STATE DECISION PACKAGE

Gordon Creek #2, #7, and #8 Mines
Beaver Creek Coal Company

FIVE-YEAR PERMIT RENEWAL

STATE OF UTAH
Department of Natural Resources
Division of Oil, Gas & Mining

AUGUST 28, 1989

File in:
☐ Confidential
☐ Shelf
☒ Expandable
Refer to Record No 0008 Date 06261989
In C0070016 1989 Incoming
For additional information 08281989

UTAH DIVISION OF OIL, GAS AND MINING
STATE DECISION DOCUMENT AND
TECHNICAL ANALYSIS

FIVE-YEAR PERMIT RENEWAL
GORDON CREEK #2, #7 AND #8 MINES
ACT/007/016

Beaver Creek Coal Company
Carbon County, Utah
August 28, 1989

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AT87/2

ADMINISTRATIVE OVERVIEW
BEAVER CREEK COAL COMPANY
GORDON CREEK #2, #7 AND #8 MINES
Five-Year Permit Renewal
ACT/007/016

Carbon County, Utah
August 28, 1989

BACKGROUND

The Gordon Creek #2, #7 and #8 Mines are located approximately 20 miles northwest of Price, Utah. The permit area contains 2,300 surface acres, all of which is private surface.

Approximately 83 percent of total coal reserves within the permit area is Federal coal. The remaining coal reserves are private fee coal. All coal within the permit area has been leased by Beaver Creek Coal Company. The initial permanent program permit was issued by the Division on August 27, 1984.

Beaver Creek Coal Company submitted the Five-Year Permit Renewal application on April 25, 1989.

RECOMMENDATIONS FOR APPROVAL

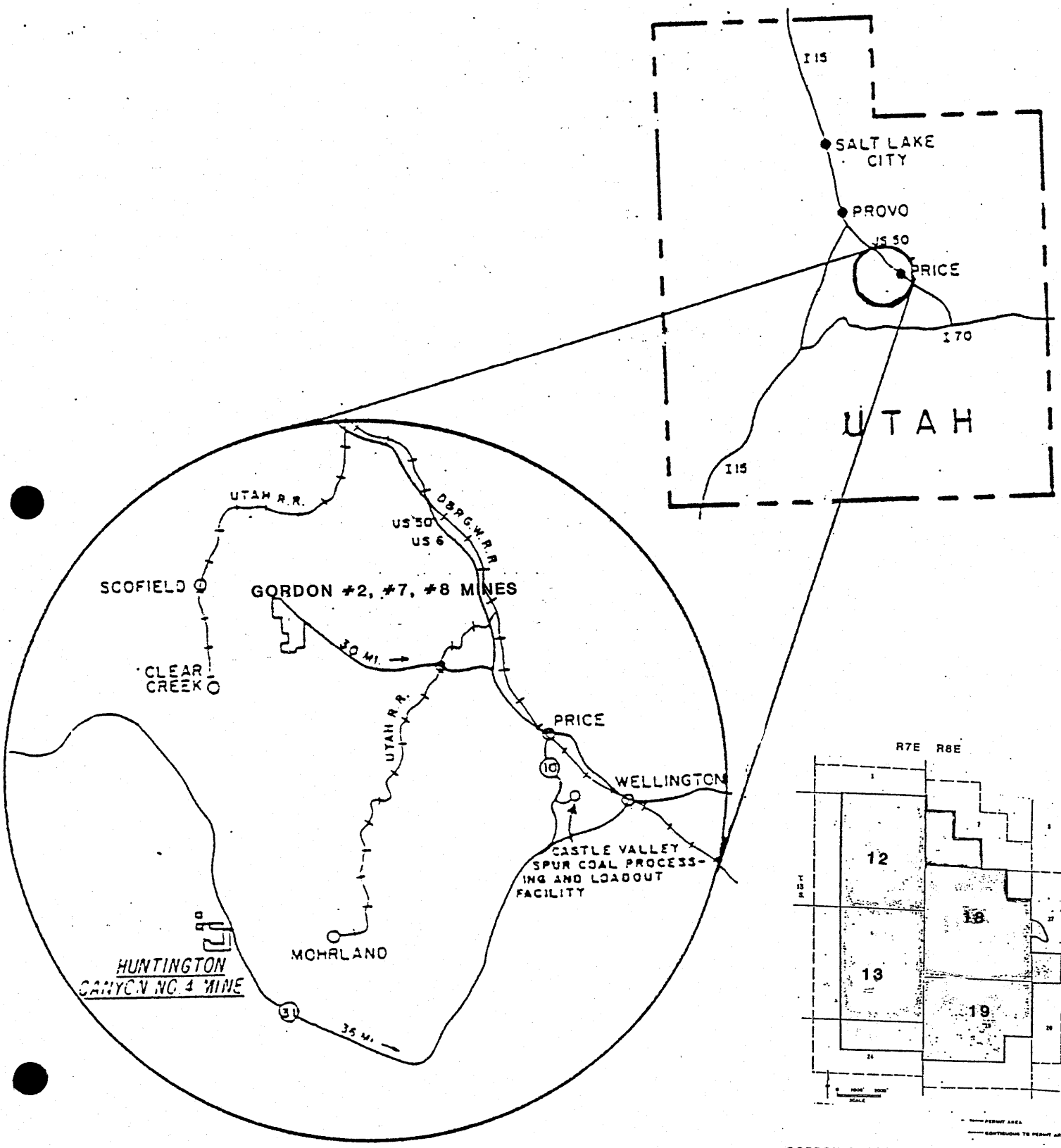
There were no major issues identified in the Five-Year Permit Renewal process or during the public comment period. The mining and reclamation plan are in accordance with Utah's requirements under UCA 40-10 et seq and UMC regulations.

It is recommended that the Five-Year Permit Renewal be approved with stipulations noted in the permit.

AT87/11

BEAVER CREEK COAL COMPANY

AREA OF OPERATIONS



LOCATION MAP

MINE PLAN INFORMATION

Mine Name Gordon Creek #2, #7 & #8 Mines State ID: ACT/007/016

Operator Beaver Creek Coal Company County: Carbon

Controlled By Beaver Creek Coal Company

Contact Person(s) Dan Guy Position: Manager Permitting & Compliance

Telephone: (801) 637-5050

New/Existing Existing Mining Method Room and Pillar

Federal Lease No.(s) U-8319 and U-53159
Legal Description(s) See attached sheet

State Lease No.(s) None
Legal Description(s)

Other Leases (identify) Fee Property

Legal Descriptions

Ownership Data: For

Surface Resources (acres)	Existing Permit Area	Proposed Permit Area	Total Life of Mine Area
Federal			
State			
Private		----	2006
Other			294
TOTAL		----	2300

Coal Ownership (Acres)

Federal			1726
State			
Private			574
Other			
TOTAL		----	2300

CHRONOLOGY
BEAVER CREEK COAL COMPANY
GORDON CREEK #2, #7 AND #8 MINES
FIVE-YEAR PERMIT RENEWAL
ACT/007/016

Carbon County, Utah
August 28, 1989

Permanent Program Permit:

April 25, 1989	Beaver Creek Coal Company (BCCC) submits Five-Year Renewal Application package to Division.
June 19, 1989	Division sends Initial Completeness and Technical Deficiency Review to BCCC.
June 26, 1989	BCCC submits response to ICR.
June 27, 1989	Division determines Five-Year Renewal application complete. BCCC initiates public notice for four consecutive weeks.
August 10, 1989	BCCC responds to Technical Deficiency items.
August 20, 1989	Public comment period concludes with no adverse comments received.
August 28, 1989	Division makes necessary findings. Permit issued.

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Coal Resource Data	Total Reserves	Total Recoverable Reserves
Federal	10,010,000	5,005,000
State	0	0
Private	0	0
Other		
TOTAL	10,010,000	5,005,000

Recoverable Reserve Data

	Name	Thickness	Depth
Seam	Castlegate "A"	4-14 ft	800 ft
Seam	Hiawatha	6-11 ft	1000 ft
Seam			

Mine Life 9 + years
Average Annual Production 500,000 + Tons **Percent Recovery** 50%
Date Projected Annual Rate Reached 1985
Date Production Began 1969 **Date Production Ends** 1998
Reserves Recoverable by: (1) Surface Mining 0
(2) Underground Mining 100%
Reserves Lost Through Management Decision Unknown
Coal Market Power Generation (steam)

Modifications That Have Been Approved: **Date**

Mine Plan Information

(Attachment)

Federal Lease Numbers and Legal Descriptions

U-8319: Township 13 South, Range 8 East, SLM

Section 18: Lots 1-4, NW1/4 NE1/4, S1/2 NE1/4, E1/2 NW1/4, NE1/4 SW1/4.

Township 13 South, Range 7 East, SLM

Section 12: E1/2, E1/2 W1/2

Section 13: NE1/4 NE1/4, N1/2 NW1/4 NE1/4, N1/2 S1/2 NW1/4 NE1/4.

U-53159: (formerly known as U-47975) Township 13 South, Range 7 East, SLM

Section 13: S1/2 S1/2 NW1/4 NE1/4, S1/2 NE1/4, E1/2 W1/2, SE1/4;

Section 24: N1/2 NE1/4, NE1/4 NW1/4.

Township 13 South, Range 8 East, SLM

Section 19: Lots 1 and 2, SE1/4 NW1/4.

FINDINGS

Beaver Creek Coal Company
Gordon Creek #2, #7 and #8 Mines
Five-Year Permit Renewal
ACT/007/016
Carbon County, Utah
August 28, 1989

1. The plan and the permit application are accurate and complete and all requirements of the Surface Mining Control and Reclamation Act (the "Act"), and the approved Utah State Program have been complied with (UMC 786.19[a]).

2. The applicant proposes acceptable practices for the reclamation of disturbed lands (PAP, Chapter 4). These practices have been shown to be effective in the short-term; there are no long-term reclamation records utilizing native species in the western United States. Nevertheless, the Division has determined that reclamation, as required by the Act, can be feasibly accomplished under the Permit Application Package (PAP) (UMC 786.19[b]) (see Technical Analysis [TA] Section UMC 817.111-.117).

3. The assessment of the probable cumulative impacts of all anticipated coal mining and reclamation activities in the general area on the hydrologic balance has been made by the Division. The Operation and Reclamation Plan proposed under the application has been designed to prevent damage to the hydrologic balance in the permit area (UMC 786.19[c] and UCA 40-10-11[2][c]). (See Upper Gordon Creek Cumulative Hydrologic Impact Analysis [CHIA].)

4. The proposed lands to be included within the permit area are:

   a. not included within an area designated unsuitable for underground coal mining operations;

   b. not within an area under study for designated lands unsuitable for underground coal mining operations;

   c. not on any lands subject to the prohibitions or limitations of 30 CFR 761.11[a] (national parks, etc.), 761.11[f] (public buildings, etc.) and 761.11[g] (cemeteries);

   d. within 100 feet of a public road; however, the road was used as a coal haul road by the applicant prior to August 3, 1977, and is therefore subject to a valid existing right (UMC 761.11);

e. not within 300 feet of any occupied dwelling (UMC 786.19[d]).

5. The Division's issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800) (UMC 786.19[e]).

6. The applicant has the legal right to enter and complete mining and reclamation activities in the permit area (UMC 786.19[f]).

7. A 510(c) report has been run on the Applicant Violator System (AVS), which shows that: prior violations of applicable laws and regulations have been corrected; Beaver Creek Coal Company is not delinquent in payment of fees for the Abandoned Mine Reclamation Fund; and the applicant does not control and has not controlled mining operations with a demonstrated pattern of wilfull violations of the Act of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act (UMC 786.19[g], [h] [i] ; {OSMRE Relatedness Report, re-verified August 1, 1989}).

8. Coal mining and reclamation operations to be performed under the permit will not be inconsistent with other operations anticipated to be performed in areas adjacent to the proposed permit area (UMC 786.19[j]).

9. A detailed analysis of the proposed bond has been made. The bond estimate is $641,443.00. The Division has made appropriate adjustments to reflect costs which would be incurred by the state, if it was required to contract the final reclamation activities for the mine site. The bond was posted on August 14, 1987, and made payable to OSMRE and the Division of Oil, Gas and Mining (UMC 786.19[k]).

10. The applicant has satisfied the requirements for alluvial valley floors and prime farmlands (UMC 786.19[l]). (See TA Sections UMC 785.19 and UMC 828.00.)

11. The proposed postmining land use of the permit area has been approved by the Division (UMC 786.19[m]). (See TA, Section UMC 817.133.)

12. The Division has made all specific approvals required by the Act, the Cooperative Agreement and the Federal Lands Program (UMC 786.19[n]).

13. The proposed operation will not affect the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats (UMC 786.19[o]). (See TA UMC 817.97)

14. All procedures for public participation required by the Act, and the approved Utah State Program have been complied with (UMC 786.11-.15).

15. The applicant proposes to use existing structures in connection with the proposed underground coal mining activities. These structures meet the performance standards of the Act and subchapter K and pose no significant harm to the environment or public health or safety (UMC 786.21) (see TA Section UMC 817.181).

Richard V. Smith
Permit Supervisor

Lowell P. Braxton
Associate Director, Mining

Dianne R. Nielson
Director

AT87/8-10

ATTACHMENT A

STIPULATIONS
FIVE-YEAR PERMIT RENEWAL
GORDON CREEK #2, #7 AND #8 MINES
ACT/007/016

Beaver Creek Coal Company
Carbon County, Utah
August 28, 1989

Stipulation UMC 817.23-(1, 2)-(HS)

Within 30 days of permit approval the applicant must submit the following for inclusion in the PAP:

1. As-built surveys of the soil stockpiles to include: volume of material stockpiled, maximum and minimum height, slopes and all pertinent dimensions.

2. A topsoil mass balance table which includes the following: volumes of suitable topsoil to be redistributed; volumes of stockpiled material; disturbed acreage to be reclaimed; topsoil redistribution depths; and identification and volumes of material required to redistribute over each disturbed area.

Stipulation UMC 817.43-(1)-(DW)

1. Within 60 days of permit approval, the applicant must submit for inclusion in the PAP, adequate riprap sizing and channel designs for reclamation of Bryner Canyon, including gradation and filter blanket requirements.

Stipulation UMC 817.44-(1)-(DW)

1. Within 60 days of permit approval, the applicant must submit for inclusion in the PAP, proper riprap sizing, gradation, and filter blanket requirements for the permanent diversion of North Fork Gordon Creek at the Sweet's Canyon water truck fill-up pond. Installation of the riprap will take place during reclamation channel construction at the Gordon Creek #2, #7 and #8 Mines.

Stipulation UMC 817.97-(1)-(WJM/BAS)

1. Within 30 days of permit approval, the applicant must safeguard all powerpoles at the #2 Mine from raptor electrocution. Poles must be gapped (4 inch gap) at least 12 inches below the lowest crossarm and below transformer tanks. Perchguards must be installed on crossarms which provide less than 60 inches separation of conductors. Multiple perchguards or other forms of perch deterrents must be mounted on transformer tanks. Elevated perches, having at least a two-foot vertical rise above conductors, must be erected on all powerpoles.

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
(801) 538-5340

This permit, ACT/007/016, is issued for the state of Utah by the Utah Division of Oil, Gas and Mining (DOGM) to:

Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501
(801) 637-5050

for the Gordon Creek #2, #7 and #8 Mines. Beaver Creek Coal Company is the lessee of federal coal and private fee coal within the permit area. A performance bond is filed with the DOGM in the amount of $641,443.00, payable to the state of Utah, Division of Oil, Gas and Mining and the Office of Surface Mining, Reclamation and Enforcement (OSMRE). DOGM must receive a copy of this permit signed and dated by the permittee.

Sec. 1 **STATUTES AND REGULATIONS** - This permit is issued pursuant to the Utah Coal Mining and Reclamation Act of 1979, Utah Code Annotated (UCA) 40-10-1 et seq, hereafter referred to as the Act.

