



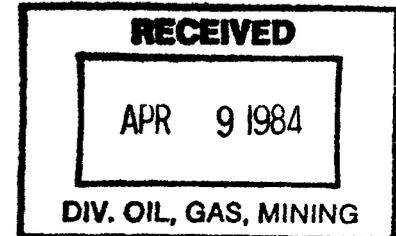
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United States Department of the Interior  
OFFICE OF SURFACE MINING  
Reclamation and Enforcement  
BROOKS TOWERS  
1020 15TH STREET  
DENVER, COLORADO 80202

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ACT/007/016  
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APR 6 1984



Dr. Dianne Nielson, Director  
Division of Oil, Gas and Mining  
4241 State Office Building  
Salt Lake City, Utah 84114

Dear Dr. Nielson:

The Office of Surface Mining (OSM) Western Technical Center has reviewed the technical analysis (TA) and Findings Document for Beaver Creek Coal Company's Gordon Creek No. 2 mine dated March 7, 1984. Certain issues remain which must be resolved to allow Secretarial decision on the permit application.

The Division has resolutely adopted the remarks made by OSM on the previous draft final TA for the Gordon Creek mine; however, similar items in the draft final TA which need correcting, but were not specifically noted by OSM, remain uncorrected by the Division. This latest TA submittal for the Gordon Creek mine illustrates the relevance of our discussions on March 27, 1984, in your offices regarding the Division's need to standardize review procedure for State prepared decision documents.

The remaining issues in the March 7, 1984, Gordon Creek TA submittal, as identified in our most recent review, are as follows:

1. The compliance sections for some of the regulatory requirements do not support the related findings. Unclear wording in certain compliance discussions has also led to improperly justified stipulations. For example, the compliance narratives under UMC 817.43-.44 concerning diversions and UMC 817.52 concerning water monitoring, never make the statement that compliance has been achieved or has not been achieved. The compliance discussion under UMC 817.97 does not clearly establish the relationship between mitigation for removal of one raptor nest vs. two, and the subsequent discussion in the same paragraph regarding establishment of a riparian area. The stipulations which follow are loosely worded with regard to specifying the requirements to be imposed on the operator as a condition to the permit, and have no clearly established basis in the compliance discussion. Other issues related to the compliance interface with stipulations occur in the discussions under the following rules:

UMC 817.45 Hydrologic Balance: Sediment Control Measures

UMC 817.47 Hydrologic Balance: Discharge Structures

UMC 817.53 Hydrologic Balance: Transfer of Wells

2. A number of discussions in which detailed information proposed by the applicant is summarized do not include cross-references to the permit application as specified in item 2 of our letter of March 9, 1984 addressing the draft final TA for Gordon Creek. Such references are needed to support the conclusions made by the Division, and ultimately support the permitting decisions.
3. Three of the remaining seven permit conditions (stipulations) (UMC 817.43-44, and two stipulations under UMC 817.97) remain loosely worded, as described in item 5 of our March 9 letter. In addition, elementary information required by UMC 784.13(b)(8) and 817.53, concerning sealing of drill holes, has been stipulated. This type of baseline information can be easily supplied by the applicant prior to permitting.

An annotated copy of the TA is enclosed detailing our comments summarized above. If you have any questions, please call either Louis Hamm or Walter Swain at (303) 837-3806.

Sincerely,  
  
for Allen D. Klein  
Administrator  
Western Technical Center

Enclosure

cc: Robert Hagen, OSM - Albuquerque Field Office  
Jim Smith, DOGM  
Mary Boucek, DOGM

FINDINGS DOCUMENT

Beaver Creek Coal Company  
Gordon Creek #2 Mine  
ACT/007/016, Carbon County, Utah

March 7, 1984

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 (786.19[a]).

BLM  
concurance!

2. The applicant proposes acceptable practices for the reclamation of disturbed lands. 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 regulatory authority has determined that reclamation, as required by the Act, can be feasibly accomplished under the Mining and Reclamation Plan (MRP) (see Technical Analysis [TA], Section UMC 817.111-.117) (UMC 786.19[b]).

May need  
to address  
817.133(c)  
see p. 25.

