the

mulch.

It is assumed "wood mulch" is wood fiber mulch rather than another material, such as sawdust or bark. Wood fiber mulch is generally more expensive to apply than some other mulches, so using this for bonding calculations is acceptable. However, before actually applying mulch, the permittee will need to have the specific mulch approved by the Division. It is expected mulch will be applied for interim revegetation seedings as early as the fall of 1998.

Under "Irrigation, Pest and Disease Control," the plan says no irrigation is planned and pesticides will not be used unless previously approved by the Division. In the discussion on riparian area planting, it says an irrigation program will be considered if the cottonwoods are planted as transplants. The topsoil storage area at the Soldier Canyon Mine will be treated to attempt to control cheatgrass.

### **Riparian Restoration and Planting**

The applicant plans to restore Dugout Creek using a concept of macro- and micro-channels. The macro-channel will be a riprapped ( $D_{50}=12"$ ) channel 8 to 12 feet wide. The micro-channel within the macro-channel is approximately 3 feet wide and 1 foot deep. The micro-channel will be developed by establishment of 3 types of in-stream structures spaced about every 60 feet. The structures are thought to trap sediment which in turn will allow vegetation establishment. These structures are low stage check dams, bank-placed boulders, and rock or log spurs. Figure 7-12 shows typical drawings of these structures, and Plate 7-9 illustrates where they will be placed.

Stream banks will be seeded with the Final Reclamation Seed Mix #2 (Section 341.200). Trees and shrubs will be planted as specified in the mixture. According to specifications in the plan, the following plantings should occur:

- Narrowleaf cottonwoods and Rocky Mountain maples will be planted on the top of the bank at the rate of approximately 500 per acre. This will provide an 8 foot distance between individuals that will be 2 deep (wide).
- Willows will be planted at the rate of 1000 per acre. Assuming the area in which they would be planted is about five feet wide on each side of the stream, this would equate to a spacing of about one cutting every nine feet. This is not adequate. Maximum spacing in suitable areas is two feet between plants. The permittee needs to commit to this type of spacing which is about 4000 per acre. Realizing that the entire area next to the stream may not have areas suited for planting, the permittee may qualify the commitment.
- Sedge and horsetail plugs will be planted at the rate of 1000 per acre. Species of sedges to be used will need to be determined based on availability and what species are present in the area.
- The mid- to upper bank zone will be planted at a rate of 2250 plants per acre which is the equivalent of 4.4-foot spacings. Species to be used include woods rose, currant, snowberry, elderberry, and serviceberry. The width of this zone varies widely through the length of disturbance.

These planting densities are recommended by the NRCS. Figure 3-1 illustrates the various

planting zones within the riparian area, top of channel, reclaimed slope, and top of riprap. Because of the use of in-stream structures, most plantings will need to be done in clumps in the most favorable locations along the reclaimed channel rather than at specific intervals along the full length. Nevertheless, it will be necessary to have some plantings even away from the structures.

The plan does not say specifically what type of plant material will be used to establish cottonwoods, but either seedlings or pole plantings could be used. Seedlings should be large enough that they would have an influence on the riparian area after ten years. If poles are used, the permittee commits to have them be long enough to reach the water table and at least 1-3 inches in diameter. While the level of the water table is not known, the permittee commits to drill periodic holes to find this level so the poles can be planted deeply enough. Enough of the poles should be left above ground so they will be above the surrounding vegetation. Two to twelve year old wood (non-furrowed, smooth bark) is best. The most important factor is to place the pole eight to ten inches below the summer (lowest) water table.

### **Success Standards**

Revegetation success standards are discussed primarily in Section 356. The cover standards are based on range site baseline sampling done in 1997. They are 66% and 85% cover for the pinyon/juniper and riparian areas, respectively. Raw data and statistical information are in Appendix 3-1.

The woody plant density standard is 2200 stems per acre for both communities. This is a technical standard based on baseline information and professional experience.

The permittee has included range site descriptions for Upland Very Steep Shallow Loam (pinyon/Utah juniper), Semiwet Streambank (narrowleaf cottonwood), and Wet Saline Streambank (coyote willow) range sites. The descriptions of soils, slopes, vegetation, and precipitation for the Upland Very Steep Shallow Loam site appear to match the pinyon/juniper areas of Dugout Canyon fairly well.

The Wet Saline Streambank range site definitely does not apply to the Dugout Canyon riparian area. In this range site description, slopes are mostly 0-2% with elevations from 4600 to 4900 feet. The Dugout Creek stream gradient is about 5%, and the elevation is about 7000 feet. Other aspects of the description do not match.

The Semiwet Streambank range site more closely describes the Dugout Creek riparian area, but it is not a precise match, either. The slope in the range site description is 0-4%, the elevation is 4700 to 6400 feet, and the precipitation is 5-12 inches. Also, the range site description mentions a braided stream channel which does not occur in the stretch of Dugout Creek in the disturbed area. Some of the dominant species in the range site description, such as alkali sacaton, basin big sage, squawbush, and Baltic rush, are either not present or are present in relatively low numbers rather than being dominant.

The permittee needs to find a range site description that more closely matches the riparian area in Dugout Canyon. This can be used to compare to the data for the premining conditions and for a range site that could be used for revegetation comparison, such as in Fish Creek Canyon.

The plan indicates the productivity estimates given by the NRCS would be used as success standards. These values are 800 and 1500 pounds per acre for the pinyon/juniper and riparian areas. The

permittee commits to sample productivity at corresponding range sites if the NRCS production estimates are insufficient to satisfy regulatory requirements.

According to the plan, range sites for reclamation comparison will be chosen and designated the first year of reclamation activity. The designated range sites would be used as reference areas until final revegetation bond release has been issued.

The Division's Vegetation Information Guidelines only approve the NRCS productivity estimation as a success standard when using the reference area method after the reference area is approved based on statistical cover similarity to the proposed disturbed area. The permittee needs to select range sites for comparison of productivity to reclaimed areas now rather than waiting until the time of reclamation. The range sites to be used for productivity comparisons need to have at least as much vegetation cover as the areas to be disturbed.

The "M&RP Attachment A Response," received June 3, 1998, separately from the Phase II revision, contains a map designated Plate 3-1D showing the Fish Creek Range Site area. This range site was chosen in a joint visit by the Division, the permittee, and the permittee's consultant, but it needs to be sampled for cover and compared to the riparian area to be disturbed in Dugout Canyon before it can be approved. Also, the permittee would need to officially propose an amendment to the mining and reclamation plan.

The diversity standard will be a technical standard. The success standard for both the pinyon/juniper and riparian areas is that there will be two tree and shrub species, three grasses, and two forbs each with at least five percent cover. It is unknown how the success standard was selected, but with the other success standards, it should ensure a community that meets regulatory requirements for diversity. However, achieving this standard may be difficult.

The permittee has chosen to not apply the revegetation success standard in R645-301-356.250. Parts of the area to be disturbed have been previously disturbed, others have only been affected, and some are undisturbed. It would be difficult to apply the different standards over the relatively small disturbed area.

Condition 23 of the permit requires the permittee to either revise Plate 5-2C or to remove a statement about the applicability of R645-200 to certain parts of the disturbed area. The statement has been removed and the plate renumbered as Plate 5-4.