Sec. 2 **PERMIT AREA** - The permittee is authorized to conduct underground coal mining activities on the following described lands (as shown on the map appended as Attachment B) within the permit area at the Gordon Creek #2, #7 and #8 Mines, situated in the state of Utah, Carbon County, and located:

Township 13 South, Range 7 East, SLBM, Utah

Section 12:	E1/2, E1/2 W1/2
Section 13:	NE1/4 NE1/4, N1/2 NW1/4 NE1/4, N1/2 S1/2 NW1/4 NE1/4, S1/2 S1/2 NW1/4 NE1/4, S1/2 NE1/4, E1/2 W1/2, SE1/4
Section 24:	N1/2 NE1/4, NE1/4 NW1/4

Sec. 2 **PERMIT AREA** (Cont'd.)

Township 13 South, Range 8 East, SLBM, Utah

Section 7:	W1/2 SW1/4, SE1/4 SW1/4
Section 17:	SW1/4 SW1/4
Section 18:	Lots 1-4, NW1/4 NE1/4, S1/2 NE1/4, E1/2 NW1/4 NE1/4 SW1/4, SE1/4, SE1/4 SW1/4, S1/2 NW1/4, S1/2 NE1/4, NW1/4 NE1/4
Section 19:	NE1/4, NE1/4 NW1/4, N1/2 SW1/4, NW1/4 SE1/4; Lots 1 and 2, SE1/4 NW1/4.

This legal description is for the permit area (as shown on Attachment B) of the Gordon Creek #2, #7 and #8 Mines. The permittee is authorized to conduct underground coal mining activities and related surface activities on the foregoing described property subject to the conditions of all applicable conditions, laws and regulations.

Sec. 3 **PERMIT TERM** - This permit becomes effective on August 28, 1989 and expires on August 28, 1994.

Sec. 4 **ASSIGNMENT OF PERMIT RIGHTS** - The permit rights may not be transferred, assigned or sold without the approval of the Director, DOGM. Transfer, assignment or sale of permit rights must be done in accordance with applicable regulations, including but not limited to 30 CFR 740.13(e) and UMC 788.17-.19.

Sec. 5 **RIGHT OF ENTRY** - The permittee shall allow the authorized representative of the DOGM, including but not limited to inspectors, and representatives of OSMRE, without advance notice or a search warrant, upon presentation of appropriate credentials, and without delay to:

A. have the rights of entry provided for in 30 CFR 840.12, UMC 840.12, 30 CFR 842.13 and UMC 842.13; and

B. be accompanied by private persons for the purpose of conducting an inspection in accordance with UMC 842.12 and 30 CFR 842, when the inspection is in response to an alleged violation reported by the private person.

Sec. 6 **SCOPE OF OPERATIONS** - The permittee shall conduct underground coal mining activities only on those lands specifically designated as within the permit area on the maps submitted in the mining and reclamation plan and permit application and approved for the term of the permit and which are subject to the performance bond.

Sec. 7 **ENVIRONMENTAL IMPACTS** - The permittee shall minimize any adverse impact to the environment or public health and safety through but not limited to:

A. accelerated monitoring to determine the nature and extent of noncompliance and the results of the noncompliance;

B. immediate implementation of measures necessary to comply; and

C. warning, as soon as possible after learning of such noncompliance, any person whose health and safety is in imminent danger due to the noncompliance.

Sec. 8 **DISPOSAL OF POLLUTANTS** - The permittee shall dispose of solids, sludge, filter backwash or pollutants in the course of treatment or control of waters or emissions to the air in the manner required by the approved Utah State Program and the Federal Lands Program which prevents violation of any applicable state or federal law.

Sec. 9 **CONDUCT OF OPERATIONS** - The permittee shall conduct its operations:

A. in accordance with the terms of the permit to prevent significant, imminent environmental harm to the health and safety of the public; and

B. utilizing methods specified as conditions of the permit by DOGM in approving alternative methods of compliance with the performance standards of the Act, the approved Utah State Program and the Federal Lands Program.

Sec. 10 **AUTHORIZED AGENT** - The permittee shall provide the names, addresses and telephone numbers of persons responsible for operations under the permit to whom notices and orders are to be delivered.

Sec. 11 **COMPLIANCE WITH OTHER LAWS** - The permittee shall comply with the provisions of the Water Pollution Control Act (33 USC 1151 et seq,) and the Clean Air Act (42 USC 7401 et seq), UCA 26-11-1 et seq, and UCA 26-13-1 et seq.

Sec. 12 **PERMIT RENEWAL** - Upon expiration, this permit may be renewed for areas within the boundaries of the existing permit in accordance with the Act, the approved Utah State Program and the Federal Lands Program.

Sec. 13 **CULTURAL RESOURCES** - If, during the course of mining operations, previously unidentified cultural resources are discovered, the permittee shall ensure that the site(s) is not disturbed and shall notify DOGM. DOGM, after coordination with OSMRE, shall inform the permittee of necessary actions required. The permittee shall implement the mitigation measures required by DOGM within the time frame specified by DOGM.

Sec. 14 **APPEALS** - The permittee shall have the right to appeal as provided for under UMC 787.

Sec. 15 **SPECIAL CONDITIONS** - In addition to the general obligations, the permittee shall comply with the special conditions appended hereto as Attachment A.

The above conditions (Secs. 1-15) are also imposed upon the permittee's agents and employees. The failure or refusal of any of these persons to comply with these conditions shall be deemed a failure of the permittee to comply with the terms of this permit and the lease. The permittee shall require his agents, contractors and subcontractors involved in activities concerning this permit to include these conditions in the contracts between and among them. These conditions may be revised or amended, in writing, by the mutual consent of DOGM and the permittee at any time to adjust to changed conditions or to correct an oversight. DOGM may amend these conditions at any time without the consent of the permittee in order to make them consistent with any new federal or state statutes and any new regulations.

THE STATE OF UTAH

By: Dianne R. Nielson

Date: August 28, 1989

I certify that I have read, understand and accept the requirements of this permit and any special conditions attached.

Richard J. Rick
Authorized Representative of the Permittee

Date: 8/31/89

APPROVED AS TO FORM:

By: Barbara W. Roberts
Assistant Attorney General

Date: August 28, 1989

ATTACHMENT A

STIPULATIONS
FIVE-YEAR PERMIT RENEWAL
GORDON CREEK #2, #7 AND #8 MINES
ACT/007/016

Beaver Creek Coal Company
Carbon County, Utah
August 28, 1989

Stipulation UMC 817.23-(1, 2)-(HS)

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TECHNICAL ANALYSIS
FIVE-YEAR PERMIT RENEWAL
GORDON CREEK #2, #7 AND #8 MINES
ACT/007/016

Beaver Creek Coal Company
Carbon County, Utah
August 28, 1989

UMC 785.19 Alluvial Valley Floors-(DW)

Existing Environment and Applicant's Proposal

Beaver Creek, North Fork Gordon Creek, and Bryner Canyon (T13S, R8E, Section 17) encompass limited unconsolidated streamlaid deposits (Plate 6-1).

The valley floor along Beaver Creek and its tributary in T13S, R8E, Section 7 are incapable of supporting agricultural activities without proper drainage. Even with adequate drainage, agricultural development would be restricted to grasses and pasture because of the high elevations and short-growing seasons (page 7-128).

Agricultural developments are not found along Bryner Canyon, Beaver or Gordon creeks within the vicinity of the mines. The agricultural potential of the valley floors in the area is limited by the soil capability and the short-growing season (page 7-129).

Technical staff inspections of the mine site have not identified the presence of flood irrigation. Limited streamflow, poor or saturated soil conditions (Plate 8-1) and steep topography (Plate 7-4) indicate a low capability for the area to be flood irrigated. Moreover, the document entitled "Reconnaissance Maps to Assist in Identifying Alluvial Valley Floors, Central Utah" does not delineate potential alluvial valley floors within or adjacent to the permit area (Plate 1).

Compliance

Sufficient information about alluvial deposits and irrigation is available to determine as required by UMC 785.19(c)(2) that no alluvial valley floors exist.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.11 Signs and Markers-(PGL)

Existing Environment and Applicant's Proposal

Mine signs are described on pages 3-29 through 3-34. The signs are made of durable material, show the required information, will be maintained throughout the life of the facility, and will not be removed until after bond release. Examples of the signs are shown on Figures 3-2, 3-3, 3-4 and 3-5.

Compliance

The applicant's proposal for signs and markers meets the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.13-.15 Casing and Sealing of Underground Openings-(RVS)

Existing Environment and Applicant's Proposal

Boreholes. The applicant has drilled 25 coal exploration boreholes within and adjacent to the permit area (Table 6-2). Borehole locations have been identified on Plate 6-1.

All but one of the boreholes have been either entirely cemented or cased and surface plugged and cemented to total depth (Table 6-2). Borehole CCD-13 was removed during highwall construction and no longer exists (Table 6-2).

If future borehole monitoring occurs, the applicant will temporarily seal boreholes by installing a threaded cap at the top of the surface casing (page 6-13).

Entries. The applicant has committed to permanently sealing all mine entries following final abandonment (page 3-71). Seals will be constructed of a concrete block seal 25 to 50 feet inby the entryway (Figure 3-8). Entries will be backfilled to the seal, portal structures will be removed, and the exposed coal seam will be covered (page 3-71 and Figure 3-7). If a potential for mine water discharge becomes likely, the applicant will incorporate a portal seal design that includes a drainpipe (#8 Mine Amendment, page 3-27).

The applicant commits to install temporary seals consisting of chain link fence for entryways that are temporarily inactive (page 3-37).

Compliance

The applicant's proposals for permanently sealing boreholes and entries are designed to prevent access and preclude toxic drainage from entering ground or surface waters as required by UMC 817.13 and UMC 817.15.

The applicant has provided adequate plans for temporarily sealing boreholes and inactive entries as required by UMC 817.14.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.22 Topsoil: Removal-(HS)

Existing Environment and Applicant's Proposal

The Gordon Creek #2, #7, and #8 Mines are a combination of pre-Law (prior to the 1977 enactment of Public Law 95-87, the Surface Mining Control and Reclamation Act) and post-Law disturbance (Volume 1, page 3-3, #8 Mine Amendment page 3-2).

Approximately 9.2 acres of land (#2 Mine surface disturbance) were disturbed before enactment of Public Law 95-87. Topsoil was not salvaged from these areas, however, the applicant proposes to use substitute topsoil material (road and pad landfill) as a plant growth medium for reclamation of the #2 Mine (page 3-45). Revegetation trials on the proposed topsoil substitute material have been attempted and results are found in the 1987-1988 Annual Monitoring Report. Prior to backfilling and grading operations, random soil samples will be collected based on a $10m^2$ grid over the entire disturebd area (page 8-27).

Topsoil and subsoil were separately removed and stockpiled from accessible areas (approximately 3.1 acres) of the #7 Mine portal area (page 3-46). Topsoil was removed and stockpiled from the entire #8 Mine portal area (#8 Mine Amendment, page 3-2).

Profile descriptions and chemical and physical analyses of the material salvaged from the #7 Mine and #8 Mine portal areas are located in Volume 3, Section 8 and #8 Mine Amendment, Section 8, respectively.

Compliance

The applicant has proposed to use substitute topsoil material from the #2 Mine pad and road areas as a plant growth medium for final reclamation. Results of chemical and physical analyses, presented in Table 8-7, indicate favorable soil characteristics in all areas except for one sample location. Sample number 3 indicates a high sodium absorption ratio (SAR).

As discussed on page 8-27, within 90 days of reclamation additional soil samples will be taken in the vicinity of #3 sample location and the #2 Mine area. The applicant will begin in the location of #3 sample and proceed outward in four directions sampling every 10 feet until suitable SAR values are obtained. To further characterize the suitability of the substitute topsoil for the #2 Mine and determine the acid- and/or toxic-forming potential within the entire disturbed area, random soil samples will be collected and analyzed for the constituents outlined in the Division Guidelines for Management of Topsoil and Overburden, Table 6.

Interim revegetation efforts on the outslopes of the road and pad areas (proposed substitute topsoil material) of the #2 Mine have been moderately successful. This substantiates the suitability of the proposed substitute topsoil material.

Profile descriptions and chemical and physical analyses indicate no characteristics that would jeopardize reclamation success within the salvaged material.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.23 Topsoil: Storage-(HS)

Existing Environment and Applicant's Proposal

Topsoil and subsoil were removed from approximately 4.0 acres (Volume 1, pages 3-64, and #8 Mine Amendment, page 8-8). Topsoil from the excavation of the #7 Mine portal area was placed adjacent (northwest) to the #2 Mine Substation. Subsoil from the #7 Mine portal area excavation was separately placed southwest of the Conveyor Transfer Building (Plate 3-1).

The applicant has protected the subsoil and topsoil stockpiles against wind and water erosion by revegetating the surface of the stockpiles and constructing an impermeable earthen berm around the stockpiles (page 3-46). Also, a silt fence has been installed adjacent to the highwall to prevent rocks and other material from contaminating the topsoil stockpile (site inspection of Division staff).

Volume estimates of suitable plant growth medium are located on pages 3-46, 3-83, 3-83.1, 8-27.

Compliance

Removed topsoil and subsoil have been protected from wind and water erosion and placed within the permit area. Immediate redistribution of topsoil and subsoil is not practical because facilities will remain operational throughout the life of the mines.

The area where topsoil and subsoil has been stored does not pose any imminent danger for slope failure.

The reported volumes of suitable topsoil, subsoil, and the proposed substitute topsoil material are fragmented and contradictory. Allocation of sufficient volumes of topsoil, fill, etc., are essential so that all areas disturbed by mining activities can be properly reclaimed.

The applicant will be in compliance when the following stipulations are met.

Stipulation UMC 817.23-(1, 2)-(HS)

Within 30 days of permit approval the applicant must submit the following for inclusion in the PAP:

1. As-built surveys of the soil stockpiles to include: volume of material stockpiled, maximum and minimum height, slopes and all pertinent dimensions.

2. A topsoil mass balance table which includes the following: volumes of suitable topsoil to be redistributed; volumes of stockpiled material; disturbed acreage to be reclaimed; topsoil redistribution depths; and identification and volumes of material required to redistribute over each disturbed area.

UMC 817.24 Topsoil Redistribution-(HS)

Existing Environment and Applicant's Proposal

The applicant has committed to uniformly redistributing an average of 12 inches of stockpiled topsoil and subsoil over the #7 Mine and #8 Mine portal area disturbances (page 3-33). Soil will be redistributed parallel to the contour utilizing front-end loaders and scrapers. Soil will not be redistributed in areas that exceed 70 percent slope (page 3-83, Plate 3-1).

Existing fill material from the #2 Mine roads and pads, if proven to be suitable, will be used as a plant growth medium (page 3-83). In the event that soil analyses conducted prior to backfilling and grading operations indicate an acid- and/or toxic-forming potential, the applicant has committed to covering all acid- and/or toxic-forming materials with four feet of suitable non-acid and non-toxic forming materials (page 8-31).

Prior to redistribution of topsoil material, backfilled spoils will be ripped to loosen compacted zones (page 3-83). Material which is contaminated by oil and grease and/or more than 50 percent coal, will be buried on site (pages 3-45 and 8-31).

After topsoil redistribution and prior to seeding, areas of compaction will be deep-chiseled to a depth of six inches and cloddy surfaces will be pulverized with a disk and/or harrow.

To enhance microbial activity, wood fiber mulch (on steep slopes), straw or native hay mulch (on moderate slopes), will be blown on or mechanically incorporated into the surface at a rate of 2,000 lbs./acre (page 3-92).

The plant growth medium will be mechanically handled in such a way (track hoe, grouser, etc.) as to maximize surface roughness (page 3-84).

Compliance

The reclamation plan for redistribution of topsoil to a uniform depth of 12 inches is adequate to support the postmining land use of grazing, wildlife use, recreation and watershed.

Existing disturbed landfill material, if demonstrated to be suitable (see discussion under UMC 817.22), will be prepared to promote favorable vegetation establishment.

The descriptions from the Soil Conservation Service Soil Survey for Carbon County descriptions indicate predisturbance soil conditions of a surface horizon high in organic matter (Mollic epipedon) and an underlying illuviation of clay (Argillic horizon). The depth of planned topsoil redistribution closely parallels predisturbance conditions.

Scarification of regraded spoils, disking and chiseling of redistributed topsoil should alleviate compaction and ensure good overburden/soil contact, thereby preventing potential slippage and creating a soil profile conducive to root penetration.