The assessment of the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance has been made by the regulatory authority. The mining operation proposed under the application has been designed to prevent damage to the hydrologic balance in the permit area and in the associated off-site areas (UMC 786.19[c]). (See Cumulative Hydrologic Impact Analysis (CHIA) Section, attached to this Findings Document.)

4. The proposed permit area is:

- A. Not included within an area designated unsuitable for underground coal mining operations (see attached Bureau of Land Management [BLM] letter dated September 13, 1983).
- B. Not within an area under study for designated lands unsuitable for underground coal mining operations (see attached BLM letter dated September 13, 1983).
- 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 the outside right-of-way line of a public road, however, that portion of the mine inside the right-of-way was in operation prior to August 3, 1977 (UMC 761.11).
- E. Not within 300 feet of any occupied dwelling (UMC 786.19[d]).

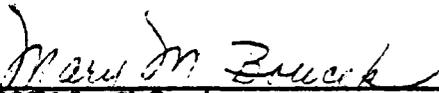
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does not support  
this finding.

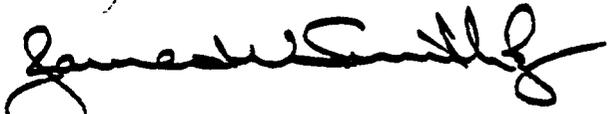
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permit this  
finding

5. The issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800) (UMC 786.19[e]). See letters from SHPO dated August 25 and November 7, 1983 attached to TA.
6. The applicant has the legal right to enter and begin underground activities in the permit area through two Federal leases (#U-8319 and #U-47975), one USGS permit to mine (letter from U. S. Department of the Interior, Geological Survey dated November 28, 1972) and one fee lease (see MRP, Section 4.3.4) (UMC 786.19[f]).
7. The applicant has shown that prior violations of applicable law and regulations have been corrected (MRP, Section 2.3.3, Table 2-3) (UMC 786.19[g]).
8. Beaver Creek Coal Company is not delinquent in payment of fees for the Abandoned Mine Reclamation Fund for its active mining operation (UMC 786.19[h]) (personal communication, John Sender, OSM, Albuquerque, December 9, 1983).
9. The applicant does not control and has not controlled mining operations with a demonstrated pattern of willful 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[i]) (see MRP, Section 2.3).
10. Underground coal mining and reclamation operations to be performed under the permit will not be inconsistent with other such operations anticipated to be performed in areas adjacent to the proposed permit area (UMC 786.19[j]). The C & W #1 Mine and the Gordon Creek #3 and #6 Mines are immediately to the east of Gordon Creek #2. Neither mine is currently operating.
11. A detailed analysis of the proposed bond had been made. The bond estimate is attached to the TA. The DOGM 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 minesite. The bond shall be posted (UMC 786.19[k]) with DOGM prior to final permit issuance. A preliminary bond in the amount of \$58,814.00 is currently on file.
12. No lands designated as prime farmlands or alluvial valley floor occur on the permit area (MRP, Section 8.4, Figure 8-1; Section 7.27) (UMC 786.19[l]).
13. The proposed postmining land-use of the permit area has been approved by the regulatory authority (see TA, Section UMC 817.133) (UMC 786.19[n]).
14. The regulatory authority has made all specific approvals required by the Act, and the approved State Program (UMC 786.19[n]).

15. 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 (MRP, Section 9.4, Section 10.3.3.1; see attached U. S. Fish & Wildlife Service [USFWS] letter dated September 2, 1983) (UMC 786.19[o]).
16. All procedures for public participation required by the Act, and the approved Utah State Program have been complied with (UMC 741.21[a][2][ii]).

Prior to the permit taking effect, the applicant must forward a letter stating its compliance with the special stipulations in the permit and post the performance bond for reclamation activities.

  
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DOG M Lead Reviewer

  
\_\_\_\_\_  
Coordinator of Mined Land Development

## TECHNICAL ANALYSIS

Beaver Creek Coal Company  
Gordon Creek #2 Mine  
ACT/007/016, Carbon County, Utah

March 7, 1984

### Introduction

The Gordon Creek #2 Mine is owned and operated by Beaver Creek Coal Company, a wholly owned subsidiary of the Atlantic Richfield Company of Los Angeles, California. The operation is located in Bryner Canyon approximately 20 road miles northwest of Price, Carbon County, Utah, Township 13 South, Range 7 and 8 East. The mine was opened in 1969 and has remained in continuous production.