### **Fish and Wildlife Habitat**

The reclamation plan, including species selection, meets the requirements of R645-301-342.

### **Findings:**

Information provided in the plan does not meet the minimum requirements of this section. Prior to final approval, the permittee must provide the following in accordance with:

**R645-301-341**, The permittee has committed to rip regraded areas to a maximum of two feet deep, but the plan needs to show a minimum ripping depth or other method of relieving compaction.

**R645-301-341**, Section 553.100 says all slopes steeper than 3h:1v will be gouged with a trackhoe, but Chapter 3 indicates some slopes may be treated with dozer tracking. This contradiction needs to be eliminated. Dozer tracking is not an acceptable treatment since it is likely to lead to smooth, steep slopes where rill and gully erosional features will develop.

**R645-301-341.210**, The permittee needs to clarify which seed mix will be used in the mitigation area above the mine site.

**R645-301-341.210**, The number of willows to be planted in the riparian area needs to be increased to about 4000 per acre. Because the entire area may not be suited for planting willows, the permittee may need to qualify the commitment based on appropriate planting areas.

**R645-301-356**, The permittee needs to either sample the pinyon/juniper and riparian areas in accordance with the Vegetation Information Guidelines requirements for final bond release or commit to selecting range site reference areas with cover at least as great as found in the disturbed area.

In addition, the plan says certain areas will be disced to incorporate fertilizer. Discing will probably reduce surface roughness and is highly discouraged. The Division also recommends broadcast seeding all areas since drill seeding tends to reduce surface roughness.

Responses to conditions on the permit relative to this section of the regulations are not due until the mid term of the permit. The only deficiency listed above that needs to be resolved quickly is to clarify which seed mix will be used for mitigation. Under this section of the regulations, the permittee has satisfied the requirements of conditions 15, 17, 18, 19, 20, 23, and 24.

The plan will need to show what type of mulch will be used prior to the mulch being applied. Interim revegetation seeding and mulching could occur in the fall of 1998.

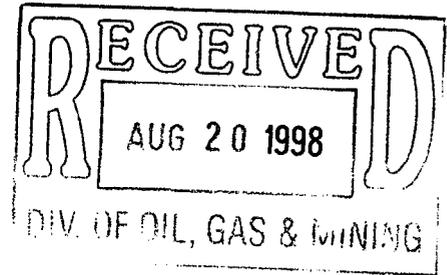
#### **RECOMMENDATIONS:**

The permittee has satisfied several of the conditions in the permit, but other deficiencies remain. The proposed revision should not be approved until these deficiencies are resolved.



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE  
LINCOLN PLAZA  
145 EAST 1300 SOUTH, SUITE 404  
SALT LAKE CITY, UTAH 84115



In Reply Refer To

(CO/KS/NE/UT)

August 17, 1998

Ms. Mary Ann Wright  
Associate Director of Mining  
Utah Division of Oil, Gas, and Mining  
1594 West North Temple, Suite 1210  
Salt Lake City, UT 84115

RE: Phase II Permit Revision, Canyon Fuel Company, LLC, Dugout Canyon Mine,  
ACT/007/039-98-1, Carbon County

#2

*Copy Aaron Paul*

Dear Ms. Wright:

We have reviewed the Phase II Permit Revision for the Dugout Canyon Mine and offer the following comments for your consideration.

1. Page 3-19 states that, "high value habitats in Dugout Canyon include the riparian area and cliff escarpments," and concludes that, "major portions of established habitat will not be disturbed..." We believe that the loss of 2,000 feet of riparian habitat should be considered a "major portion of established habitat," particularly given the high use of riparian areas by wildlife. In addition, more information including the types and percentages of wildlife utilizing important habitat areas should be included in the text. Some of this information is provided in Dalton, L.B., J.S. Price, and L.A. Romin. 1990. Fauna of Southeastern Utah and life requisites regarding their ecosystems. Utah Division Wildlife Resources. Utah Dept. Nat. Res. Pub. No. 90-11. 326pp.
2. Page 3-26; A commitment was made in the permit to coordinate with the Utah Division of Wildlife and Utah Division Oil, Gas, and Mining 6 months prior to the potential subsidence impacts to determine methods for protection of raptor nests. Coordination on migratory bird issues, including raptors, should include the U.S. Fish and Wildlife Service. Also, we are concerned that avoidance and mitigation strategies for raptor nests are not discussed in the permit. At a minimum, there should be a plan to protect nests during the breeding season. For instance, nests could be covered to prevent their use during the breeding season if subsidence is expected to occur. Plans to mitigate for any nests lost to subsidence should also be included in the permit.
3. Page 3-21 should discuss the current condition of the 7500 feet of disturbed stream bank which is proposed as a mitigation site.

4. Page 3-57 states that the Division will be consulted on the best technology to replace and enhance the riparian vegetation to be disturbed. Consultation with the Division should take place prior to approval of this permit. Selected replacement and enhancement measures should be included in the permit.

Thank you for the opportunity to provide comments. If we can be of further assistance, please contact Laura Romin, of this office, at (801) 524-5001, ext. 142.

Sincerely,

A handwritten signature in cursive script that reads "Reed E. Harris".

Reed E. Harris  
Utah Field Supervisor

cc: Mr. John Kimball, Director, Utah Division Wildlife Resources, 1594 West North Temple, Suite 2110, P.O. Box 146301, Salt Lake City, UT, 84114-6301.



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

Michael O. Leavitt  
Governor

Lowell P. Braxton  
Division Director

August 19, 1998

TO: File

THRU: Joe Helfrich, Permit Supervisor *JH*

THRU: Daron Haddock, Permit Supervisor *DH*

FROM: Robert Davidson, Soils Reclamation Specialist *RAD*

RE: Alluvial Valley Floor Technical Analysis - Phase 2, Dugout Canyon Mine, Canyon Fuel Company, ACT/007/039-SR98-1, Folder #2, Carbon County, Utah

**TECHNICAL ANALYSIS:**

**ENVIRONMENTAL RESOURCE  
INFORMATION**

**ALLUVIAL VALLEY FLOORS**

Regulatory Reference: 30 CFR Sec. 785.19; R645-302-320

**Analysis:**

The Phase 2 submittal presented several factors that preclude the mine site from being classified as alluvial valley floors. Based on information presented, the following findings can be made:

- No significant deposits of stream-laid alluvium exist within the permit area. The closest areas of alluvium occur outside the permit area, approximately 2,000 feet downstream area along Dugout Creek and 600 feet north in the headwaters of Pine Canyon.
- Stream-laid deposits within the proposed disturbed area do not "hold" Dugout Creek as required by the AVF definition. The Dugout Creek is generally held by underlying bedrock.

Page 2  
PRO/007/039-98-1  
August 19, 1998

- No irrigated agriculture has or does occur within the permit and adjacent areas.
- No flood irrigation or subirrigation of stream-laid deposits have historically occurred within the proposed disturbed area.
- Soil and topographic conditions within the proposed disturbed area preclude future flood irrigation of the site.

Finally, the proposed disturbed area occurs mainly upland. Therefore, by definition, no Alluvial Valley Floor exists.