Crimped surface mulch, hydromulch, and tackifying agents should ensure adequate protection from wind and water erosion by raising the wind profile above the soil surface and acting as a barrier against raindrop impact.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.25 Nutrients and Soil Amendments-(HS)

Existing Environment and Applicant's Proposal

Prior to seeding, randomized soil samples will be taken of the proposed substitute topsoil material and analyzed to determine fertilizer type and application rates (page 8-27).

Redistributed topsoil and subsoil will be sampled and analyzed prior to seeding. Lab analyses will be used to determine the need for application of commercial fertilizer (page 8-31).

Compliance

The applicant has committed to sampling redistributed topsoil to determine types and rates of fertilizer application.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.41 Hydrologic Balance: General Requirements-(DW/RVS)

Existing Environment and Applicant's Proposal

Ground Water-(RVS)

The applicant describes ground water as occurring under confined and unconfined conditions in the permit and adjacent areas (pages 7-2 through 7-7). Unconfined conditions occur within shallow alluvial deposits, whereas confined conditions are recognized at depth in the Blackhawk Formation and Star Point Sandstone (pages 7-4 and 7-7). Faults and fractures have produced water in the mine workings (page 7-7).

Jewkes Spring, designated 2-5-W, and Gunnison Homestead Spring, designated 2-6-W, are the only two springs occurring within the permit area. Jewkes Spring has an average flow of 112 gpm and Gunnison Homestead Spring has an average flow of 22 gpm (Annual Hydrologic Monitoring Reports for 1985, 1986, 1987 and 1988). The applicant states that these springs discharge from "a sandstone unit that probably has fairly large areal extent within the Blackhawk Formation" (page 7-8). The applicant currently monitors Jewkes Spring and Gunnison Homestead Spring monthly for flow and twice a year, during the late spring and early fall, for water quality (page 7-124). The 1985 seep and spring inventory did not reveal other measurable flows (personal communication with Dan Guy, BCCC, August 16, 1989).

Plate 7-1 indicates seven boreholes, within and adjacent to the permit area, encountered ground water. Flow is thought to occur from sandstone units and fractures in the Blackhawk Formation (Plate 7-1).

Mine inflow is insufficent to conduct underground mining operations. Surface water must be pumped from the Sweet's Canyon Pond to the underground workings (personal communication with Dan Guy, BCCC, August 16, 1989). The applicant has committed to monitor significant mine inflows (greater than one gpm), if encountered (page 7-53).

Water quality data for springs are given in Appendix 1A. These data indicate water quality is within state and federal standards.

Surface Water-(DW)

The area surrounding the Gordon Creek #2, #7 and #8 Mines is drained by tributaries to the Green and Colorado Rivers, principally Muddy Creek, Price, and the San Rafael Rivers. The mine lies near headwater tributaries to the Price River.

Water quality in the Price River and its tributaries is good at higher elevations (TDS is less than 250 mg/l). At lower elevations, below irrigation diversions, the water quality degrades (TDS increases to more than 6,000 mg/l). This degradation is caused by irrigation return flows and natural runoff from the Mancos Shale.

Three principal surface water courses are found within 100 horizontal feet of the mine permit area: Beaver Creek, North Fork of Gordon Creek, and Bryner Canyon (see Plate 7-2).

Beaver Creek is a perennial stream that flows through the northern portion of the permit area. Perennial flow is maintained by a series of beaver ponds and two springs, Jewkes Spring and Gunnison Homestead Spring. Watershed area for Beaver Creek and its tributaries above the lease boundary is less than one square mile.

The general flow direction of Beaver Creek is northeast, toward the Price River (see Table 7-3 for flow data). Beaver Creek has been undermined, but subsidence-induced effects to either water quality or quantity have not been identified to date. An intensive monitoring program will identify any effects, should they arise (pages 7-56 and 7-57).

Bryner Canyon is a small basin of about one square mile in an area that is located almost entirely within the permit area. Bryner Canyon contains the mine facilities, and thus is the only stream that could be directly impacted by surface disturbance associated with mining. Flow is usually monitored at three locations during snowmelt or thunderstorm runoff (see Table 7-3).

The confluence of the Right and Left Forks Bryner Canyon is in the #2 Mine yard. The Right Fork is culverted through the disturbed area while the Left Fork is diverted around the disturbed area by means of a ditch. Two sedimentation ponds have been employed to control runoff, sediment loading and water quality degradation from migrating off site.

The Right Fork Bryner Canyon is an ephemeral stream that flows over the Sweet's Mine workings. The culvert to divert this water through the disturbed area has only conveyed water once. Surface runoff ponds behind the culvert and infiltrates directly into the ground before reaching the inlet.

The applicant believes that the infiltrating water is lost through fractures generated by the Sweet's Mine. However, there are no detectable surface fractures. It is assumed this water is transmitted through underground fractures and resurfaces downstream in the Gordon Creek drainage.

The North Fork Gordon Creek is the other principal stream found on the lease block. The drainage area above the permit area is nearly four square miles (see Table 7-2 for flow data). The stream generally loses flow from upper to lower reaches suggesting that the ground-water table is generally below the bottom of the channel.

Compliance

Ground Water-(RVS)

The applicant has provided information about the occurrence, movement and quality of ground water that allows a determination of minimal change to the subsurface hydrologic balance. Moreover, the applicant has committed to an ongoing operational spring monitoring program and submitting data in the Annual Monitoring Report.

The applicant is in compliance with the ground-water portion of this section.

Surface Water-DW

Mining activities have been planned and are conducted to minimize changes to the prevailing hydrologic balance in both the permit and adjacent area. Implementation of sedimentation ponds, culverts, diversions, and alternative sedimentation control structures prevent long-term adverse changes.

The drainage through Bryner Canyon will be reclaimed to ensure a return to a suitable postmining land use. Undermining Beaver Creek has the potential to adversely affect the quantity of water in the stream. The mitigation plan described on page 3-64 will alleviate any impacts due to subsidence and/or surface fractures.

Drainage from the Right Fork Bryner Canyon which now ponds behind the #2 Mine yard and infiltrates will be re-established to ensure proper drainage following reclamation. This plan is described on page 7-133.

The applicant is in compliance with the surface-water portion of this section.

Stipulations

None.

UMC 817.42 Water Quality Standards and Effluent Limitations-(DW)

Existing Environment and Applicant's Proposal

The North Fork Gordon Creek, including Bryner Canyon, has been designated as Class 3C and 4. Class 3C is defined as being protected for non-game fish and other aquatic life, and Class 4 is for agricultural uses (see Table 7-3a for standards).

Beaver Creek is classified as 1C, domestic use with prior treatment; 3A, cold water fisheries; and 4, agricultural (Table 7-3b lists the standards).

The surface water control plan includes capturing and treating all surface runoff which may have come in contact with areas disturbed by the surface mine facilities. Also, any surface runoff which may have come in contact with areas receiving transient coal dust is captured in sedimentation ponds for settling of suspended solids before being released.

Two sedimentation ponds exist on site. The sedimentation ponds are designed to work in a series to meet effluent limitations. Sedimentation Pond 7A treats water from the Left Fork Bryner Canyon and #7 Mine and #8 Mine portal areas. This water is then discharged to Sedimentation Pond #2 which also catches all runoff produced at the #2 Mine surface facilities. Water discharged from Sedimentation Pond #2 is subsequently discharged into Bryner Canyon under UPDES permit #UT0023124001.

The applicant currently has an on-going, permanent water monitoring program for springs, surface water courses and a UPDES discharge point. The majority of these locations have been monitored since 1977 on a monthly basis when weather permitted.

Compliance

Surface drainage from disturbed areas are passed through two sedimentation ponds in series before leaving the permit area. These discharges are monitored under the UPDES permit.

Two small area exemptions (SAEs), located at Sweet's Canyon water truck fill-up pond and adjacent topsoil stockpile, along with the old fan portal area, are adequately treated without passing runoff through a sedimentation pond. The treatment consists of berms, vegetation and a small catch basin.

The water monitoring program is adequate to detect adverse changes in the water quality from the affected area.

Sedimentation ponds and other sediment control measures will be maintained until the disturbed area has been restored, the vegetation requirements have been met and the quality of untreated drainage from the disturbed area meets the applicable state and federal water quality standards for Gordon Creek (page 7-130).

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.43 Hydrologic Balance: Diversions and Conveyance of Overland Flow, Shallow Ground Water Flow, and Ephemeral Streams-(DW)

Existing Environment and Applicant's Proposal

Disturbed area runoff from the #8 Mine access road will be conveyed to the Left Fork Bryner Canyon drainage via the access road ditch as shown on Plate 7-1B. Two loose-rock check dams will be installed along the ditch. The designs are shown on page 7-131a.

A wet grout riprap channel will convey all runoff from the pad. Runoff will flow into a 36-inch cmp at the location of a 12-inch side culvert where a drop inlet box will be installed (#8 Mine Amendment, page 7-8).

The #7 Mine portal area receives runoff from the Left Fork Bryner Canyon. Drainage control consists of a combination of one-half culverts and full culverts. Plate 7-7 shows the location of the culverts and drainage system. The system is designed to minimize the siltation and subsequent erosion of these structures. A complete description of the system is found on pages 7-70 through 7-73. Flow is conveyed to Sedimentation Pond 7A.

The Right Fork Bryner Canyon is undisturbed by the mining operations (see Plate 7-5, Area A). Runoff is collected where the Right Fork enters the main canyon and is routed through the #7 Mine portal area in a 24-inch enclosed culvert. At this point, the runoff joins the emergency decant from Sedimentation Pond 7A and is transported below the area of disturbance.

The #2 Mine surface runoff is routed by a series of ditches and culverts to Sedimentation Pond #2. Runoff from the south slope of the mine area is collected in a ditch along the toe of the slope and conveyed to Sedimentation Pond #2.

A 24-inch culvert is used to carry the 10-year, 24-hour runoff peak flow from Sedimentation Pond 7A to Sedimentation Pond #2. This culvert connects the two ponds in a series.

The main stem of Bryner Canyon has been diverted around the Sweet's Canyon water truck fill-up pond by routing flows across the main access road through a 36-inch culvert, down a side diversion ditch for about 115 feet and back across the road through another 36-inch culvert (see pages 7-66 through 7-68).

Compliance

Temporary diversions which have been implemented to divert runoff to and from sedimentation ponds and around the Sweet's Canyon water truck fill-up pond, have been designed and constructed to safely pass the peak flow from a 10-year, 24-hour precipitation event.

Loose-rock check dams, riprap, half round and full culverts prevent additional contributions of suspended solids to streamflow and runoff outside the permit area. Moreover, these structures are maintained to design specifications.

Once mining is completed, structures will be removed from the site and the earthwork/drainage portion of the reclamation plan will begin. During initial reclamation the diversions and culverts will be removed, the natural drainage channel will be restored, and the area will be recontoured to the final configuration (see Plate 3-7B and page 7-130). Riprap sizing criteria is deficient. Riprap was sized too small for 100-year, 24-hour design flows, channel dimensions and profiles. The culvert exit velocity nomograph used in the sizing is unacceptable.

The applicant will be in compliance when the following stipulation is met.

Stipulation UMC 817.43-(1)-(DW)

1. Within 60 days of permit approval, the applicant must submit for inclusion in the PAP, adequate riprap sizing and channel designs for reclamation of Bryner Canyon, including gradation and filter blanket requirements.

UMC 817.44 Hydrologic Balance: Stream Channel Diversions-(DW)

Existing Environment and Applicant's Proposal

A permanent diversion of North Fork Gordon Creek has been implemented to keep flows in the creek separate from the water in Sweet's Canyon water truck fill-up pond. A berm separates the diversion channel from the pond.

The channel was designed for a flow of 362 cubic feet per second, the peak flow from a 100-year, 24-hour precipitation event. A trapezoidal channel design was used that implements a riprapped drop structure which is shown as Figure 1, page 7-64 (page 7-60 through 7-66).

Compliance

The diversion of North Fork Gordon Creek has been designed and constructed to remain stable and to prevent additional contributions of suspended solids to streamflow or to runoff outside the permit area during the life of the mine.

The channel is adequate to pass the peak runoff of a 100-year, 24-hour storm, but riprap channel protection is undersized. The riprap was designed for a 10-year, 24-hour event (peak flow = 39 cubic feet per second). The riprap must be sized for the 100-year, 24-hour event.

The applicant will be in compliance with this section when the following stipulation is met.

Stipulation UMC 817.44-(1)-(DW)

1. Within 60 days of permit approval, the applicant must submit for inclusion in the PAP, proper riprap sizing, gradation, and filter blanket requirements for the permanent diversion of North Fork Gordon Creek at the Sweet's Canyon water truck fill-up pond. Installation of the riprap will take place during reclamation channel construction at the Gordon Creek #2, #7 and #8 Mines.

UMC 817.45 Hydrologic Balance: Sediment Control Measures-(DW)

Existing Environment and Applicant's Proposal

Disturbed area runoff, with the exception of the Sweet's Canyon water truck fill-up and old fan portal areas (both are SAEs), is routed via ditches, berms and culverts, around or through the disturbed areas to a series of sedimentation ponds where the water is adequately treated.

Design precautions taken to assure minimal contributions of sediment from the water conveyance system include riprap linings, half round and full culverts, trash racks, water bars, loose-rock check dams, straw bale dikes, and effective revegetation of disturbed areas, etc. (see pages 7-69 through 7-81).

Compliance

Erosion control measures have been implemented to prevent to the extent possible additional contributions of sediment to streamflow or runoff outside the permit area.

Sediment is contained within the permit area by deposition into sedimentation ponds. Undisturbed area runoff above disturbance is either routed through a sedimentation pond, or is diverted around the site.

Additional erosion caused by the implementation of temporary diversions is alleviated by the use of riprap linings, half round and full culverts, loose rock check dams, straw bale dikes and effective revegetation of disturbed areas.

Erosion control at the two small area exemptions consists of berms, vegetation, and a small catch basin. The controls adequately treat all runoff produced in these areas.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.46-.47 Hydrologic Balance: Sedimentation Ponds and Discharge Structures-(DW)

Existing Environment and Applicant's Proposal

Two sedimentation ponds exist at the Gordon Creek #2, #7 and #8 Mines. The sedimentation ponds are designed to treat runoff produced from disturbed areas. The sedimentation ponds are designated 7A and #2 and were designed to function in series.

Sedimentation Pond 7A receives drainage from the Left Fork Bryner Canyon and the #7 Mine and #8 Mine portal areas. The primary outfall structure has been designed using the 10-year, 24-hour storm and is completely separate from the emergency spillway. This spillway is designed to allow the pond to be operated either in a full or empty mode. It consists of a vertical corrugated metal pipe riser with sized perforations to dewater the sedimentation pond to the designated sediment level. The top of the riser is open and conveys the peak flow from the 10-year, 24-hour storm.

The emergency spillway was designed using the 25-year, 24-hour event. This spillway routes flow from Sedimentation Pond 7A separate from the primary decant and discharges below the area of disturbance. The flow from the 25-year, 24-hour storm is combined with the runoff from the Right Fork Bryner Canyon at Manhole #1 at the base of Sedimentation Pond 7A (pages 7-76 through 7-77).

The design of Sedimentation Ponds 7A and #2 in series provides sufficient storage volume to contain 100 percent of the design runoff from a 10-year, 24-hour precipitation event and three years of sediment accumulation. Sediment accumulation was calculated using the Universal Soil Loss Equation (0.66 acre-feet). Water storage requirements total 3.34 acre-feet.

The primary and emergency discharge structures for Sedimentation Pond #2 consist of separate spillways to carry the 10-year, 24 hour and 25-year, 24-hour events, respectively. The primary spillway is designed to float on the water surface. This allows for discharge of the cleanest water from just below the surface of the pond. The emergency spillway separately conveys flows downstream below all disturbance (page 7-77 through 7-79).

Compliance

Three years of sediment storage has been designed for both sedimentation ponds. Sedimentation ponds in series provide the required theoretical detention time (24 hours) for water inflow or runoff entering the pond from the 10-year, 24-hour design event.

Discharges meet and maintain all applicable effluent limitations.

The dewatering devices are nonclogging and have discharge rates which achieve and maintain the required 24-hour theoretical detention time. These devices are designed or located above the maximum three-year sediment accumulation elevation.

There will be no outflow through emergency spillways from a 10-year, 24-hour storm as long as sediment accumulations are kept under 60 percent of design elevations (page 7-121).