**Findings:**

The information provided meets the regulatory requirements of this section.

cc: Priscilla Burton  
O:\007039.DUG\FINAL\STA#1DUG.981



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
801-538-5340  
801-359-3940 (Fax)  
801-538-7223 (TDD)

Michael O. Leavitt  
Governor  
Lowell P. Braxton  
Division Director

August 7, 1998

TO: File

THRU: Joe Helfrich, Permit Supervisor 

FROM: Priscilla Burton, Soils Reclamation Specialist 

RE: Soils Technical Analysis of Phase II Revision of the Permit Application Package (PAP) and the Mining and Reclamation Plan (MRP), Dugout Canyon Mine, Canyon Fuel Company, PRO/007/039-SR98-1. Folder #2, Carbon County, Utah

**TECHNICAL ANALYSIS:**

**ENVIRONMENTAL RESOURCE  
INFORMATION**

**SOILS RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 783.21, 817.200(c); R645-301-220, -301-411.

**Analysis:**

Chapter 2, Soils, Sections 220 through 224, discusses the soil resources within the proposed Dugout Canyon Mine disturbances. This information as provided in The Phase I submittal was reviewed and determined adequate by Robert Davidson in a Technical Analysis dated March 9, 1997. Mr Davidson summarized: '... the predominantly stoney to gravelly sandy loam soils formed from sandstone, shale colluvium, and alluvium. Soils within the Rock outcrop-Rubbleland-Travessilla complex and the Midfork family-Comodore complex are typically well drained with moderate permeability, rapid runoff, and are highly susceptible to water erosion. Soils within the Croydon loam have moderately slow permeability, and therefore, depending on slope, erosion characteristics vary from slight to severe. The main point is that because of steepness of slope and soil quality, all of these soils are highly erosive. Shallow soils dominate the east facing side slopes while generally deeper soils characterize the west facing toe slopes.'

The Phase II submittal updates the Order-I survey by including sites TP7 (below the

sediment pond in soil the Datino Variant complex<sup>1</sup>, designated as TS); TP13 (located at the proposed water tank area, also Datino Variant, designated as TS) ; and TP16 (located on the slope above the coal storage area and designated 96 for Rock Outcrop - Rubbleland- Travesilla Complex). These soil test pit locations are located on soils map, Plate 2-2, Disturbed Area Soils Map. Laboratory data and analytical summaries for each of these samples are provided in Table 2-1 of the PAP.

According to the SCS Carbon County soils survey, the Datino Variant soil complex is characterized as very deep, well drained, moderate permeable soils on mountain slopes being formed in colluvium derived dominantly from sandstone and shale. The SCS survey defines Datino Variant soils as loamy-skeletal, mixed Typic Haploborolls. The typic subgroup of Haploborolls<sup>1</sup> is defined as freely drained soils with a moderately thick brownish mollic epipedon. Typic Haploborolls were formed in alluvium during the late-Pleistocene or Holocene ages, do not have a shallow lithic (stone) contact, and do not have deep wide cracks in most years. The USDA handbook further states that where slopes are suitable, Haploborolls are mostly under cultivation.

### **Findings:**

The information provided meets the regulatory requirements of this section.

## **OPERATION PLAN**

### **TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

### **Analysis:**

Chapter 2, Soils, Sections 230 through 234, discusses the soil's operation plan for the proposed Dugout Canyon Mine, including soil salvage, stockpiling, and topsoil substitutes and supplements.

### **Topsoil and Subsoil Removal**

---

<sup>1</sup>Soil Conservation Service, U.S. Department of Agriculture, Agriculture Handbook No.436, pp 288-289.

Soils from the water tank, the coal storage area, the sediment pond area and the slope between the sediment pond and the facilities pad area (see Plate 5-2) will be used as substitute topsoil. It is estimated that 6,504 CY of soil can be retrieved from these locations at the time of reclamation. Soils to be salvaged prior to construction are those labeled with TS on Plate 2-2. The A, B and C horizons will be salvaged.

The estimated volumes of stockpiled soils are presented in Table 2-2 and in Appendix 2-5 (Soil Removal from Within the Culvert Expansion Area) and Appendix 2-6 (Topsoil, Substitute Topsoil, and Storage Pile Calculations). An estimated total of 28,455 CY of soil will be salvaged and stockpiled.

Installation of a culvert in Dugout Creek will result in the removal and storage of 1,568 CY of riparian soil. The soil removal volumes are based on the assumption and calculations provided in Appendix 2-5. Soils removed during culvert construction will be stored separately from other soils and are expressly designated for reclamation of the Dugout Creek, riparian area. Soils on the northwest facing slope of the stream on the opposite bank from the operations pad at the location of the sediment pond will not be salvaged due to their importance in stabilizing the steep stream bank. The idea of protecting the soils was discarded after it was determined that the stream bank would not be re-exposed during reclamation since the channel will be moved westward to improve stability of the slope. Therefore this 300 foot length of streambank soils will be buried in the fill in order to stabilize the entire slope above. The Division concurs with this judgement.

During a technical site visit on August 5, 1998 by Priscilla Burton, Robert Davidson, and Paul Baker of the Division and Scott Boylen of Canyon Fuels Inc., additional areas of TS soils were noted that were identified as either needing protection during operations or as requiring salvage during the expansion of the site in Phase II, as described below:

- the soils on the southwest facing slope where the north and east drainages of Dugout Creek unite. These soils will be impacted by proximity of the future coal storage pile and they should be salvaged during Phase II expansion.
- The soils on the west facing slope in the area of the coal storage pile. Most of this slope is undisturbed soil that must be salvaged during Phase II expansion. The area of salvage should be from the existing roadway at the north end of the pad to the rock outcrop at the location of the proposed transfer house (not as shown on Plate 5-2, but the new proposed location as explained by Scott Boylen, DugOut Project Engineer). The distance of salvage is approximately 300feet.

**Findings:**

Descriptions of topsoil and subsoil removal and estimates of salvage volumes during Phase II should include the two locations as described above as per R645-301-232.100.

## **RECLAMATION PLAN**

### **TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

**Analysis:**

Chapter 2, Soils, Sections 240 through 250, discusses the soil's reclamation plan for the proposed Dugout Canyon Mine. Appendix 2-6 provides information on topsoil volumes. Chapter 5, section 542.200, and Chapter 3, section 341.200, address slope stability and erosion control, respectively. Reclamation Topography is shown on Plate 5-5 and Reclamation Cross-Sections are shown on six sheets of Plates 5-6.

#### **Soil Redistribution**

Cut and fill calculations for the site are found on page 5-61 and Appendix 5-5. An estimated 99,630 CY are needed for fill and an estimated cut quantity is 97,575 CY. This leaves a difference of 2,055 C Y of fill.

Topsoil will be replaced on all areas with slopes less than 2:1 (page 2-38). Based on the 28, 455 CY of salvaged soil (see Appendix 2-6) and 14.7 acres or 640,332 sq ft to receive topsoil, the average soil redistribution will be a depth of 14.4 inches as stated on page 2-39 of the MRP. Should the additional 6,504 CY of topsoil substitute material become available during reclamation, the topsoil depth would increase to 17 inches. (Figures for square footage should be checked in App 2-6 as an error was noted.) As noted in the backfilling and grading section of the engineering review within this Technical Anaysis, all slopes should receive topsoil (R645-301-553.100). Any areas which will not receive topsoil should be identified on the Reclamation Topography Map, Plate 5-5.