Emergency spillways will safely pass the runoff from a 25-year, 24-hour precipitation event. Sedimentation Pond 7A will pass the required 14 cubic feet per second, while Sedimentation Pond #2 will pass the required 7 cubic feet per second.

Both sedimentation ponds have been designed with a minimum of one foot of freeboard above the surface of the pond with the emergency spillway flows occurring at the design depth.

Each sedimentation pond was designed, constructed, and is inspected under the supervision of a registered professional engineer. Sedimentation ponds are surveyed quarterly to identify 60 percent cleanout levels (page 7-87).

Sedimentation ponds will remain functional until all disturbed areas have been backfilled, graded and reseeded and revegetation standards are met (pages 7-130 through 7-131).

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.48 Hydrologic Balance: Acid and Toxic-Forming Materials-(HS)

Existing Environment and Applicant's Proposal

The applicant has provided chemical analyses of roof, floor, and interburden materials (page 6-21). Underground development waste is disposed of in the mine or hauled to the coal processing waste bank at C. V. Spur Coal Processing and Loadout Facility (page 3-16). Analyses of the bank material is conducted annually for the purpose of determining the acid- and/or toxic-forming potential (C.V. Spur PAP, Chapter 3 and Annual Monitoring Report).

Analyses of the proposed substitute topsoil are located in Tables 8-3a and 8-7. Additionally, analyses will be conducted (pages 3-45 and 8-27) prior to backfilling and grading operations to characterize the acid- and/or toxic-forming potential and percent coal content of the disturbed landfill material.

Compliance

The applicant has committed to covering all acid- and/or toxic-forming materials and materials having greater than a 50 percent coal content with four feet of suitable fill material (pages 3-45 and 8-31).

Roof and floor analyses indicate low potential for acid- and/or toxic-formation from underground development waste. Preliminary analyses of the proposed substitute topsoil material indicate high SAR levels from the #3 sample site. Ninety days prior to reclamation, the applicant will determine the extent of elevated SAR levels as outlined on page 8-27. The sodic soil material and all other acid- and/or toxic-forming materials and materials having greater than a 50 percent coal content will be disposed of on site.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.49 Hydrologic Balance: Permanent and Temporary Impoundments-(DW)

Existing Environment and Applicant's Proposal

The Sweet's Canyon water truck fill-up pond is proposed to be left as a permanent structure after reclamation. It is the applicant's intention to turn the system over to the landowner upon completion of operations. The pond will provide water for stock and wildlife in accordance with postmining land use.

The present purpose of the pond is to provide a source of water for dust suppression on mine haul roads and for use in-mine.

Water stored in the pond amounts to approximately two acre-feet at any given time. Water rights for pond recharge are owned by the applicant. These rights will be transferred to the landowner along with the pond after final reclamation.

A complete discussion addressing the requirements of this section is found on pages 7-134 through 7-136.

Compliance

The pond does not meet the design criteria set forth by 30 CFR 77.216. Therefore, the requirements of paragraphs (a)(5) and (w) of this section are not applicable.

The applicant's plans for maintenance and revegetation meet the applicable parts of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.50 Hydrologic Balance: Underground Mine Entry and Access Discharges-(RVS)

Existing Environment and Applicant's Proposal

Plate 6-5 indicates rocks dip toward the east and Plate 6-17 depicts this at approximately 8,000 feet.

Mine inflow is insufficient to support underground mining operations and surface water must be pumped to the underground workings (page 7-50).

Details of the permanent entry seals are given on page 3-71 and Figure 3-8.

If mine water discharges occur, the applicant has committed to monthly monitoring of flow and water quality (page 7-53). Moreover, the applicant states (page 7-53) that mine water may be treated in the sedimentation pond to meet effluent standards.

Compliance

The applicant has demonstrated that entries to underground workings have been designed and constructed to prevent gravity discharge from the mine. In addition, the applicant has committed to monitoring and, if necessary, providing treatments for discharges.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.52 Surface and Ground Water Monitoring-(DW)

Existing Environment and Applicant's Proposal

Ground Water

The applicant presently monitors two significant springs which supply Beaver Creek with the majority of base flow during non-snow melt or precipitation events.

No surface or in-mine drill holes are monitored and no substantial inflows have been encountered. The applicant commits to monitor any inflow with a point source and quantity of one gpm with a sustained flow over a 30-day period. Monitoring will be conducted on a monthly basis for flow and water quality for a one-year baseline period according to the Division's Water Monitoring Guidelines (page 7-53).

Surface Water

The stream monitoring program provides the basis to detect possible impacts of mining to surface waters.

Quarterly water quality and flow samples are collected at seven locations. This includes six stream locations above and below the mine, along with one UPDES regulated discharge (Sedimentation Pond #2) which is monitored monthly for flow, pH, TDS, TSS, iron, manganese, and oil and grease. Samples are analyzed for the parameters listed in Table 7-18.

The sampling program provides information on seasonal flow and water quality on ephemeral streams that have the potential to be affected by mine discharge and surface disturbance. Surface monitoring locations, sampling parameters, sampling frequencies, and the type of flow measuring device is found in Table 7-17.

Beaver Creek is a perennial stream which has been undermined. Because of this, the applicant is continually evaluating the flow for obvious changes caused by subsidence or surface fractures (pages 7-123 through 7-125).

Compliance

Ground Water

The applicant's ground water monitoring plan is adequate to measure the effects of underground coal mining on the quantity and quality of subsurface water. No substantial aquifer exists above or within portions of the permit area.

The mine is considered dry. Water must be pumped into the mine from Sweet's Canyon for use in the mining process (see the discussion under UMC 817.55). The applicant has committed to monitor any substantial flows encountered while mining.

Jewkes Springs and Gunnison Homestead Springs are monitored monthly for flow and biannually for operational parameters listed in the Division's Water Monitoring Guidelines.

Surface Water

The applicant's surface water monitoring plan is adequate to measure water quantity and quality of discharges from the permit area and to detect any adverse changes. All sites are monitored quarterly for flow and the parameters listed on page 7-127 except for Sedimentation Pond #2 outfall which is sampled monthly for flow and parameters per UPDES permit requirements.

If an in-mine point source occurs within 500 feet horizontally from the Beaver Creek channel, and the flow is 30 percent or greater than baseline seasonal flows for two consecutive monthly readings, a mass balance investigation will be performed to determine if mining activities have affected the Beaver Creek flow (page 7-123). See pages 3-64 through 3-66 for the mitigation plan if disruption of flow in Beaver Creek is detected.

The applicant commits to notifying the Division within five days if analytical results indicate non-compliance with the UPDES permit or any applicable standards.

Quarterly reports will be submitted within 60 days following the end of the quarter. Annual reports will be submitted no later than March 31 of the following year.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.53 Hydrologic Balance: Transfer of Wells-(RVS)

Existing Environment and Applicant's Proposal

Information given in Table 6-2 shows that all boreholes have been plugged and abandoned.

Compliance

The applicant has indicated that no boreholes will be transferred for further use as water wells.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.55 Hydrologic Balance: Discharge of Water Into an Underground Mine-(DW)

Existing Environment and Applicant's Proposal

Water for use underground is pumped out of Sweet's Canyon water truck fill-up pond for use in-mine (page 7-60 and discussions under UMC 817.41).

Compliance

The Gordon Creek #2, #7 and #8 Mines are dry. There is not enough ground water produced in-mine to use for dust suppression and other mining related activities. Water has not been and is not expected to be discharged.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.56 Hydrologic Balance: Postmining Rehabilitation of Sedimentation Ponds, Diversions, Impoundments, and Treatment Facilities-(DW)

Existing Environment and Applicant's Proposal

The Sweet's Canyon water truck fill-up pond and diversion of North Fork Gordon Creek are inspected quarterly and maintained to meet specific design criteria, as needed. These activities continue through final reclamation.

If necessary, the pond will be upgraded to meet specific design criteria during reclamation.

Compliance

The applicant meets the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.57 Hydrologic Balance: Stream Buffer Zones-(DW)

Existing Environment and Applicant's Proposal

North Fork Gordon Creek falls under the biological community determined by paragraph (c) of this regulation. Sweet's Canyon water truck fill-up pad and pond are both within 100 feet of the stream (see discussion under UMC 817.49).

Compliance

The applicant's use of drainage control structures and the successful vegetation of the pond's side slopes and face prevents mining- or erosion-related impacts from affecting the stream. Berms and a small catch basin have also been implemented and will further alleviate any detrimental effects. Riparian, livestock, and wildlife habitats were all improved when this pond was installed.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.59 Coal Recovery-(PGL)

Existing Environment and Applicant's Proposal

The Bureau of Land Management approved the Resource Recovery and Protection Plan (R2P2) for the Gordon Creek #2 Mine on March 29, 1984. Production at the #2 Mine involved the Castlegate "A" and Hiawatha coal seams. The #7 Mine also recovered reserves from the Castlegate "A" and Hiawatha coal seams. Production at the #8 Mine will be limited to the Castlegate "A" coal seam during the next three years. The lower Hiawatha coal seam may be mined in this area at a later time and access will be underground.

The overall recovery factor is 50 percent (page 3-27 and #8 Mine Amendment, pages 3-13 and 3-14).

Compliance

The applicant mines coal under an approved R2P2.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.61-.68 Use of Explosives: General Requirements-(PGL)

Existing Environment and Applicant's Proposal

The applicant will not use any explosives on the surface at the Gordon Creek #2, #7 and #8 Mines. The applicant commits to be in compliance with all applicable federal and state laws for all underground blasting (page 3-36). Therefore, this section is not applicable.

UMC 817.71-.74 Disposal of Underground Development Waste and Excess Spoil and Non-Acid and Non-Toxic Forming Coal Processing-(PGL)

Existing Environment and Applicant's Proposal

The applicant disposes of all underground development waste in the mine or hauls it to the C. V. Spur Coal Processing and Loadout Facility for final disposal (page 3-16).

Compliance

The C. V. Spur Coal Processing and Loadout Facility is a permitted area for the final disposal of underground development waste. Disposal of development waste underground is an acceptable practice.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.81-.88 Coal Processing Waste Bank-(PGL)

Existing Environment and Applicant's Proposal

The applicant does not process any coal at this site. Therefore, this section is not applicable.

UMC 817.89 Disposal of Non-Coal Wastes-(PGL)

Existing Environment and Applicant's Proposal

The applicant temporarily stores trash in a dumpster within a fenced area on-site. Trash is hauled on an as-needed basis to the Carbon County Landfill (an approved landfill [page 3-21]).

Compliance

Noncoal wastes are disposed in an acceptable manner.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.91-.93 Coal Processing Waste: Dams and Embankments-(PGL)

Existing Environment and Applicant's Proposal

The applicant does not process any coal at this site. Therefore, this section is not applicable.

UMC 817.95 Air Resources Protection-(PGL)

Existing Environment and Applicant's Proposal

The applicant describes mitigation to control air pollutants, such as watering roads and water sprays on the coal conveyor (pages 3-57 through 3-59). Due to the low particulate emission measured at this mining operation, the Bureau of Air Quality did not require an air quality approval order.

Compliance

The applicant's methods to control fugitive dust are acceptable.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.97 Protection of Fish, Wildlife, and Related Environmental Values-(WJM/BAS)

Existing Environment and Applicant's Proposal

The Gordon Creek #2, #7 and #8 Mines permit area is classified into 12 vegetative types (page 9-5). Included are two forest types, seven shrubland types, one shrub/forest/riparian type, and two grassland types. Five types consisting of aspen/woodland, mixed conifer, oak shrubland, big sagebrush and mountain grassland account for about 90 percent of the permit area. Oak shrubland is the most extensive. These plant communities provide watershed, cover, and food for wildlife.

Tables 1 and 2 on page 10-85 provide a detailed listing of all wildlife inventoried on or suspected to inhabit the proposed permit area. Seasonal distribution of wildlife is also discussed. Information was provided by the Utah Division of Wildlife Resources.

One federally-listed threatened or endangered species of wildlife, the bald eagle, is suspected to inhabit areas adjoining the Gordon Creek #2, #7 and #8 Mines (Section 10.3.3.1). Habitat surrounding the permit area plays an important role for both golden and bald eagles (Section 10.1, Figure 10-11).

Deer seasonally inhabit both disturbed and undisturbed portions of the permit area. Although livestock drift fences have been installed, the mine area is readily accessible to wildlife. Seasonal use maps are shown on pages 10-22, 10-23, 10-27, and Figure 10-11.

Mitigation for loss of wildlife habitat will be accomplished by contemporaneous and final reclamation. The applicant will achieve reclamation goals by: (1) planting a diverse mixture of native grasses, forbs and woody species; (2) using seedling stock as well as seeds for trees and shrubs; (3) clumping shrub and tree species to create an edge effect; and (4) leaving islands of natural vegetation in newly disturbed areas (page 3-94, Section 3.5.5.6).

Raptor studies have documented nest status, use of surface facilities area, and powerline safety (pages 10-62, 10-64, 10-65, and 10-73).

Fish and wildlife impact mitigation includes employee awareness and training, traffic control, construction of surface facilities, fence design to provide wildlife access, contemporaneous reclamation, and monitoring programs (Tables 10-12 and 10-13).

Following mining, the applicant will implement revegetation methods designed to restore and enhance wildlife and environmental values on disturbed areas. The final revegetation plant mix includes herbaceous and woody species adapted to on-site conditions and of known value to wildlife for cover and forage (Section 10.3, page 3-86).

Compliance

Coal has been mined continuously since 1969. A total of 17.58 acres have been disturbed.

Plant materials used for permanent revegetation are shown in Tables 3-2, 3-3 and 9-1. Plant species have been selected which provide nutrition and cover for wildlife and will enhance wildlife habitat after bond release.

Field surveys and literature searches did not identify the presence of threatened and endangered plant and animal species.

The applicant, with the assistance of the Division and the U.S. Fish and Wildlife Service, has already implemented a number of powerpole protection measures (pages 10.62 and 10.62-1). However, in consequence of the electrocution of two great-horned owls at the #2 Mine on July 31, 1989, additional protective measures will be required.

The applicant will be in compliance when the following stipulation is met.

Stipulation UMC 817.97-(1)-(WJM/BAS)

1. Within 30 days of permit approval, the applicant must safeguard all powerpoles at the #2 Mine from raptor electrocution. Poles must be gapped (4 inch gap) at least 12 inches below the lowest crossarm and below transformer tanks. Perchguards must be installed on crossarms which provide less than 60 inches separation of conductors. Multiple perchguards or other forms of perch deterrents must be mounted on transformer tanks. Elevated perches, having at least a two-foot vertical rise above conductors, must be erected on all powerpoles.

UMC 817.99 Slides and Other Damage-(PGL)

Existing Environment and Applicant's Proposal

The applicant commits to notify the Division by the fastest available means any time a slide occurs which may have a potential adverse effect on public property, health, safety, or the environment (page 3-26).

Compliance

The applicant's commitment meets the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.100 Contemporaneous Reclamation-(WJM/BAS)

Existing Environment and Applicant's Proposal

The applicant has committed to contemporaneous reclamation of all areas non-essential to mining operations (Secton 3.5.1). These areas will be backfilled or graded, topsoiled, fertilized, seeded and mulched (Section 3.5.5).

Final reclamation will be conducted immediately after final site preparation and during the first normal period of favorable planting conditions (Section 3.5.5).

Compliance

The applicant's plan for contemporaneous reclamation meets the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.101 Backfilling and Grading-(PGL)

Existing Environment and Applicant's Proposal

The #2 Mine was originally disturbed in late 1969. When this area was disturbed, no topsoil or other material was saved. The #7 Mine portal area was disturbed in 1983 and 1984. The #8 Mine portal area was disturbed in 1989.

It is the intent of the applicant to restore these areas to a topography suitable for wildlife habitat and livestock grazing (see discussions under UMC 817.133, pages 3-75 and #8 Mine Amendment, page 3-28). Reclamation will be conducted as follows:

A. After the sealing of the portals and removal of all structures, a backhoe (Cat 235) will be brought to the upper portal;

B. The backhoe will begin by reaching down over the fill bank and retrieving as much material as can be reached. This material will be placed on the terrace;

C. A Cat (D-7) will work with the backhoe, taking the retrieved material and spreading and compacting it from the highwall outward to reach a configuration as shown on Plate 3-7, 3-7a, and 3-7ba, Postmining Topography;

D. The mine yard will then be resloped to drain as shown on Plate 3-7a. A rock-lined natural drainage will be restored in this area since all diversions will be removed during the backfilling and regrading;

E. The procedures as noted above, will continue down the road with the backhoe and cat operating in conjunction to reclaim this area down to the permit boundary; and

F. Upon completion of backfilling and regrading during reclamation, the surface will be scarified to prevent slippage of the surface and promote root penetration. This will be accomplished by a ripper on the dozer to a depth of two feet.

Designated areas that will retain highwalls are shown on Plates 3-7, 3-7a, and 3-7b. The justification for retention of highwalls is described on page 3-77 and #8 Mine Amendment, page 3-30.

Thorough geologic and stability investigations were done at the #7 Mine and #8 Mine portal areas (#8 Mine Amendment, pages 3-3 through 3-8).

Compliance

The applicant provides a backfilling and grading plan that will be suitable for the postmining land use. The applicant's request and justification for retention of highwalls is acceptable. An acceptable factor of safety was demonstrated for the backfilled areas.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.103 Backfilling and Grading: Covering Coal and Acid- and Toxic-Forming Materials-(HS)

Existing Environment and Applicant's Proposal

The applicant commits to covering all exposed coal outcrops and all acid- and/or toxic-forming materials with a minimum of four feet of non-combustible, non-acid and non-toxic forming material (pages 3-76, 8-27 and 8-31).

Material which has been identified as highly sodic (see discussion under UMC 817.24) will be covered with four feet of non-acid and non-toxic forming material. Approximately three feet of cover will be comprised of fill (bank material spoil, etc.) and one foot of cover will be topsoil, subsoil and substitute topsoil material (page 3-76).

Compliance

The applicant's commitments meet the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.106 Regrading or Stabilizing Rills and Gullies-(PGL)

Existing Environment and Applicant's Proposal

The applicant commits to stabilize and reseed rills or gullies deeper than nine inches in regraded areas (page 3-78).

Compliance

The applicant's commitments meet the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.111 Revegetation: General Requirements-(WJM/BAS)

Existing Environment and Applicant's Proposal

The applicant's temporary and final revegetation plans are shown in Sections 3.5.1 and 3.5.5, respectively. Proposed interim and final reclamation seed mixes for the #2 Mine and #7 Mine portal area are shown on Tables 3-2 and 3-3, respectively. The seed mix for the #8 Mine portal area is found on Table 9-1 (page 9-4). Level to moderate slopes will be drilled, and steep slopes will be hydroseeded (page 3-88).

Compliance

All plant species in the final revegetation seed mix and planting stock are compatible with postmining land uses and will provide suitable ground cover for erosion protection, wildlife habitat and livestock forage. All plant species are perennial except for yellow sweetclover, which is biennial. All plant species are capable of regeneration and plant succession.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.112 Revegetation: Use of Introduced Species-(WJM/BAS)

Existing Environment and Applicant's Proposal

The final revegetation seed mix for the #2 Mine and #7 Mine portal area contains one introduced species, cicer milkvetch. The temporary seed mix contains yellow sweetclover, cicer milkvetch, and pubescent wheatgrass (Tables 3-2 and 3-3). The #8 Mine portal area final seed mix contains yellow sweetcover (Table 9-1).

Compliance

Yellow sweetclover is valued as a fast-growing, nitrogen-fixing plant. It plays a role in soil stabilization and micro-climate modification, promoting establishment of desirable perennial species.

Cicer milkvetch is desirable as a nitrogen-fixing plant. Pubescent wheatgrass was included in the seed mix because it establishes readily, assists in erosion control, and is compatible with postmining land uses.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.113 Revegetation: Timing-(WJM/BAS)

Existing Environment and Applicant's Proposal

Seeding will take place in the fall. Containerized stock will be planted in early or late fall, depending on weather conditions (Sections 3.5.5.1 and 3.5.5.2).

Compliance

The applicant meets the requirements of this section by proposing to seed in the fall immediately after final site preparation (page 3-88).

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.114 Revegetation: Mulching and Other Soil Stabilizing Practices-(WJM/BAS)

Existing Environment and Applicant's Proposal

Native hay or straw mulch will be applied at a rate of one ton/acre on level to moderately sloped areas. Mulch will be crimped with a crimper or a straight-set disk. On steep slopes, hydromulch and tackifier will be used. On severe sites, where erosion may become a serious problem, jute netting will be used to hold mulch and soil in place (Section 3.5.5.3).

Compliance

Mulching practices, rates of application, and method of anchoring meet the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.115 Revegetation: Grazing-(WJM/BAS)

Existing Environment and Applicant's Proposal

No livestock grazing will be allowed on reclaimed areas until after bond release (page 3-93).

Compliance

The applicant's commitment to restrict grazing until bond release meets the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.116 Revegetation: Standards for Success-(WJM/BAS)

Existing Environment and Applicant's Proposal

Revegetation success at the #2 Mine will be based on comparisons with approved reference areas (Section 9.2.3). The reference areas are not fenced, but livestock drift fences provide protection.

Baseline data will serve as the success standards for the #7 Mine and #8 Mine portal areas (page 9-44).

Revegetation monitoring will be conducted after reclamation as follows: (1) qualitative - years 2 and 3; (2) quantitative - years 2, 3, 5, 9 and 10; and (3) comparison to reference areas - years 9 and 10 (page 3-95.1).

Compliance

Bond liability will continue for not less than 10 years.

Monitoring commitments are adequate to document progress toward realization of reclamation objectives.

The applicant has committed to manage reclaimed areas to rectify possible problems which may occur, such as severe erosion, excessive weed growth, failed revegetation establishment, or rodent damage.

Ground cover, woody plant density, and production shall be considered equal to their respective reference area counterparts, when there is 90 percent success at 90 percent statistical confidence (Section 3.5.5.2).

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.117 Revegetation: Tree and Shrub Stocking for Forest Land-(WJM/BAS)

Existing Environment and Applicant's Proposal

Surface ownership of the Gordon Creek #2, #7 and #8 Mines is mixed, consisting of fee land and land controlled by the federal government (Table 4-1).

Woody plant stocking level is a consideration because postmining land use includes wildlife habitat (Sections 3.5.5.6 and 10.5). The applicant proposes to plant a total of nine woody species. Woody plants will be seeded and planted as containerized stock. Shrub seeds will be sown at a rate of approximately 20 seeds/ft^2. Plantings will provide an additional 660-900 stems per acre on north and south exposures, respectively. Along reclaimed channels, willow cuttings will be planted at a rate of 680 stems per acre (Section 3.5.5 and Table 3-3).

On the #8 Mine portal area, the applicant proposes to plant four tree and six shrub species, totalling 1,275 plants per acre. Along restored seep and channel areas, 100 each per acre of willow, mountain maple, and chokecherry will be planted (Table 9-1).

Compliance

Rate of seeding and supplemental planting may be expected to achieve 90 percent of reference area stocking levels or other approved standards.

The applicant commits to supplemental replanting of woody species in the event density does not meet bond release standards.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.121-.126 Subsidence Control-(RVS)

Existing Environment and Applicant's Proposal

The Castlegate "A" coal seam is the primary mining target for this permit term (page 3-22). Mining of the underlying Hiawatha coal seam will occur following extraction of the Castlegate "A" coal seam (page 3-22). The applicant states (page 3-23) that room and pillar methods will be used to extract both seams.

Overburden thickness, within and adjacent to the permit area, ranges from approximately 100 to over 800 feet and encompasses the Blackhawk Formation (Plate 6-1).

The applicant identifies (page 3-60) Beaver Creek, Jewkes Spring and Gunnison Homestead Spring as the major renewable resources above mine workings. In addition, the applicant indicates (page 3-59) no surface facilities or structures occur over mine areas and therefore, no man-made structures will be impacted by mining-induced subsidence. The applicant provides plans for mitigating subsidence-induced material damage to surface lands (#8 Mine Amendment, pages 3-25 and 3-26).

The applicant commits to maintaining barrier pillars that are, at a minimum, 150 feet wide (page 3-24). Plates 3-3 and 3-4 indicate outcrop barrier pillars will be 200 feet in width.

The applicant estimates maximum vertical movement over areas of double seam mining to be 6.18 feet (page 3-64). Alternatively, maximum subsidence over areas of single seam mining is estimated to be 2.33 feet.

The applicant has been restricted to first mining beneath Beaver Creek (Special Condition No. 8, page 3-64). Pillars have been sized with adequate safety factors to provide protection to Beaver Creek (Appendix B). Mitigation plans have been developed in the event subsidence-induced impacts occur along Beaver Creek (page 3-68 and Appendix 6).

The applicant has provided a plan for subsidence monitoring (pages 3-66 through 3-68). Monitoring stations are located on the "Gordon Creek No. 2 Mine Map" and Plate 3-6. Monitoring will occur twice yearly while mining is occurring within 500 feet of a station. Thereafter, monitoring will occur once a year (pages 3-67 and 3-68).

The applicant has previously notified all owners of property within the area that may be impacted by subsidence (Annual Report for 1986 and #8 Mine Amendment, page 3-25).

Compliance

The applicant has provided information about mining methods, overburden thickness, and vertical movement that indicate activities have been planned and will be conducted to prevent subsidence from causing material damage (UMC 817.121). Moreover, the applicant has notified surface owners (UMC 817.122) and provides plans for surface owner protection (UMC 817.124). The applicant has provided adequate safety factors to prevent material damage and allow first mining beneath Beaver Creek (UMC 817.126).

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.131 Cessation of Operations: Temporary-(PGL)

Existing Environment and Applicant's Proposal

The applicant commits to notify the Division in the event that operations are temporarily ceased for more than 30 days. The notification will include a Notice of Intent to Cease Operations (page 3-37).

Compliance

The applicant's commitment to notify the Division and submit a Notice of Intent to Cease Operations with all of the required information meets the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.132 Cessation of Operations: Permanent-(PGL)

Existing Environment and Applicant's Proposal

The applicant commits to reclaim the mine site after all mining operations have ceased.

Compliance

The entire permit application package meets the requirements to reclaim the mine site.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.133 Postmining Land Use-(BAS/WJM)

Existing Environment and Applicant's Proposal

The land on which the Gordon Creek #2, #7 and #8 Mines is located has been used for coal mining, livestock grazing, deer hunting, sightseeing, and hiking (Section 4-4). There are no developed campgrounds within the area and none are planned for the future (Secton 4.4.2).

The applicant does not own any fee land in the permit area (Section 4.3.3).

Postmining land uses will be the same as premining and present uses described above. In areas of surface disturbance, reclamation will restore the area to a condition capable of supporting premining uses (page 3-38).

Compliance

The applicant's proposed reclamation plan and protection measures are feasible and consistent with postmining land uses.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.150-.156 Roads: Class I-(PGL)

Existing Environment and Applicant's Proposal

The coal haul road is used for all access to and from the mine site. It is approximately 5,700 feet long and is bermed on the Bryner Canyon side until it enters the mine-site area. This is a gravel-surfaced road sloped slightly toward the highwall side where a conveyance ditch is maintained to carry runoff to the culvert below. The road is regularly maintained to provide safe access for personnel and material to the mine as well as providing for safe, efficient coal haulage. The road joins the Gordon Creek County Road at the permit boundary. The overall grade is above eight percent (page 3-17).

The roads are, and will continue to be, maintained in such a manner that the approved design criteria are met throughout the life of the facility (Plate 3-2 and page 3-17).

The roads will be reclaimed upon termination of operations as outlined in the reclamation plan (page 3-7).

Compliance

The Class I haul road meets the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.160-.166 Roads: Class II-(PGL)

Existing Environment and Applicant's Proposal

There are three access roads that are used at the Gordon Creek #2, #7 and #8 Mines. The upper bench access road is a short road (539 feet long) from the main #2 Mine portal to the west portals, and is used for personnel and materials access. The #7 Mine portal access road is approximately 1,200 feet long (Plate 3-2a and pages 3-9 through 3-14).

The #8 Mine portal access road switchbacks just beyond the #7 Mine portal fan (#8 Mine Amendment, Plate 3-4b and pages 3-9 through 3-9e).

Access roads will be gravel-surfaced and maintained throughout the life of the facility. All Class II roads will be reclaimed.

Compliance

The design, construction, maintenance and reclamation of Class II roads meet the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.170-.176 Roads: Class III-(PGL)

Existing Environment and Applicant's Proposal

There are no Class III roads. Therefore, this section is not applicable.

UMC 817.180 Other Transportation Facilities-(PGL)

Existing Environment and Applicant's Proposal

Coal is transported from the mine via a surface conveyor where it is discharged into the coal storage area. It is then loaded by front-end loader into trucks and hauled to the preparation plant at C. V. Spur Coal Processing and Loadout Facility. The transportation facilities are shown on Plate 3-2 and described on pages 3-15 and 3-16. The conveyor will be maintained and then reclaimed at the end of mining.

Compliance

The surface conveyor minimizes fugitive dust and sediment contributions to Gordon Creek and meets the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.181 Support Facilities and Utility Installations-(PGL)

Existing Environment and Applicant's Proposal

The support facilities required to operate the underground mine are shown on Plate 3-1 and described on pages 3-16 and 3-17. The central facility includes an office, bathhouse, supply building, fan building and power substation.

The applicant commits to maintain the facilities and then reclaim them at the end of mining.

Compliance

The applicant's design, maintenance and reclamation of the support facilities meet the requirements of this section.

The applicant is in compliance with this section.

Stipulations

None.

UMC 828.00 Prime Farmland Investigation-(HS)

Existing Environment and Applicant's Proposal

The applicant asserts that there are no lands identified as prime farmland within the proposed permit area (page 8-12).

Compliance

On the basis of soil survey and field review of the lands within the permit area, there are no soil map(s) units that have been designated prime farmland by the Soil Conservation Service (SCS). Refer to the SCS letter June 16, 1980, from T. B. Hutchings, State Soils Scientist, regarding a negative prime farmland determination (page 8-14).

The applicant is in compliance with this section.

Stipulations

None.

UPPER GORDON CREEK
CUMULATIVE HYDROLOGIC IMPACT
ASSESSMENT

Gordon Creek #3 and #6 Mines, ACT/007/017

Gordon Creek #2, #7 and #8 Mines, ACT/007/016

Blue Blaze Coal Mine, PRO/007/020

Carbon County, Utah

August 1989

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I. Introduction

The purpose of this report is to provide a Cumulative Hydrologic Impact Assessment (CHIA) for Upper Gordon Creek, located in Carbon County, Utah. This assessment encompasses the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance and whether the operations proposed under the application have been designed to prevent damage to the hydrologic balance outside the proposed mine plan area. This report complies with legislation passed under Utah Code Annotated 40-10-1 et seq. and the attendant State Program rules under UMC 786.19(c).

The Upper Gordon Creek occurs within the Wasatch Plateau Coal Field, approximately 10 miles northwest of Price, Utah (Figure 1). The eastern margin of the Wasatch Plateau forms a rugged escarpment that overlooks Castle Valley and the San Rafael Swell to the east. Elevations along the eastern escarpment of the Wasatch Plateau range from approximately 6,500 to over 9,000 feet.

Precipitation varies from 40 inches at higher elevations to less than 10 inches at lower elevations. The area encompassed by the Wasatch Plateau may be classified as semiarid to subhumid.

GEOLOGY

Outcropping rocks of the Wasatch Plateau Coal Field range from Upper Cretaceous to Quarternary in age. The rock record reflects an overall regressive sequence from marine (Mancos Shale) through littoral (Star Point Sandstone) and lagoonal (Blackhawk Formation) to fluvial (Castlegate Sandstone, Price River Formation and North Horn Formation) and lacustrine (Flagstaff Limestone) depositional environments. Oscillating depositional environments within the overall regressive trend are represented by lithologies within the Blackhawk Formation. The major coal-bearing unit within the Wasatch Plateau Coal Field is the Blackhawk Formation.

VEGETATION

Vegetation of the Wasatch Plateau area is classified within the Colorado Plateau Floristic Division (Cronquist et al., 1972). The area occupies parts of both the Utah Plateaus and the Canyonlands Floristic Sections. Vegetation communities of the area include mountain brush, Douglas fir-white fir-blue spruce and Engelmann spruce-subalpine fir.