#### **Soil Stabilization**

Soil stabilization practices include surface roughening techniques such as gouging and/or deep pocking, and "high-quality" erosion mat placement on slopes 2:1 or steeper (page 2-28, p2-41, pg 3-40, p3-45 and pg 3-51). No calculations for the added cost of the erosion matting and installation were found in Appendix 5-6 Bond Calculations. The Division is unclear as to how the application of erosion control matting will occur over the gouged surface.

Soil may be replaced at grades of up to 1.5H:1V (page 5-70). The steepness of these slopes will be reduced at their base, providing a concave slope. Slopes which are 3H:1V or steeper will be gouged using a trackhoe (page 5-70).

Soil redistribution with the culvert expansion area will require placing soils on slopes greater than 2:1. According to the reclamation cross sections, these steep slopes exist throughout the reclaimed channel for Dugout Creek. Figure 3-1 shows a cross-section of the riprapped channel. The PAP does not discuss soil placement techniques on these steep slopes that drop directly into Dugout Creek.

Soil stabilization techniques after topsoil is placed on steep slopes greater than 2:1 are needed, especially within the stream corridor where the culvert will be removed. Specific techniques should be stated in accordance with slope steepness to ensure that soil will remain intact on the steep slopes while vegetation is being established.

**Findings:**

The permittee must provide the following, prior to approval, in accordance with the requirements of:

**R645-301-233**, Specific locations of erosion control matting use should be identified in the MRP and calculated into the bonding. Other possible soil stabilization techniques for slopes greater than 2:1 should be stated, should erosion control matting be eliminated from the plan.

**R645-301-240**, the MRP should be revised to indicate that all slopes will receive topsoil. Slopes which will not receive topsoil should be identified on the Reclamation Topography Map, Plate 5-5.



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
801-538-5340  
801-359-3940 (Fax)  
801-538-7223 (TDD)

Michael O. Leavitt  
Governor  
Lowell P. Braxton  
Division Director

July 17, 1998

FIELD(name)  
FIELD(company)  
FIELD(address)  
FIELD(city), FIELD(state) FIELD(zip)

Re: Determination of Administrative Completeness Phase II Permit Revision, Canyon Fuel Company, LLC, Dugout Canyon Mine, ACT/007/039-98-1, File #3, Carbon County, Utah

Dear FIELD(title):

The Division has determined that the permit application for the Significant Revision to the Dugout mine adding 11.7 acres has been determined complete.

This area is located in Carbon County, Utah approximately 13 miles northeast of Wellington, Utah. The Dugout Canyon Mine will be accessed from a county road that connects to Nine Mile Road approximately 4 miles north of Wellington.

In Compliance with the Utah Coal Mining Rules R645-300-121.300, R645-300-121.310, R645-300-121.320, and the Utah Coal Mining Act (UCA Section 40-10-1 et seq.), notice is hereby given to all appropriate agencies having a jurisdiction or an interest in the area of the operations that this application is available for public review.

This permit application is available for public review at the following locations:

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

Carbon County Courthouse  
120 East Main  
Price, Utah 84501

Comments may be addressed to the Division of Oil, Gas & Mining at the above address.

Administrative Completeness

ACT/007/039-98-1

July 17, 1998

Page 2

If you have any questions please call me at (801) 538-5306 or Pamela Grubaugh-Littig at (801) 538-5268.

Sincerely,

Mary Ann Wright  
Associate Director of Mining

tam

Enclosure

cc: Daron Haddock  
Joe Helfrich  
Pamela Grubaugh-Littig

O:\007039.DUG\DRAFT\ADMN98-1.FRM

James Fulton, Chief  
Office of Surface Mining  
Reclamation and Enforcement ✓  
Western Regional Coordinating Center  
1999 Broadway, Suite 3320  
Denver, Colorado 80202-5733

Richard Manus ✓  
Bureau of Land Management  
125 South 6th West  
Price, Utah 84501

Alan Rabinoff, Chief ✓  
Mining Law and Solid Minerals  
Bureau of Land Management  
324 South State Street  
P.O. Box 45155  
Salt Lake City, Utah 84145-0155

Robert D. Williams, Assistant Field Supervisor  
U.S. Fish & Wildlife Service ✓  
Ecological Services  
Lincoln Plaza  
145 East 1300 South  
Salt Lake City, Utah 84115

Janette S. Kaiser, Forest Supervisor ✓  
U.S. Forest Service  
Manti-Lasal National Forest  
599 West Price River Road  
Price, Utah 84501

Mike Schwinn, District Engineer ✓  
U.S. Army Corps of Engineers  
1403 South 600 West  
Bountiful, Utah 84010

William P. Yellowtail Jr., Regional  
Administrator ✓  
Environmental Protection Agency  
999 18th Street  
Denver Place, Suite 500  
Denver, Colorado 80202-2405

Gary L. Roeder, District Conservationist ✓  
Natural Resource Conservation Service  
350 North 400 East  
Price, Utah 845010

Robert Morgan, State Engineer  
Utah Division of Water Rights  
Department of Natural Resources ✓  
1636 West North Temple  
Salt Lake City, Utah 84116

Brent Bradford, Deputy Director  
Office of the Executive Director  
Department of Environmental Quality ✓  
168 North 1950 West  
P.O. Box 148810  
Salt Lake City, Utah 84114-4810

~~Tobias A. Martinez, Supervisor  
U.S. Forest Service  
Fishlake National Forest  
115 East 900 North  
Richfield, Utah 84701~~

Mark Page, Regional Engineer ✓  
Utah Division of Water Rights  
Southeastern Regional Office  
453 South Carbon Avenue  
Price, Utah 84501

Dave Ariotti, District Engineer ✓  
Southeastern Utah Health Department  
28 South 100 East  
P.O. Box 800  
Price, Utah 84501

Max Evans, Director ✓  
Utah Division of State History  
300 Rio Grande  
Salt Lake City, Utah 84101

John Kimball, Director ✓  
Utah Division of Wildlife Resources  
1594 West North Temple  
Salt Lake City, Utah 84114

Bill Bates, Habitat Manager ✓  
Utah Division of Wildlife Resources  
455 West Railroad Avenue  
Price, Utah 84501

David Terry, Director ✓  
School & Institutional Trust Lands  
Administration  
675 East 500 South  
Salt Lake City, Utah 84501

Ronald P. Parkin, State Mine Inspector  
Industrial Commission of Utah  
College of Eastern Utah  
451 East 400 North  
Price, Utah 84501 ✓

Carolynn B. Wright, Research Analyst  
Governor's Office of Planning and Budget  
Government Relations Department  
State Planning Coordinator Office ✓  
116 State Capitol  
Salt Lake City, Utah 84114

David Winder, Executive Director  
Department of Community & Economic  
Development  
324 South State Street, Suite 500  
Salt Lake City, Utah 84111

Kathleen Clarke, Executive Director  
Department of Natural Resources ✓  
1636 West North Temple, Suite 316  
Salt Lake City, Utah 84116-3913

David D. Lauriski, Chairman  
Board of Oil, Gas, & Mining  
c/o Energy West Mining Company  
P.O. Box 310  
Huntington, Utah 84528 ✓

Bill Howell, Executive Director  
Southeastern Utah Association of Local  
Governments ✓  
P.O. Box 1106  
Price, Utah 84501

John Williams  
Five County Association of Governments  
Box 1550  
St. George, Utah 84770 ✓

Bryant Anderson  
Emery County Planning and Zoning  
P.O. Box 417  
Castle Dale, Utah 84513 ✓

Val Payne, Director  
Emery County Public Lands  
P.O. Box 1298  
Castle Dale, Utah 84513 ✓

Jay Mark Humphrey  
Emery Water Conservancy District  
P.O. Box 998  
Castle Dale, Utah 84513 ✓

Darrel V. Leamaster, P.E., District Manager  
Castle Valley Special Service District  
P.O. Box 877  
Castle Dale, Utah 84513 ✓

Menco Copinga, President  
North Emery Water Users Association  
Box 129  
Cleveland, Utah 84518 ✓

Duane K. Jensen, President  
Board of Directors  
Huntington-Cleveland Irrigation Company  
Box 1183  
Huntington, Utah 84528 ✓

Lee Lemmon, Vice-President  
Board of Directors  
Huntington-Cleveland Irrigation Company  
Box 1183  
Huntington, Utah 84528 ✓

Varden Wilson, Secretary  
Huntington-Cleveland Irrigation Company  
Box 327  
Huntington, Utah 84528 ✓

Eugene Johansen, Chairman  
Emery County Conservancy District  
P.O. Box 856  
Castle Dale, Utah 84513 ✓

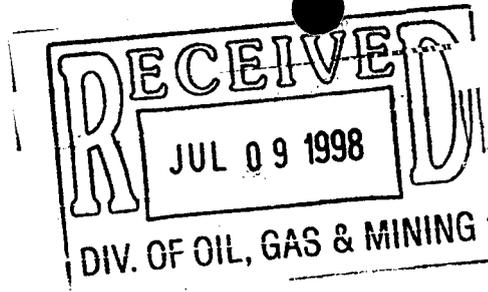
Joe Drexler, Deputy Director Western Region  
United Mine Workers of America  
1562 Pearl Street  
Denver, Colorado 80203 ✓

Tom Bingham  
Utah Mining Association  
Kearns Building  
136 South Main, Suite 825  
Salt Lake City, Utah 84101 ✓

Chuck Semborski, Environmental Chairman  
Energy West  
P.O. Box 310  
Huntington, Utah 84526 ✓

Canyon Fuel Company, LLC  
P.O. Box 1029  
Wellington, Utah 84542  
801/637-6360 Fax: 801/637-0108

Ken M. Payne  
Project Manager



July 7, 1998

Mr. Daron Haddock  
Division of Oil, Gas and Mining  
1594 West North Temple  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

*Copy for  
ACT/007/039 #3*

Dear Mr. Haddock:

Enclosed is a copy of the affidavit showing proof of public notice on the Phase 2 Amendment of the Dugout Canyon mine plan number ACT/007/039.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Ken Payne".

Ken Payne  
Project Manager

attachment

AFFIDAVIT OF PUBLICATION

**PUBLIC NOTICE**

STATE OF UTAH)

SS.

County of Carbon,)

I, Kevin Ashby, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State and County aforesaid, and that a certain notice, a true copy of which is hereto attached, was published in the full issue of such newspaper for 8 (Eight) consecutive issues, and that the first publication was on the 4th day of June, 1998 and that the last publication of such notice was in the issue of such newspaper dated the 30th day of June, 1998.



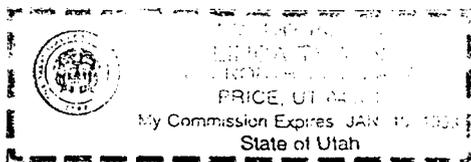
Kevin Ashby - Publisher

Subscribed and sworn to before me this 30th day of June, 1998.



Notary Public My commission expires January 10, 1999 Residing at Price, Utah

Publication fee, \$1104.00



Canyon Fuel Company, LLC has filed a significant revision to the Dugout Canyon Mine approved Mining Reclamation Plan No. ACT / 007 / 039 with the State of Utah, Department of Natural Resources, Division of Oil, Gas and Mining. The revision includes expanding the currently approved disturbed area of the Dugout Canyon Mine from 10.4 acres to 22.1 acres. This acreage includes two acres for the storage of topsoil recovered during initial construction activities. The Dugout Canyon Mine will be located in Dugout Canyon approximately 13 miles northeast of Wellington, Utah. The Dugout Canyon Mine will be accessed from a county road that connects to the Nine Mile Road approximately 4 miles north of Wellington, Utah.

A portion of the mine facility and topsoil storage area would be located within 100 feet of the Carbon County public road. There are no plans to relocate or close the public road. The mine facilities will not interfere with public use of the county road.

At the conclusion of all mining activities, all surface facilities will be removed and the area regraded to approximate original contour. The disturbed area will be revegetated to promote successful growth as per the approved reclamation plan. The postmining use of the land will return to its current use as wildlife habitat, livestock grazing and recreational activities.

**Legal Description**

Lease ML 42648-(3640 acres)- Approved

T 13 S., R 12E., SLBM, Utah  
Section 3: Lots 1,2,3,4, S 1/2 ( all )  
Section 4: Lots 1,2,3,4, S 1/2 (all)  
Section 5: Lots 1,2, SE 1/4  
Section 9: All  
Section 10: N 1/2  
Section 11: N 1/2

Fee land owned by Canyon Fuel Company, ( 800 acres ) as described below:

T. 13S., R 12E., SLBM, Utah  
Section 16: All  
Section 23: E 1/2 NW1/4; W 1/2 NE 1/4

Bureau of Land Management, Right-of-Way ( 10 acres ), approval pending:

T. 13S, R12E, SLBM, Utah  
Section 23: NE1/4 NW1/4 NW1/4 SW1/4; N1/2 NE1/4 NW1/4 SW1/4;  
SE1/4 NW1/4 NW1/4 SW1/4

Topsoil Storage Area - ( 2 acres )

T. 14S, R12E, SLBM, Utah  
Section 8: W1/2 NW1/4 NE1/4

The name and business address of the applicant is:  
Canyon Fuel Company, LLC-Soldier Canyon Mine  
6955 South Union Park Center, Suite 540  
Midvale, Utah 84047  
Phone: ( 801 ) 569-4700

After filing, copies of the permit application will be available for inspection at the following locations:  
Utah Division of Oil, Gas and Mining, 1594 West North Temple, Suite 1210, Salt Lake City, Utah,  
and Carbon County Recorders Office, Carbon County Courthouse, Price, Utah.

Written comments, objections or requests regarding this mining permit application must be made within 30 days of the last publication of this notice, and may be addressed to the Utah Division of Oil, Gas and Mining, Box 145801, Salt Lake City, Utah 84114-5801.