Dominant shrubs of the mountain brush communities will vary depending on elevation and aspect. The drier south and west-facing slopes may support dense stands of Gambel oak (*Quercus gambellii*). Other dominants of this community may include serviceberry (*Amelanchier utahensis*), mountain mahogany (*Cercocarpus montanus* or *C. ledifolius*), bitterbrush (*Purshia tridentata*) and snowberry (*Symphoricarpus oreophilus*).

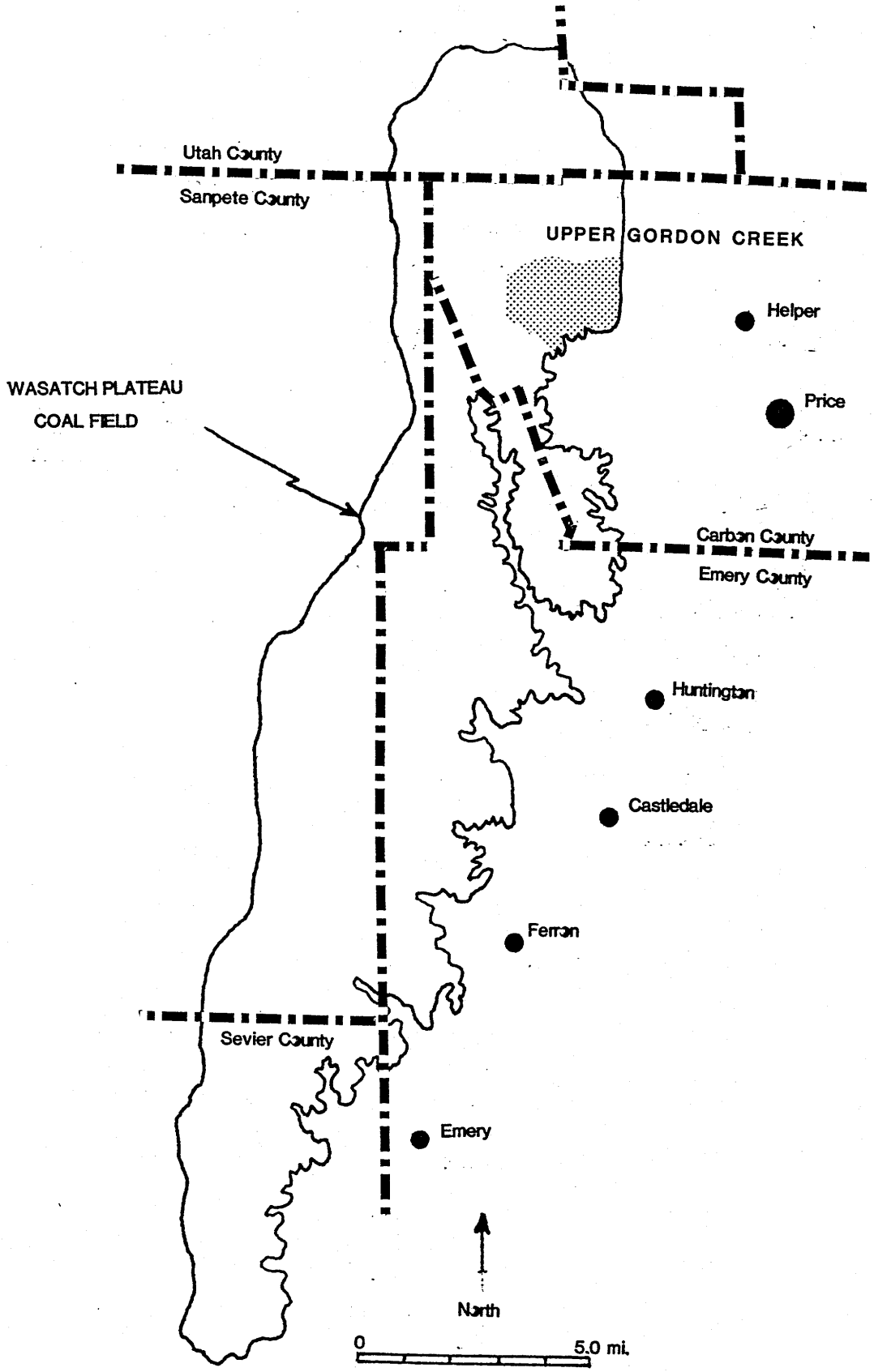

Figure 1. Wasatch Plateau Coal Field.

The range of the Douglas fir-white fir-blue spruce community is about 8,000 to 10,000 feet. Douglas fir (Pseudotsuga mensiesii) is usually the dominant tree with white fir (Abies concolor) and blue spruce (Picea pungens) usually limited to the most mesic sites, often along streams. With dense canopies, understory vegetation may be sparse. Common shrubs include serviceberry (Amelanchier spp.), Oregon grape (Berberis repens), chokecherry (Prunus virginiana),

Rocky Mountain maple (Acer glabrum), mountain lover (Pachistima myrsinites) and snowberry. Bluebunch wheatgrass (Agropyron spicatum), mountain brome (Bromus carinatus), and Kentucky bluegrass (Poa pratensis) are common grasses. Aspen stands (Populus tremuloides) can be found throughout the zone, particularly in mesic sites and as successional communities.

Picea engelmannii and Abies lasiocarpa dominate the spruce-fir zone at the highest elevations of the hydrologic impact area. While receiving about the same precipitation as the Douglas fir communities, lower evapo-transpiration with cooler temperatures can permit a more lush vegetation in the spruce-fir zone. Limber pine (Pinus flexilis) often occupies steep or rocky, drier sites of this zone.

Small riparian communities are found at all elevations within the impact assessment area. With greater water availability and cooler temperatures, the riparian zone often includes more mesic species, e.g., those from a higher vegetation zone. Shrub species from the mountain shrub type may be found at most elevations.

Additional riparian zone shrubs include red osier dogwood (Cornus stolonifera), river birch (Betula occidentalis) various willows (Salix spp.) and miscellaneous sedges (Carex spp.). Small wet areas around springs and seeps will often support a dense growth of grasses, sedges and willows.

HYDROLOGY

The Gordon Creek #2, #7, and #8 Mines, proposed Blue Blaze Mine and Gordon Creek #3 and #6 Mines are located in both the North Fork of Gordon Creek and Beaver Creek drainages. Gordon Creek and Beaver Creek flow into the Price River. There are three other principal surface water courses that are tributary to Gordon Creek associated with mining in the area. These include two ephemeral streams: Bryner Canyon and Coal Canyon, and an intermittent stream: Consumer Canyon.

Approximately 50 to 70 percent of the streamflow occurs during the snowmelt runoff period. Summer precipitation does not usually produce high runoff except in localized areas. Average annual precipitation ranges from 25 inches in the valleys to over 35 inches on the ridges. Water in the headwaters of Gordon Creek is a calcium-bicarbonate type and is of generally good quality, with maximum concentrations of total dissolved solids (TDS) usually less than 500 milligrams per liter (mg/L). Downstream, out of the

cumulative impact area (CIA), the water changes to a magnesium-sodium-calcium-sulfate type with TDS concentrations upward of 1,100 mg/L. This decrease in quality is a result of natural runoff and irrigation return flows off the Mancos Shale. The Mancos Shale is easily weathered, gypsiferous, sodium- and sulfate-rich. Irrigation return flows are the primary source of salts causing an acceleration of the natural leaching of the solutes in the soils. The Price River averages 239,000 tons of salt and 71.800 acre-feet of water per year, contributing only 0.66 percent of the flow of the Colorado River at Lee's Ferry while salt contribution to the Price River from irrigation is estimated to range from 15,000 to 170,000 tons per year.

II. Cumulative Impact Area (CIA)

Figure 2 delineates the CIA for current and projected mining in the Upper Gordon Creek area. The CIA encompasses approximately 15 square miles and includes portions of Beaver Creek and North Fork Gordon Creek. All of Bryner Canyon and Coal Canyon are included in the CIA. The CIA boundaries are mostly designated by drainages and drainage divides (Figure 2).

III. Scope of Mining

Mining began in the North Fork of Gordon Creek in the early 1920's. Past mines include the Blue Blaze, Consumers, National, Swisher, and Sweet's mines.

Three mines operated in the North Fork of the Gordon Creek area between the 1920's and 1950's. In 1924, the Consumers Mutual Coal Company was organized and opened an underground coal mine (thought to be Blue Blaze Mine) in the Consumer's Canyon. Mining continued at the Blue Blaze Mine into the 1940's.

The National Coal Company developed a mine just east of Consumers around 1928. The Utah Railway built a rail spur to the Consumers and National Mines, and a company town was built near the mines and population approached 500. The National Mine closed in the 1950's.

In 1925, the Sweet's Mine opened in a canyon west and south of the Consumer Mine. A small community of about 200 persons lived near the mine. In order to reach the Sweet's Mine, the Utah Railway built a massive trestle over the community of Sweet's to reach the mine which was located high above the canyon floor. The Sweet's Mine closed temporarily in 1937 but reopened during World War II. The Sweet's Mine was closed permanently by 1950.

All of the mining for these three mines was in the Hiawatha and Castlegate coal seams. Mining was by room and pillar underground mining techniques. Each of the mines produced 1,000 to 2,000 tons per day.

Swisher Mining Company opened the Swisher No. 1 Mine in the 1960's in the south side of Bryner Canyon. For the most part, mining was in the Hiawatha coal seam. However, some mining occurred in the Castlegate coal seam.

GORDON CREEK #2, #7 AND #8 MINES (BEAVER CREEK COAL COMPANY)

Swisher Coal Company opened and developed the three existing mines in the North Fork of Gordon Creek. Swisher Coal Company was purchased by General Exploration in 1974 and was subsequently sold to Beaver Creek Coal Company in January 1980.

The Gordon Creek #2, #7 and #8 Mines permit area encompasses approximately 2,300 acres. There are two federal leases that are designated by the Bureau of Land Management as "Logical Mining Units (LMU's): U-8319 and U-53159.

Room and pillar mining occurs in the Castlegate "A" and Hiawatha coal seams. Mining is expected to occur for about two more years.

GORDON CREEK #3 AND #6 MINES (BEAVER CREEK COAL COMPANY)

Room and pillar mining commenced during December 1978 and terminated in November 1980 in the #6 Mine. Room and pillar mining commenced during February 1976 and retreat mining was initiated in January 1982 and continued until May 1982 in the #3 Mine. All portals were permanently sealed during September 1983.

BLUE BLAZE COAL MINE (BLUE BLAZE COAL COMPANY)

Coal mining activity occurred between 1921 and 1952 in the proposed Blue Blaze Coal Mine area. Several mines extracted coal from two coal seams: Castlegate "A" and the Hiawatha seams. Room and pillar mining is proposed for the Blue Blaze Coal Mine.

IV. Study Area

GEOLOGY

The Upper Gordon Creek CIA is characterized by narrow canyons and steep topography. Stratigraphic units outcropping within the area include, from oldest to youngest, Star Point Sandstone, Blackhawk Formation, Castlegate Sandstone and Quaternary alluvium. Lithologic descriptions and unit thicknesses are given in Figure 3.

Rocks in the study area strike northwest and dip up to seven degrees to the northeast. Three major fault zones affect the CIA. The Pleasant Valley and North Gordon fault zones trend north - south. The Fish Creek fault zone borders the northeast boundary of the Gordon Creek #2, #7, and #8 Mines and trends N 60°W. Displacements may be as great as 200 feet.

System	Series	Stratagraphic Units	Thickness (Feet)	Lithology and Water-Bearing Characteristics
Quaternary	Holocene Pleistocene	Quaternary Alluvium	0 - 100	Alluvial: Clay, silt, sand, gravel and boulders; yields water to springs that may cease to flow in the summer.
Cretaceous	Upper Cretaceous	Price River Formation	200 - 250	Gray-to-brown, fine to coarse, and conglomeratic fluvial sandstone with thin beds of gray shale; yields water to springs locally.
		Castlegate Sandstone	150 - 200	Tan-to-brown fluvial sandstone and conglomerate; forms cliffs in most exposures; yields water to springs locally.
		Blackhawk Formation	900 ±	Tan-to-gray discontinuous sandstone and gray carbonaceous shales with coal beds; all of marginal marine and paludal origin; locally scour-and-fill sandstone within less permeable sediments; yields water to springs and coal mines, mainly where fractured or jointed.
		Star Point Sandstone	440	Light-gray, white, massive, and thin bedded sandstone, grading downward from a massive cliff-forming unit at the top to thin interbedded sandstone and shale at the base; all of marginal marine and marine origin; yields water to springs and mines where fractured and jointed.

Figure 3. Stratigraphy of the Upper Gordon Creek Area (modified from Danielson, et. al., 1981)

HYDROLOGIC RESOURCES

GROUND WATER

The ground-water regime within the CIA is dependent upon climatic and geologic parameters that establish systems of recharge, movement and discharge.

Snowmelt at higher elevations provides most of the ground-water recharge, particularly where permeable lithologies are exposed at the surface. Vertical migration of ground water occurs through permeable rock units and/or along zones of faulting and fracturing. Lateral migration initiates when ground water encounters impermeable rocks and continues until either the land surface is intersected (and spring discharge occurs) or other permeable lithologies or zones are encountered that allow further vertical flow.

The Star Point Sandstone and lower portion of the Blackhawk Formation, Castlegate Sandstone, Price River Formation and Quaternary alluvium are potential reservoirs or conduits for ground water in the CIA. Reservoir lithologies are predominantly sandstone. Sandstone reservoirs occur as channel, overbank, lenticular and tabular deposits. Shale, siltstone and cemented sandstone act as aquacludes to impede ground-water movement. Localized aquacludes include relatively thin, impermeable lithologies occurring within the stratigraphic section above the Star Point Sandstone.

Data from seven boreholes located within and adjacent to the Gordon Creek #2, #7 and #8 Mines permit area indicate the Star Point - Blackhawk aquifer occurs within the CIA. Ground water associated with the Price River Formation may be characterized as occurring within a "perched" aquifer and represents a relatively insignificant hydrologic resource.

Faults and fractures act as effective conduits for ground water and allow unsaturated downward flow. The two springs having significant discharges (10 gpm or greater) are located in proximity to major fault zones.

Four springs having measurable flow occurs within the CIA. Total spring discharges exceeds 100 gpm. All springs discharge from the Blackhawk Formation.

Mine inflow is insignificant at the Gordon Creek #2, #7, and #8 Mines and the operator must pump surface water into the workings to conduct underground operations. Mine inflow is not discharged within the CIA.

SURFACE WATER

The CIA has been divided into two major drainage basins, waters draining to the North Fork of Gordon Creek and waters draining to Beaver Creek. Although no surface disturbance is contained within the Beaver Creek drainage, the drainage area has been and will be undermined by all three past, present, and future mines in the CIA as shown in Figure #5. Both Beaver Creek and the North Fork of Gordon Creek drain to the Price River.

BEAVER CREEK

Approximately 3,244 acres of the Beaver Creek watershed is contained within the CIA. The average gradient of Beaver Creek is four percent in the reach associated with the three mines. The Gordon Creek #2 and #7 Mines have mined 284 acres under the Beaver Creek Drainage Area, the Consumer's Mine mined 113 acres, and the Gordon Creek #3 and #6 Mines mined three acres. The mined out portion of these three mines represent approximately one mile of stream channel undermined along Beaver Creek. Future mining associated with the Blue Blaze Mine will potentially multiple seam mine an additional one-eighth of a mile of Beaver Creek and an additional nine acres of Beaver Creek watershed. The hydrologic impacts associated with this mining will be discussed in the cumulative impacts section of this document.

NORTH FORK OF GORDON CREEK (1, 2, 3, 4, and 5)

Area 1

The North Fork of Gordon Creek, more commonly referred to as Sweet's Canyon, encompasses 3,392 acres of watershed within the CIA with an average gradient of 8.4 percent. Portions of Area One have been historically undermined. Future mining associated with the Gordon Creek #8 Mine will undermine approximately 26 acres of Area One, whereas 2.7 acres of Area One have already been undermined by Gordon Creek #2 and #7 Mines. The North Fork of Gordon Creek is a perennial creek and supplies water to the existing Beaver Creek operations via a diversion and impoundment.