Published in Sun Advocate June 4, 9, 11, 16, 18, 23, 25 and 30, 1998.



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Ted Stewart  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

June 2, 1998

Mr. Richard Manus, Area Manager  
Bureau of Land Management  
Price River Field Office  
P. O. Box 7004  
Price, Utah 84501

Re: Phase II Revision to Mine Plan, Canyon Fuel Company, LLC., Dugout Canyon Mine, ACT/007039-SR98-1, Folder #3, Carbon County, Utah

Dear Mr. Manus:

Canyon Fuel Company has made application to revise the Mining and Reclamation Plan (MRP) for the Dugout Canyon Mine. The changes extend onto land administered by the Bureau of Land Management. We are, therefore, sending you a copy of the MRP and solicit your feedback on it. We anticipate completing our review of this application circa July 31, 1998. Please provide any comments you have on this application by this date.

Thank you for your involvement in this project. Please call if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Daron R. Haddock".

Daron R. Haddock  
Permit Supervisor

sd

enclosure

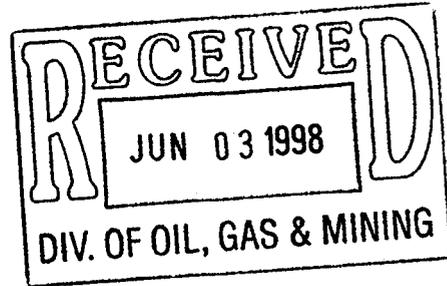
cc: Price Field Office

O:\007039.DUG\FINAL\BLMTRANS.LTR



Canyon Fuel Company, LLC  
Soldier Canyon Mine  
P.O. Box 1029  
Wellington, Utah 84542  
(801)637-6360 Fax: (801) 637-0108

June 3, 1998



Utah Coal Regulatory Program  
Utah Division of Oil, Gas and Mining  
1584 West North Temple  
Salt Lake City, Utah 84114-5801

RE: Attachment A of the Dugout Canyon Mine M&RP  
Dugout Canyon Mine, Canyon Fuel Company, LLC  
ACT\007\039, Carbon County, Utah

*Copy drawn,  
#2 Steve (PFO)  
Joe*

To Whom it May Concern:

Canyon Fuel Company is submitting this response to Attachment A of the approved Dugout Canyon Mine M&RP. As discussed in our meeting with Joe Helfrich, Daron Haddock, and Stephen Demczak of the Division on May 29, 1998, this submittal is intended to be an attachment to the existing permit. Many of the Attachment A stipulations were addressed in the Phase II M&RP revision submittal on April 30, 1998. Therefore, in some cases pages of the Phase II submittal were copied and have been included with this document. It is Canyon Fuel Company's intent that the final submittal of the Phase II M&RP will incorporate all of the Attachment A stipulations into the permit text. Thus, when Phase II is approved, this Attachment A Stipulation submittal will be obsolete.

If you have any questions regarding this submittal, please contact either Mr. Ken Payne at (435) 636-2880 or me at (435) 448-2669.

Sincerely:

Chris D. Hansen  
Canyon Fuel Company, LLC  
Environmental Coordinator

## Application for Permit Change Detailed Schedule of Changes to the Permit

Title of Change: Response to Attachment A of the approved Dugout Canyon Mine M&RP	Permit Number: <b>ACT/007/039</b>
	Mine: DUGOUT CANYON MINE
	Permittee: CANYON FUEL COMPANY

Provide a detailed listing of all changes to the mining and reclamation plan which will be required as a result of this proposed permit change. Individually list all maps and drawings which are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise the existing mining and reclamation plan. **Include page, section and drawing numbers as part of the description.**

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Response to Attachment A
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	

Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

June3, 1998

Form DDM-C1 (last revised Nov 2, 1995)

File Folder # 3

# APPLICATION FOR PERMIT CHANGE

Title of Change: Response to Attachment A of the approved Dugout Canyon Mine M&RP.

Permit Number: ACT/007/039

Mine: DUGOUT CANYON MINE

Permittee: CANYON FUEL COMPANY

Description, include reason for change and timing required to implement:

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	1. Change in the size of the Permit Area? <small>state: <input type="checkbox"/> increase <input type="checkbox"/> decrease</small>
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	2. Change in the size of the Disturbed Area? <small>state: <input type="checkbox"/> increase <input type="checkbox"/> decrease</small>
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	3. Will permit change include operations outside the Cumulative Hydrologic Impact Area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	4. Will permit change include operations in hydrologic basins other than currently approved?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	5. Does permit change result from cancellation, reduction or increase of insurance or reclamation bond?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	6. Does the permit change require or include public notice publication?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	7. Does the permit change require or include ownership, control, right of entry, or compliance information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	8. Permit change as a result of a Violation? Violation #
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	9. Permit change as a result of Division Order? D.O. #
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	10. Permit change as a result of other laws or regulations or policies? Explain: Permit Attachment A
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	11. Does the permit change affect the surface landowner or change the post mining land use?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	12. Does permit change require or include underground design or mine sequence and timing?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	13. Does permit change require or include collection and reporting of any baseline information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	14. Could the permit change have any effect on wildlife or vegetation outside the current disturbed area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	15. Does permit change require or include soil removal, storage or placement?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	16. Does permit change require or include vegetation monitoring, removal or revegetation activities?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	17. Does permit change require or include construction, modification, or removal of surface facilities?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	18. Does permit change require or include water monitoring, sediment or drainage control measures?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	19. Does permit change require or include certified designs, maps, or calculations?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	20. Does permit change require or include subsidence control or monitoring?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	21. Have reclamation costs for bonding been provided for any change in the reclamation plan?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	22. Is permit change within 100 feet of a public road or perennial stream or 500 feet of an occupied dwelling?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	23. Is this coal exploration activity?

Attach 3 complete copies of proposed permit change as it would be incorporated into the Mining and Reclamation Plan

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

*[Signature]*  
Signed: Price Mike Position: VP Date: 6/3/98

Subscribed and sworn to before me this 3 day of June, 1998  
Notary Public



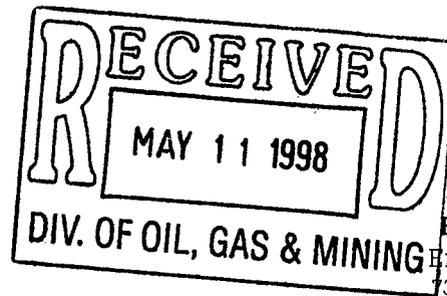
DIONNE M. OMA  
NOTARY PUBLIC - STATE OF UTAH  
53 EAST SMITH CIRCLE  
PRICE, UT 84501  
COMM. EXP. 12-15-99

RECEIVED  
JUN 03 1998  
DIV. OF OIL, GAS & MINING  
ASSIGNED PERMIT CHANGE NUMBER



**EarthFax**

EarthFax  
Engineering Inc.  
Engineers/Scientists  
324 So. Union Park Ave.  
Suite 100  
Midvale, Utah 84047  
Telephone 801-561-1555  
Fax 801-561-1861



May 11, 1998

ACT/007/039 #2

Daron, Pam

Division of Oil, Gas and Mining  
Coal Regulatory Program  
1594 West North Temple, Suite 1210  
Salt Lake City, UT 84114-5801

EarthFax Engineering is submitting the enclosed modified volumes of the Dugout Canyon Mine Mining and Reclamation Plan - Phase II on behalf of Canyon Fuel Company, LLC. These volumes have been modified at the request of the Division's review staff to include complete appendices, plates, text, tables, and figures as discussed in the May 4, 1998 meeting that was held at the Division's office.

The submittal is three volumes, instead of the previously submitted two volumes.

The modified volumes include revisions to Plates 7-7 and 7-8 and page 5-35 for errors discovered during a permit review by Vicky Bailey (EarthFax) and Chris Hansen (Canyon Fuel).

Canyon Fuel Company appreciates your attention to the Dugout Canyon Mine M&RP and the effort that you and your staff have put forth in their review of Phase I. If you have any questions regarding this submittal, please feel free to contact the appropriate Canyon Fuel Company and/or EarthFax Engineering, Inc. personnel.

Sincerely,

Vicky S. Bailey  
Permitting Coordinator  
EarthFax Engineering, Inc.

# Application for Permit Change

## Detailed Schedule of Changes to the Permit

Title of Change: Surface Facilities Expansion - Phase II

Permit Number: ACT/007/039

Mine: DUGOUT CANYON MINE

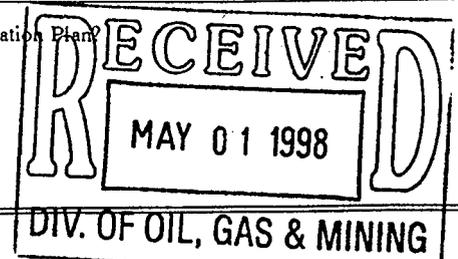
Permittee: CANYON FUEL COMPANY

Provide a detailed listing of all changes to the mining and reclamation plan which will be required as a result of this proposed permit change. Individually list all maps and drawings which are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise the exiting mining and reclamation plan. Include page, section and drawing numbers as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 1
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 1-1 - add to the back of the existing data
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 1-2 - add to the back of the existing data
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 1-1, 1-2, and 1-3
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 2
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 2-3 - add to the back of the existing data
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 2-4 - add to the back of the existing data
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input checked="" type="checkbox"/> REMOVE	Addendum to Appendix 2-5 - see attached page
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 2-5A
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 2-6
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 2-1 and 2-2
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 3
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 3-1 - add to the back of the existing data
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 3-3 - add to the back of the existing data
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 3-1, 3-1A, 3-1B, 3-1C, 3-2 (confidential), and 3-3
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 4, page 4-1
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 4-1 - add to the back of the existing data
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Exhibit B - Appendix 4-3
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 4-1
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 5
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 5-3A
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 5-4
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 5-5
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 5-1, 5-2, 5-3 (6), 5-4, 5-5, 5-6 (6), and 5-7
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 6-1, 6-2, 6-4, 6-5, 6-6 (confidential), and 6-7 (confidential)

Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

April 30, 1998



# Application for Permit Change

## Detailed Schedule of Changes to the Permit

Title of Change: Surface Facilities Expansion - Phase II

Permit Number: ACT/007/039

Mine: DUGOUT CANYON MINE

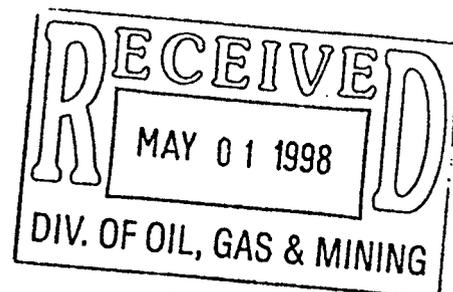
Permittee: CANYON FUEL COMPANY

Provide a detailed listing of all changes to the mining and reclamation plan which will be required as a result of this proposed permit change. Individually list all maps and drawings which are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise the exiting mining and reclamation plan. Include page, section and drawing numbers as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 7
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 7-8
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 7-9
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 7-11
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-7, 7-8, and 7-9
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 8
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 9

Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

April 30, 1998



Form DQGM - CI (Last Revised April 29, 1998)

File Entry #3

# APPLICATION FOR PERMIT CHANGE

Title of Change: Surface Facilities Expansion - Phase II

Permit Number: ACT/007/039

Mine: DUGOUT CANYON MINE

Permittee: CANYON FUEL COMPANY

Description, include reason for change and timing required to implement:

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	1. Change in the size of the Permit Area? (Increase)
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	2. Change in the size of the Disturbed Area? (Increase)
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	3. Will permit change include operations outside the Cumulative Hydrologic Impact Area?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	4. Will permit change include operations in hydrologic basins other than currently approved?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	5. Does permit change result from cancellation, reduction or increase of insurance or reclamation bond?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	6. Does the permit change require or include public notice publication?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	7. Does the permit change require permit holder ownership, control, right of entry, or compliance information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	8. Permit change as a result of a Violation? Violation #
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	9. Permit change as a result of Division Order? D.O. #
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	10. Permit change as a result of other laws or regulations or policies? Explain:
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	11. Does the permit change affect the surface landowner or change the post mining land use?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	12. Does permit change require or include underground design or mine sequence and timing? (Modification of R2P2?)
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	13. Does permit change require or include collection and reporting of any baseline information?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	14. Could the permit change have any effect on wildlife or vegetation outside the current disturbed area?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	15. Does permit change require or include soil removal, storage or placement?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	16. Does permit change require or include vegetation monitoring, removal or revegetation activities?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	17. Does permit change require or include construction, modification, or removal of surface facilities?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	18. Does permit change require or include water monitoring, sediment or drainage control measures?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	19. Does permit change require or include certified designs, maps, or calculations?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	20. Does permit change require or include subsidence control or monitoring?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	21. Have reclamation costs for bonding been provided for any change in the reclamation plan?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	22. Is permit change within 100 feet of a public road or perennial stream or 500 feet of an occupied dwelling?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	23. Is this coal exploration activity?

Attach 3 complete copies of proposed permit change as it would be incorporated into the Mining and Reclamation Plan.