Area 2

The Bryner Canyon watershed has been almost totally undermined. Of the 609 acres found in Area Two, 488 acres has been undermined. The average gradient of the watershed is 11 percent. It is ephemeral in nature and has a Right and Left Fork. The Right Fork does not contain any surface facilities. The Gordon Creek #7 and #8 Mines are found in the Left Fork and the #2 Mine facilities are found just below the confluence of the Right and Left Forks.

Area 3

Consumer Canyon encompasses 534 acres and has a gradient of 16 percent. Historically, 148 acres have been mined in Area Three. Multiple seam mining will involve an additional 142 acres of mining associated with the proposed Blue Blaze Mine. There is a great deal

of historic surface disturbance in this canyon already associated with past mining activities.

Area 4

Area Four encompasses 1,178 acres of unnamed ephemeral tributory drainage to the North Fork of Gordon Creek. Historic mining has occurred within 66 acres of Area Four. No future mining is projected for Area Four.

Area 5

Coal Canyon drainage area is 1,329 acres in size and has an average gradient of 10 percent. The Gordon Creek #3 and #6 Mines mined 224 acres in the Coal Canyon drainage and the surface facilities associated with the Gordon Creek #3 and #6 Mines have been reclaimed. Coal Canyon is intermittent.

V. Potential Impacts

GROUND WATER

Dewatering and subsidence related to mining have the greatest potential for impacting ground-water resources in the CIA. The impact of changes in vegetation or ground-water recharge should be minimal since mining disturbance is and will be less than 1600 acres of the 10,300 acre CIA.

DEWATERING

The volume of water being discharged from mines within the CIA (less than 50 gpm) approximate the amount of water that is currently being withdrawn from the ground-water system. Future mining within the CIA is anticipated to be limited and therefore, projected ground-water withdrawal values are expected to be similar to those occurring at present.

No water is directly discharged from mines within the CIA. However, approximately 21 gpm of ground water is discharged to the atmosphere by mine ventilation systems (Table 1). Psychometric formulas were utilized to derive ventilation discharge value and extrapolated to the mine portal elevations. Average relative humidity data from the Central Weather Station in the Manti-LaSal National Forest.

Mine	Ventilation Rate (cfm)	Approximate Discharge Rate (gpm)
Gordon Creek #7	210,000	14
Gordon Creek #8	100,000	7
Total	310,000	21 gpm

Table 1. Approximate Atmospheric Discharge from Active Mines, Upper Gordon Creek CIA,

The total discharge for springs within the CIA is less than 150 gpm. Discharge may also occur directly to perennial streams where channels intersect ground water within the Blackhawk Formation and Star Point Sandstone. The North Fork Gordon Creek and Bryner Canyon both are perennial and potentially intersect ground water within the regional aquifer.

Surface water monitoring data suggest base flow recharge to Bryner Canyon is not detectable. Accordingly, it is assumed that base flow recharge to the North Fork Gordon Creek is not significant.

Approximately 9,500 acres within the CIA overlie the coal resource and represent a potential recharge area (Figure 6). Average annual precipitation is approximately 30 inches over the potential recharge area and hence, the total annual precipitation over the outcropping recharge area is 23,750 acre-feet. Total annual spring discharge (1,614 acre-feet) and mine ventilation discharge (255 acre-feet) are approximately eight percent of the total annual precipitation within the CIA. Dewatering due to mine ventilation accounts for one percent of the total annual precipitation value and is herein determined to be insignificant.

SUBSIDENCE

Subsidence impacts are largely related to extension and expansion of the existing fracture system and upward propagation of new fractures. Inasmuch as vertical and lateral migration of water appears to be partially controlled by fracture conduits, readjustment or realignment in the conduit system will inevitably produce changes in the configuration of ground-water flow. Potential changes include increased flow rates along fractures that have been "opened", and diverting flow along new fractures or within permeable lithologies. Subsurface flow diversion may cause the depletion of water in certain localized aquifers and potential loss of flow to springs that will be undermined. Increased flow rates along fractures would reduce ground-water residence time and potentially improve water quality.

Mining has occurred beneath and adjacent to two springs. No impacts have been detected. In addition, mining has occurred beneath a portion of Beaver Creek. Pillars were sized to maintain channel integrity and water monitoring has not identified impacts.

SURFACE WATER

The cumulative impacts associated with mining within the CIA will be summarized by individually discussing impacts associated with Gordon Creek #2, #7 and #8 Mines, proposed Blue Blaze Mine, and the reclaimed Gordon Creek #3 and #6 Mines. In addition, impacts associated with historic mining will be partially included in this assessment. Creeks or drainage areas which are referenced by name or (#) are found on Figure 5, Surface Water Drainage Map.

GORDON CREEK #2, #7, AND #8 MINES

All surface facilities are found within Bryner Canyon (Area Two). Surface facilities are found only below the confluence of the Right and Left Fork of Bryner Canyon and in the Left Fork of Bryner Canyon. All of the drainage, mostly shallow ground water flow, is routed through two sedimentation ponds and discharged below the #2 Mine surface facilities. The Right Fork of Bryner Canyon seldom flows below the mine due to infiltration into old mine workings associated with the Swisher Mine, precursor to the Gordon Creek Mines. Upon reclamation of the Gordon Creek facilities area this phenomenon will hopefully be corrected by backfilling and bentonite lining of the channel during reclamation.

Water quality in the headwaters of Gordon Creek is good, with TDS less than 500 mg/1. The North Fork of Gordon Creek had a mean TDS for 1988 of 464 mg/1 based on 12 monthly field samples. Discharge from the sediment pond at the #2 Mine facilities was sampled twice in 1988 during March and May, but no flow was observed in Bryner Canyon below the mine due to channel infiltration of any sediment pond discharges. The Left Fork of Bryner Canyon above the mines flowed only one time during 1988 in the month of May in response to snowmelt and had a TDS reading of 380 mg/1.

All surface disturbance is treated by the two sediment ponds associated with the Gordon Creek #2, #7, and #8 Mines. Any discharges associated with the #2 Mine sedimentation ponds are absorbed by the channel of Bryner Canyon and negate impacts to the North Fork of Bryner Canyon downstream.

The undermining of Beaver Creek by the Gordon Creek #2 Mine has had no visible physical surface effect on the stream channel or flow of Beaver Creek. Both methods of leaving pillars of coal and pulling pillars have not effected the flow in Beaver Creek due to substantial sandstone lenses between the mine and the creek. Beaver Creek Coal Company has been monitoring flow in Beaver Creek since 1980. In 1988 the flow ratio between the upper and lower Beaver Creek stations varied from 68 percent to 91 percent with an average ratio of 80 percent from the Upper Beaver Creek Station to the Lower Beaver Creek Station. The mean flow for 1988 at the Upper station was 176 gpm versus 221 gpm at the lower station. The mean TDS reading at the Upper Station was 247 mg/1 versus 259 mg/1 at the Lower Station Flow differences and water quality differences can be attributed to an increase in drainage area between the Upper and Lower Stations.

No visible impacts have been observed due to mining within the Beaver Creek drainage. Subsidence effects have not been noted in the stream channel and water quality or quantity impacts have not been noted.

PROPOSED BLUE BLAZE MINE

The proposed Blue Blaze Mine is found in Consumers Canyon or Area Three which is downstream and east of Bryner Canyon. Consumers Canyon flows during all or most of the year due to a developed spring on the Left Fork and is, therefore, considered an intermittent stream. The proposed Blue Blaze Mine will involve surface disturbance in Area Three on Figure 5. All controls for sediment contributions from disturbed areas will be properly sized to handle storm runoff and meet applicable state and federal effluent limits. The Blue Blaze project will involve collection of baseline water quality and quantity during 1988 and 1989 to define the existing hydrologic environment.

GORDON CREEK #3 AND #6 MINES

Gordon Creek #3 and #6 Mines were reclaimed in 1986. Sediment controls for treating the reclaimed area consist of a two cell sedimentation pond. Inflow was noted and a sample was taken in March of 1988. The TDS was 355 mg/1. No discharge from the pond was noted. Only one sample was taken on Coal Canyon above the reclaimed area in April of 1988 and a flow of 1.6 gpm was noted with a TDS reading of 757 mg/1. The Right Fork of Coal Canyon empties into the reclaimed area and is undisturbed and emphemeral in nature.

As of November 8, 1988, based on occular evaluation, the vegetative cover was noted at 40 percent, less than desirable due to the severe drought of 1988.

VI. Summary

Mine operations within the CIA currently intercept ground water at an approximate rate of 21 gpm. This total is attributed to consumption loss to mine ventilation.

Consumptive use of mine water is not anticipated to increase and will be discountinued upon cessation of mining.

Diversion of spring flow and reduction in flow within Beaver Creek is considered to be at low risk.

It has been established that current mining operations have had significantly less effect on surface water then past historic mining in the CIA area due to the implementation of sediment controls and reclamation practices.

There has been no interception of surface flows other than ground water inflow into the Sweets Mine from waters impounded behind the Gordon Creek #3 Mine yard from the North Fork of Bryner Canyon. Discharge occurs only rarely through the outlet culvert. It is considered most probable that the impounded water is seeping into the Sweet's Mine area via tension fractures resulting from mine subsidence. This impact to surface water in Bryner Canyon will be alleviated following reclamation of the Gordon Creek #2 Mine.

The designs proposed for all anticipated mining operations within the CIA are herein determined to be consistent with preventing damage to the hydrologic balance outside the proposed mine plan areas.

References

Beaver Creek Coal Company, Gordon Creek #2, #7 and #8 Mines, Permit Application Package, 1989.

Beaver Creek Coal Company, Gordon Creek #3 and #6 Mines, Permit Application Package, 1986.

Blue Blaze Coal Company, Blue Blaze Mine, Permit Application Package, 1989.

Danielson, T.W., Re Millard, M.D., and Fuller, R.H. 1981. Hydrology of the Coal-Resources Areas in the Upper Drainages of Huntington and Cottonwood Creeks, Central Utah: U.S. Geological Survey, Water-Resources Investigations Report 81-539.

Engineering-Science, Cumulative Hydrologic Impact Assessment with Respect to the Gordon Creek #2 Mine, 1984.

AT87/1-16

LETTERS

OF

CONCURRENCE

Dreg Mine file
~~route to Brayton~~
cc R. Smith

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Timothy H. Provan
Division Director

1596 West North Temple
Salt Lake City, Utah 84116-3195
801-533-9333

RECEIVED
JUN 08 1989
DIVISION OF
OIL, GAS & MINING

May 30, 1989

Dr. Dianne R. Nielson, Director
Utah Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Attn: Rick Smith

Dear Dianne:

The Division has evaluated Beaver Creek Coal Company's five year permit renewal for their Gordon Creek #s 2, 7 and 8 mines. At this time, we have no concerns relative to wildlife.

Thank you for an opportunity to review and provide comment.

Sincerely,

Timothy H. Provan
Director

an equal opportunity employer

Norman H. Bangerter
Governor
Max J. Evans
Director

State of Utah

Division of State History
(Utah State Historical Society)
Department of Community and Economic Development
300 Rio Grande
Salt Lake City, Utah 84101-1182
801-533-5755

May 24, 1989

RECEIVED
MAY 26 1989
DIVISION OF
OIL, GAS & MINING

Richard V. Smith
Acting Permit Supervisor
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: Updated Text, Five-Year Permit Renewal, Beaver Creek Coal Company, Gordon Creek #2, #7 and #8 Mine, ACT/007/016, Folder No. 2, Carbon County, Utah

In Reply Please Refer to Case No. J947

Dear Mr. Smith:

The Utah State Historic Preservation Office received the above referenced documentation on May 2, 1989. We have no further comments on this project at this time.

This information is provided on request to assist the Division of Oil, Gas, and Mining with its Section 106 responsibilities as specified in 36 CFR 800 or with Utah Code, Title 63-18-37. If you have questions or need additional assistance, please contact me at (801) 533-7039.

Sincerely,

Diana

Diana Christensen
Regulation Assistance Coordinator

DC:J947/6982V OR/NP

Board of State History: Thomas G. Alexander, Chairman • Dean L. May, Vice Chairman • Douglas D. Alder
Ellen G. Callister • J. Eldon Dorman • Hugh C. Garner • Dan E. Jones • Leonard J. Arrington • Amy Allen Price • Sunny Redd

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

3480
(U-066)

Moab District
P.O. Box 970
Moab, Utah 84532

MAY 23 1989
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MAY 25 1989
DIVISION OF
OIL, GAS & MINING

Mr. Richard V. Smith
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Re: Updated Text, Five-Year Permit Renewal, Beaver Creek Coal Company, Gordon Creek No. 2, No. 7 and No. 8 Mines, ACT/007/016, Folder No. 2, Carbon County, Utah

Dear Mr. Smith:

The updated text attendant to the Gordon Creek No. 2, No. 7, and No. 8 Mines five-year permit renewal has been reviewed by this office.

The resource recovery and protection plan is not changed in any way from the original. The BLM is in concurrence with your approval of the five-year permit renewal.

Sincerely yours,

District Manager

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

August 15, 1989

TO: Richard Smith

FROM: Joseph C. Helfrich

RE: Compliance Review for Section 510(c) Finding, Beaver Creek Coal, Gordon Creek #2, #7 and #8 Mines, ACT/007/016, Folder #3, Carbon County, Utah

As of the writing of this letter, there are no NOV's or CO's which are not corrected or in the process of being corrected. Any NOV's or CO's that are outstanding are in the process of administrative or judicial review. There are no finalized Civil Penalties which are outstanding and overdue in the name of Beaver Creek Coal Company.

Finally, they do not have a demonstrated pattern of willful violations, nor have they been subject to any bond forfeitures for any operations in the state of Utah.

cl
BT37/27

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AFFIDAVIT OF PUBLICATION

TATE OF UTAH
ounty of Carbon, } ss.

I, Dan Stockburger, on oath, say that I am the General Manager of the The Sun-Advocate, a 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 Four (4) consecutive issues, and that the first publication was on the

29th day of June, 19 89

and that the last publication of such notice was in the issue of such newspaper dated the

20th day of July, 19 89

Dan Stockburger

Subscribed and sworn to before me this

20th day of July, 19 89

Holly Jo Baker
Notary Public.

My Commission expires October 2, 1990

Publication fee, $ 117.60

NOTARY PUBLIC
My Commission Expires October 2, 1990
HOLLY JO BAKER
76 West Main
Price,
UT 84501
STATE OF UTAH

PUBLIC NOTICE FOR PERMIT RENEWAL
****PUBLIC NOTICE****
GORDON CREEK NO. 2, 7 & 8 MINES
BEAVER CREEK COAL CO.
P.O. BOX 1378
PRICE, UTAH 84501

Beaver Creek Coal Company: P.O. Box 1378, 1109 South Carbon Avenue, Price, Utah 84501, a wholly owned subsidiary of Atlantic Richfield Company, has filed with the Utah Division of Oil, Gas & Mining an application for renewal of its Mining and Reclamation Plan Permit for its Gordon Creek No. 2, 7 and 8 Mines. Gordon Creek No. 2, 7 and 8 Mines are located in Bryner Canyon approximately 20 road miles Northwest of Price, Utah. The permit area is described as follows:

Township 13 South, Range 7 East, SLBM, Utah
Sec. 12: E½, E½ W½
Sec. 13: NE¼ NE¼, N½ NW¼ NE¼, N½ S½ NW¼ NE¼, S½ S½ NW¼ NE¼, S½ NE¼, E½ W½, SE¼
Sec. 24: N½ NE¼, NE¼ NW¼
Township 13 South, Range 8 East, SLBM, Utah
Sec. 7: W½ SW¼, SE¼ SW¼
Sec. 17: SW¼ SW¼
Sec. 18: Lots 1-4, NW¼ NE¼, S½ NE¼, E½ NW¼ NE¼ SW¼, SE¼, SE¼ SW¼, S½ NW¼, S½ NE¼, NW¼ NE¼
Sec. 19: NE¼, NE¼ NW¼, N½ SW¼, NW¼ SE¼; Lots 1 and 2, SE¼ NW¼

The permit area is located on the Jump Creek, Utah, U.S. Geological Survey 7.5 minute quadrangle map.

Federal Coal Leases are #U-53159 and #U-8319.

The Gordon Creek No. 2 Mine has been in operation since 1969, and has operated under permit ACT/007/016 since 1984.

The application was filed, and this notice is being published to comply with the Surface Mining Control and Reclamation Act of 1977 and State and Federal regulations promulgated pursuant to said act.