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

*[Signature]* *Prot. Mgr* 4/29/98  
Signed - Name - Position - Date

Subscribed and sworn to before me this 29th day of April, 1998.  
Notary Public  
My Commission Expires: \_\_\_\_\_, 19\_\_\_\_  
Attest: STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

  
DIONNE M. OMA  
NOTARY PUBLIC - STATE OF UTAH  
53 EAST SMITH STREET  
PRICE, UT 84501  
COMM. EXP. 12/31/00

Received by Oil, Gas & Mining

**DECEIVED**

MAY 01 1998

ASSIGNED PERMIT FILE NUMBER

**DIV. OF OIL, GAS & MINING**



Canyon Fuel Company, LLC  
Skyline Mines  
P.O. Box 719  
Helper, Utah 84526  
435/448-6463 Fax: 435/448-2632

April 29, 1998

Coal Regulatory Program  
Utah Division of Oil, Gas and Mining  
1594 West North Temple, Suite 1210  
P.O. Box 145801  
Salt Lake City, Utah 84114

RE: Dugout Canyon Mine Permit Revision (Phase II), ACT/007/039

# 2

To whom it may concern:

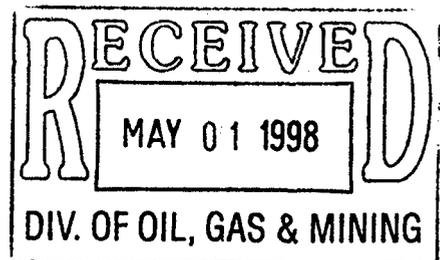
Please find enclosed three (3) complete copies of revisions to the Dugout Canyon Mine M&RP. This permit revision has frequently been referred to as "Phase II" of the Dugout Canyon Mine Permitting Process. The appropriate C1 and C2 forms, which accompany this letter, detail the changes made to the existing (Phase I) mining permit. The revisions are being made to allow for the construction of larger surface facilities and increased coal production. The revisions to the M&RP have been prepared by EarthFax Engineering, Inc. of Salt Lake City, Utah. If you have any questions please contact me at (435) 448-2669 or Mr. Ken Payne at (435) 636-2880.

Your review of this material in a timely manner is greatly appreciated.

Sincerely,

Chris D. Hansen  
Environmental Coordinator

enclosures



# Application for Permit Change

## Detailed Schedule of Changes to the Permit

Title of Change: Surface Facilities Expansion - Phase II	Permit Number: ACT/007/039
	Mine: DUGOUT CANYON MINE
	Permittee: CANYON FUEL COMPANY

Provide a detailed listing of all changes to the mining and reclamation plan which will be required as a result of this proposed permit change. Individually list all maps and drawings which are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise the exiting mining and reclamation plan. **Include page, section and drawing numbers as part of the description.**

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 1
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 1-1 - add to the back of the existing data
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 1-2 - add to the back of the existing data
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 1-1, 1-2, and 1-3
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 2
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 2-3 - add to the back of the existing data
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 2-4 - add to the back of the existing data
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input checked="" type="checkbox"/> REMOVE	Addendum to Appendix 2-5 - see attached page
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 2-5A
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 2-6
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 2-1 and 2-2
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 3
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 3-1 - add to the back of the existing data
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 3-3 - add to the back of the existing data
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 3-1, 3-1A, 3-1B, 3-1C, 3-2 (confidential), and 3-3
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 4, page 4-1
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 4-1 - add to the back of the existing data
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Exhibit B - Appendix 4-3
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 4-1
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 5
<input checked="" type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 5-3A
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 5-4
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 5-5
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 5-1, 5-2, 5-3 (6), 5-4, 5-5, 5-6 (6), and 5-7
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 6-1, 6-2, 6-4, 6-5, 6-6 (confidential), and 6-7 (confidential)

Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

April 30, 1998

RECEIVED

MAY 01 1998

DIV. OF OIL, GAS & MINING

# Application for Permit Change

## Detailed Schedule of Changes to the Permit

Title of Change: Surface Facilities Expansion - Phase II

Permit Number: ACT/007/039

Mine: DUGOUT CANYON MINE

Permittee: CANYON FUEL COMPANY

Provide a detailed listing of all changes to the mining and reclamation plan which will be required as a result of this proposed permit change. Individually list all maps and drawings which are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise the existing mining and reclamation plan. Include page, section and drawing numbers as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 7
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 7-8
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 7-9
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 7-11
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plates 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-7, 7-8, and 7-9
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 8
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 9

 ADD REPLACE REMOVE

Chapter 7

 ADD REPLACE REMOVE

Appendix 7-8

 ADD REPLACE REMOVE

Appendix 7-9

 ADD REPLACE REMOVE

Appendix 7-11

 ADD REPLACE REMOVE

Plates 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-7, 7-8, and 7-9

 ADD REPLACE REMOVE

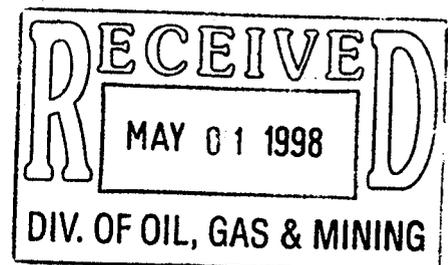
Chapter 8

 ADD REPLACE REMOVE

Chapter 9

Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

April 30, 1998



Form DUGM - CI (Last Revised April 28, 1998)

File Folder #3

# APPLICATION FOR PERMIT CHANGE

Title of Change: Surface Facilities Expansion - Phase II

Permit Number: ACT/007/039

Mine: DUGOUT CANYON MINE

Permittee: CANYON FUEL COMPANY

Description, include reason for change and timing required to implement:

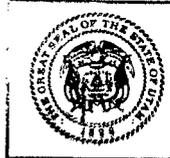
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	1. Change in the size of the Permit Area? (6992 acres (increase))
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	2. Change in the size of the Disturbed Area? (2014 acres (increase))
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	3. Will permit change include operations outside the Cumulative Hydrologic Impact Area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	4. Will permit change include operations in hydrologic basins other than currently approved?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	5. Does permit change result from cancellation, reduction or increase of insurance or reclamation bond?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	6. Does the permit change require or include public notice publication?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	7. Does the permit change require or include a permit plan, control, right of entry, or compliance information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	8. Permit change as a result of a Violation? Violation #
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	9. Permit change as a result of Division Order? D.O. #
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	10. Permit change as a result of other laws or regulations or policies? Explain:
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	11. Does the permit change affect the surface landowner or change the post mining land use?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	12. Does permit change require or include underground design or mine sequence and timing? (Modification of R2P27)
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	13. Does permit change require or include collection and reporting of any baseline information?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	14. Could the permit change have any effect on wildlife or vegetation outside the current disturbed area?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	15. Does permit change require or include soil removal, storage or placement?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	16. Does permit change require or include vegetation monitoring, removal or revegetation activities?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	17. Does permit change require or include construction, modification, or removal of surface facilities?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	18. Does permit change require or include water monitoring, sediment or drainage control measures?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	19. Does permit change require or include certified designs, maps, or calculations?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	20. Does permit change require or include subsidence control or monitoring?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	21. Have reclamation costs for bonding been provided for any change in the reclamation plan?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	22. Is permit change within 100 feet of a public road or perennial stream or 500 feet of an occupied dwelling?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	23. Is this coal exploration activity?

Attach 3 complete copies of proposed permit change as it would be incorporated into the Mining and Reclamation Plan.

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

Lisa Payne Pres. Mgr 4/29/98  
Signature - Name - Position - Date

Subscribed and sworn to before me this 29th day of April 1998.  
Notary Public: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_, 19\_\_\_\_  
Attest: STATE OF \_\_\_\_\_ COUNTY OF \_\_\_\_\_



**DIONNE M. OMAS**  
NOTARY PUBLIC - STATE OF UTAH  
53 EAST SMITH CIRCLE  
PRICE, UT 84501  
COMM. EXP. 12-15-98

Received by Oil, Gas & Mining

**RECEIVED**

MAY 01 1998

DIV. OF OIL, GAS & MINING

ASSIGNED PERMIT CHANGE NUMBER