The application is available for public inspection at the: Carbon County Courthouse, 1st East and Main Street, Price, Utah 84501.

Written comments, objections, or requests for informal conferences on the application may be submitted to: State of Utah Department of Natural Resources, Division of Oil, Gas & Mining, 355 West North Temple #3 Triad Center Suite 350, Salt Lake City, Utah 84180-1203.

Published in the Sun Advocate June 29, July 6, 13 and 20, 1989.

Revised August 1988
RECLAMATION AGREEMENT

Permit Number ACT/007/016
Date Permit Issued Aug. 28, 1989
Effective Date of Agreement Aug. 28, 1989

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
(801) 538-5340

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COAL RECLAMATION AGREEMENT

--ooOOoo--

For the purposes of this RECLAMATION AGREEMENT the terms below are defined as follows:

"PERMIT" (Mine Permit No.)	ACT/007/016 (County) Carbon
"MINE" (Name of Mine)	Gordon Creek No. 2, 7 & 8 Mines
"OPERATOR" (Company or Name)	Beaver Creek Coal Co.
(Address)	P.O. Box 1378
	Price, Utah 84501
"OPERATOR'S REGISTERED AGENT" (Name)	C.T. Corporation System
(Address)	175 South Main St.
(Phone)	Salt Lake City, Utah 84111
"COMPANY OFFICERS":	R.D. Pick, President
	D.R. Meadors, Operations Manager
"BOND TYPE" (Form of Bond)	Surety
"BOND" (Bond Amount-Dollars)	$641,443.00
(Year-Dollars)	1989
INSTITUTION	United Pacific Insurance Company
POLICY OR ACCOUNT NUMBER	U-629965
"LIABILITY INSURANCE" (Exp.)	Life of Permit or Renewal
(Insurance Company)	Insurance Company of North America
"STATE":	Utah (Department of Natural Resources)
"DIVISION":	Division of Oil, Gas and Mining
"DIVISION DIRECTOR"	Dianne R. Nielson

EXHIBITS:

		Revision Dates		
"SURFACE DISTURBANCE"	Exhibit "A"			
"BONDING AGREEMENT"	Exhibit "B"			
"LIABILITY INSURANCE"	Exhibit "C"			
"STIPULATION TO CHANGE BOND"	Exhibit "D"			

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RECLAMATION AGREEMENT

This RECLAMATION AGREEMENT (hereinafter referred to as "Agreement") is entered into by the Operator.

WHEREAS, on August 28, 1989, the Division approved the Permit Application Package, hereinafter "PAP", submitted by Beaver Creek Coal Co., hereinafter "Operator"; and

WHEREAS, prior to issuance of a permit to conduct mining and reclamation operations on the property described in the PAP, hereinafter "Property", the Operator is obligated by Title 40-10-1, et seq., Utah Code Annotated (1953, as amended), hereinafter "Act", to file with the Division a bond ensuring the performance of the reclamation obligations in the manner and by the standards set forth in the PAP, the Act, and the State of Utah Division of Oil, Gas and Mining Rules pertaining to Coal Mining and Reclamation Activities, hereinafter "Rules"; and

WHEREAS, the Operator is ready and willing to file the bond in the amount and in a form acceptable to the Division and to perform all obligations imposed by the Division relating to the reclamation of the Property; and

WHEREAS, the Division is ready and willing to issue the subject a mining and reclamation permit upon acceptance and approval of the bond.

NOW, THEREFORE, the Division and the Operator agree as follows:

1. The provisions of the Act and the Rules are incorporated by reference herein and hereby made a part of this Agreement. Provisions of the Act or Rules shall supercede conflicting provisions of this Agreement.

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2. The Operator shall provide a legal description of the property including the number of acres approved by the Division to be disturbed by surface mining and reclamation operations during the permit period. The description is attached as Exhibit "A", and is incorporated by reference and shall be referred to as the "Surface Disturbance".

3. The Operator shall provide a bond to the Division in the form and amount acceptable to the Division ensuring the performance of the reclamation obligations in the manner and by the standards set forth in the PAP, the Act and the Rules. Said bond is attached as Exhibit "B" and is incorporated by reference.

4. The Operator shall maintain in full force and effect the public liability insurance policy submitted as part of the permit application. The Division shall be listed as an additional insured on said policy.

5. In the event that the Surface Disturbance is increased through expansion of the coal mining and reclamation operations or decreased through partial reclamation, the Division shall adjust the bond as appropriate.

6. The Operator does hereby jointly and severally agree to indemnify and hold harmless the State of Utah and the Division from any claim, demand, liability, cost, charge, or suit initiated by a third party as a result of the Operator or Operator's agent or employees failure to abide by the terms and conditions of the approved PAP and this Agreement.

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7. The terms and conditions of this Agreement are non-cancellable until such time as the Operator has satisfactorily, as determined by the Division, reclaimed the Surface Disturbance in accordance with the approved PAP, the Act, and the Rules. Notwithstanding the above, the Division may direct, or the Operator may request and the Division may approve, a modification to this Agreement.

8. The Operator may, at any time, submit a request to the Division to substitute the bonding method. The Division may approve the substitution if the bond meets the requirements of the Act and the Rules, but no bond shall be released until the Division has approved and accepted the replacement bond.

9. Any revision in the Surface Disturbance, the bond amount, the bond type, the liability insurance amount coverage, and/or the liability insurance company, or other revisions affecting the terms and conditions of this Agreement shall be submitted on the form entitled "Stipulation to Revise Reclamation Agreement" and shall be attached hereto as Exhibit "D".

10. This Agreement shall be governed and construed in accordance with the laws of the State. The Operator shall be liable for all costs required to comply with this agreement, including any attorney fees.

11. Any breach of the provisions of this Agreement, the Act, the Rules, or the PAP may, at the discretion of the Division, result in an order to cease coal mining and reclamation operations, revocation of the Operator's permit to conduct coal mining and reclamation operations and/or forfeiture of the bond.

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RECLAMATION AGREEMENT

12. In the event of forfeiture, the Operator shall be liable for additional costs in excess of the bond amount which are required to comply with this Agreement. Any excess monies resulting from the forfeiture of the bond amount upon compliance with this contract shall be refunded to the appropriate party.

13. Each signatory below represents that he/she is authorized to execute this Agreement on behalf of the named party. Proof of such authorization is provided on a form acceptable to the Division and is attached hereto.

SO AGREED this 28th day of August, 19 89

STATE OF UTAH:

Dianne R. Nielson

Dianne R. Nielson, Director
Division of Oil, Gas and Mining

OPERATOR:

Richard L. Pike

Company Officer - Position

Dale Pike

Company Officer - Position

LEGAL
DA

NOTE: An Affidavit of Qualification must be completed and attached to this form for each authorized agent or officer. Where one signs by virtue of Power of Attorney for a company, such Power of Attorney must be filed with this Agreement. If the principal is a corporation, the Agreement shall be executed by its duly authorized officer.

EXHIBIT "A"

SURFACE DISTURBANCE

LEGAL DESCRIPTION

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Permit Number ACT/007/016
Effective Date _____

SURFACE DISTURBANCE
--ooOOoo--

In accordance with the RECLAMATION AGREEMENT, the OPERATOR intends to conduct coal mining and reclamation activities on or within the surface DISTURBANCE as described hereunder:

Total acres of SURFACE DISTURBANCE 17.58

Legal Description of SURFACE DISTURBANCE:

T. 13 S., R. 8 E., Sec. 17 SW¼ SW¼
SEC. 18 SW¼, SE¼

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GORDON CREEK NO. 2 & 7 MINES

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Exhibit A

Affected Area

Federal Coal

Lease #U-8319

T. 13S., R.8E., Sec.18: Lots 1-4, NW ¼ NE ¼, S½NE¼, E½NW¼, NE¼SW¼,

T. 13S., R.7E., Sec.12: E½, E½W½.
Sec.12: NE¼NE¼, N½NW¼, NE¼, N½S½NW¼NE¼.

Lease #U-47975

T. 13S., R.7E., Sec.13: S½S½NW¼NE¼, S½NE¼, E½W½, SE¼.
Sec.24: N½NE¼, NE¼NW¼.

T. 13S., R.8E., Sec:19: Lots 1 & 2, SE¼NW¼.

Permit to Mine (U.S.G.S.)

T. 13S., R.8E., Sec. 7: W½SW¼, SE¼SW¼.

Private Coal

Columbo Lease

T. 13S., R.8E., Sec.17: SW¼SW¼.
Sec.18: SW¼, SE¼SW¼.
Sec.19: NE¼, NE¼NW¼, N½SW¼, NW¼SE¼

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EXHIBIT "B"

SURETY BOND
(FEDERAL COAL)

MR FORM 5

(Revised August 1985)
(Federal)

Bond Number U-629965
Permit Number _____
Mine Name Gordon Creek #2 & #7 Mines

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
(801) 538-5340

THE MINED LANDS RECLAMATION ACT

BOND
****

The undersigned Beaver Creek Coal Company as principal, and United Pacific Insurance Company as surety, hereby jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns unto the State of Utah, Division of Oil, Gas and Mining, and the U. S. Department of the Interior, Office of Surface Mining in the penal sum of Six Hundred Forty-One Thousand Four Hundred Forty-Three and no/100 dollars ($ 641,443.00----------). Such sum shall be payable to one, but not both, of the above-named agencies.

The principal estimated in the Mining and Reclamation Plan filed with the Division of Oil, Gas and Mining on the 2nd day of February, 19 83, that ~~2,206.05~~ 17.2 acres of land will be disturbed by this mining operation in the State of Utah. A description of the disturbed land is attached hereto as Exhibit "A."

When the Division has determined that the principal has satisfactorily reclaimed the above-mentioned lands affected by mining in accordance with the approved Mining and Reclamation Plan and has faithfully performed all requirements of the Mined Land Reclamation Act, and complied with the Rules and Regulations adopted in accordance therewith, then this obligation shall be void; otherwise it shall remain in full force and effect until the reclamation is completed as outlined in the approved Mining and Reclamation Plan.

If the approved plan provides for reclamation of the land affected on a piecemeal or cyclic basis, and the land is reclaimed in accordance with such plan, then this bond may be reduced periodically.

In the converse, if the plan provides for a gradual increase in the area of the land affected or increased reclamation work, then this bond may accordingly be increased with the written approval of the surety company.

The Division shall only accept the bond of a surety company if the bond is noncancellable by the surety at any time for any reason including, but not limited to nonpayment of premium or bankruptcy of the permittee during the period of liability.

EFFECTIVE: JULY 30, 1987.

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NOTE: Where one signs by virtue of Power of Attorney for a surety company, such Power of Attorney must be filed with this bond. If the principal is a corporation, the bond shall be executed by its duly authorized officer.

Beaver Creek Coal Company
Principal (Company)

By Charles B Smith
Company Officer - Position
Vice President

LEGAL
RSP

Date: August 14, 1987

United Pacific Insurance Company
Surety (Company)

By
Surety Company Officer - Position
W. C. DOYLE, ATTORNEY-IN-FACT

DATE: AUGUST 4, 1987

APPROVED AS TO FORM:

By
Assistant Attorney General

(THIS BOND REPLACES FEDERAL INSURANCE COMP
BOND NO. 8100-39-72)

170/15

AFFIDAVIT OF QUALIFICATION

W. C. DOYLE, being first duly sworn, on oath deposes and says that he/she is the (officer or agent) ATTORNEY-IN-FACT of said Surety Company, and that he/she is duly authorized to execute and deliver the foregoing obligations; that said Surety Company is authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations.

(Signed) _____
Surety Company Officer - Position
W. C. DOYLE, ATTORNEY-IN-FACT

Subscribed and sworn to before me this 4th day of August, 1987.

OFFICIAL SEAL
CORA V. RODRIGUEZ
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires March 24, 1989

Cora V. Rodriguez
Notary Public Cora V. Rodriguez

My Commission Expires:

March 24, 1989.

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AFFIDAVITS OF QUALIFICATION

August 1988

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DIVISION OF
OIL, GAS & MINING

AFFIDAVIT OF QUALIFICATION
OPERATOR
--ooOOoo--

I, Richard D. Pick, being first duly sworn under oath, deposes and says that he/she is the (officer or agent) _____ of Beaver Creek Coal Co. ; and that he/she is duly authorized to execute and deliver the foregoing obligations; and that said OPERATOR is authorized to execute the same and has complied in all respects with the laws of Utah in reference to commitments, undertakings and obligations herein.

LEGAL
DA

(Signed) Richard D. Pick
Name - Position

Subscribed and sworn to before me this 11th day of September, 1989.

Osina Scopeiro
Notary Public

My Commission Expires:

4/1/, 1993.

Attest:

STATE OF Utah)
) ss:
COUNTY OF Carbon)

UNITED PACIFIC INSURANCE COMPANY

SEP 18 1989

HEAD OFFICE, FEDERAL WAY, WASHINGTON

POWER OF ATTORNEY

LL MEN BY THESE PRESENTS, That the UNITED PACIFIC INSURANCE COMPANY, a corporation duly organized under the laws of the Washington, does hereby make, constitute and appoint

W. C. DOYLE of LOS ANGELES, CALIFORNIA ----------

ue and lawful Attorney-in-Fact, to make, execute, seal and deliver for and on its behalf, and as its act and deed

ANY AND ALL BONDS AND UNDERTAKINGS OF SURETYSHIP ------

and to bind the UNITED PACIFIC INSURANCE COMPANY thereby as fully and to the same extent as if such bonds and undertakings and other writings obligatory in the nature thereof were signed by an Executive Officer of the UNITED PACIFIC INSURANCE COMPANY and sealed and attested by one other of such officers, and hereby ratifies and confirms all that its said Attorney(s)-in-Fact may do in pursuance hereof.

This Power of Attorney is granted under and by authority of Article VII of the By-Laws of UNITED PACIFIC INSURANCE COMPANY which became effective September 7, 1978, which provisions are now in full force and effect, reading as follows.

ARTICLE VII - EXECUTION OF BONDS AND UNDERTAKINGS

1. The Board of Directors, the President, the Chairman of the Board, any Senior Vice President, any Vice President or Assistant Vice President or other officer designated by the Board of Directors shall have power and authority to (a) appoint Attorneys-in-Fact and to authorize them to execute on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof, and (b) to remove any such Attorney-in-Fact at any time and revoke the power and authority given to him.

2. Attorneys-in-Fact shall have power and authority, subject to the terms and limitations of the power of attorney issued to them, to execute and deliver on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof. The corporate seal is not necessary for the validity of any bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof.

3. Attorneys-in-Fact shall have power and authority to execute affidavits required to be attached to bonds, recognizances, contracts of indemnity or other conditional or obligatory undertakings and they shall also have power and authority to certify the financial statement of the Company and to copies of the By-Laws of the Company or any article or section thereof.

This power of attorney is signed and sealed by facsimile under and by authority of the following Resolution adopted by the Board of Directors of UNITED PACIFIC INSURANCE COMPANY at a meeting held on the 5th day of June, 1979, at which a quorum was present, and said Resolution has not been amended or repealed.

"Resolved, that the signatures of such directors and officers and the seal of the Company may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signatures or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached."

IN WITNESS WHEREOF, the UNITED PACIFIC INSURANCE COMPANY has caused these presents to be signed by its Vice President, and its corporate seal to be hereto affixed, this 23rd day of June 19 87

UNITED PACIFIC INSURANCE COMPANY

Charles B. Schmalz

Vice President

SEAL

STATE OF Washington }ss.
COUNTY OF King

On this 23rd day of June, 19 87 personally appeared Charles B. Schmalz to me known to be the Vice-President of the UNITED PACIFIC INSURANCE COMPANY, and acknowledged that he executed and attested the foregoing instrument and affixed the seal of said corporation thereto, and that Article VII, Section 1, 2, and 3 of the By-Laws of said Company, and the Resolution, set forth therein, are still in full force.

Pamela Young

Notary Public in and for State of Washington

My Commission Expires:

May 15, 1990

Residing at Tacoma

I, Lawrence W. Carlstrom, Assistant Secretary of the UNITED PACIFIC INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney executed by said UNITED PACIFIC INSURANCE COMPANY, which is still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company this 15TH day of AUGUST 19 89

Assistant Secretary Lawrence W. Carlstrom

Lawrence W. Carlstrom

SEAL

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