An application for a mining permit was received by the regulatory authority on March 20, 1981. Additional information concerning Vegetation Resources and Fish and Wildlife Resources was submitted on July 14, 1982. An Apparent Completeness Review (ACR) was prepared and sent to the applicant on September 30, 1982. Beaver Creek Coal Company responded to the review with a revised Mining and Reclamation Plan (MRP) submitted on March 9, 1983. A Determination of Completeness Review (DOC) was performed by the Division and a request for additional information was sent to the operator on June 9, 1983.

On October 31, 1983, Beaver Creek Coal Company submitted a major revision to the MRP. This revision incorporated the Southwest Lease Area, which will provide access to a portion of existing Federal Coal Lease #U-8319 and an additional Federal Coal Lease #U-47975, and associated disturbance already approved under coal exploration, into the existing plan. The regulatory authority reviewed the Southwest Lease information and prepared a DOC review. A request for additional information was sent to the operator on November 15, 1983. The operator submitted their response on November 25, 1983 and the Gordon Creek #2 Mine MRP (including the Southwest Lease) was declared complete on December 2, 1983. Newspaper advertisement of the application has been published in the Price, Utah, Sun Advocate beginning on December 14, 1983.

A total of 16.68 acres of surface area has been disturbed, mainly during construction of portals and pad facilities. Approximately 9.18 acres of surface disturbance occurred prior to enactment of the Surface Mining Control and Reclamation Act of 1977 and implementation of the Utah Interim Program. The additional acreage has been disturbed for diversions, ponds and culverts installed subsequent to this legislation and for exploration access and facilities for the Southwest Lease Area.

The Gordon Creek #2 Mine will operate in the Castlegate "A" and Hiawatha coal seams. All mining will be by room-and-pillar methods. Present production is approximately 1,500 tons per day. When the Southwest Lease becomes operative, total production for the Gordon Creek #2 Mine will be 2,700 tons per day with an estimated annual production of 860,000 tons per year over the life of the mine.

The surface is 100 percent fee and mineral leases are approximately 75 percent Federal and 25 percent fee. Total acreage is 2,286 acres. The Gordon Creek #2 Mine at full operation will employ approximately 90 people.

### Existing Environment

The Gordon Creek #2 Mine is located within the northeastern portion of the Wasatch Plateau. The Wasatch Plateau is the northwestern outlier of the eroded San Rafael Swell.

The permit area is characterized by steep, narrow canyons containing conspicuous sandstone cliffs. Intermittent, ephemeral and perennial streams occupy the drainages. The complex geological and geomorphological conditions have produced a variety of site specific soils that support the Douglas fir forest, sagebrush-grassland and oak-scrub vegetation communities and scattered areas of riparian habitat.

Beaver Creek is the only perennial stream that flows through the permit area. Perennial flow is maintained by a series of beaver ponds and by Jewkes Spring and Gunnison Homestead Spring. Two other principal water courses are found within the permit area--North Fork of Gordon Creek and Bryner Canyon. Both of these streams are considered ephemeral. Bryner Canyon contains the mine facilities and surface operations and thus is the only stream that could be directly impacted by surface disturbance associated with mining. Due to the extensive overburden over much of the mined area, no significant hydrologic or other surface impacts are expected to occur due to subsidence.

The land on which the #2 Mine is located has long been used for coal mining. Three underground operations were located within a short distance of the #2 Mine--Sweets, National and Consumers mines. These mines were active in the 1940's and are presently closed. Other than coal mining, private landowners presently administer the lands in this area for limited livestock, forage, wildlife habitat, watershed and dispersed recreation. No threatened or endangered species are known to occur on the permit area.

### UMC 785.19 Alluvial Valley Floors

#### Existing Environment and Applicant's Proposal

The applicant has identified two potential areas which are either on or adjacent to the lease area for the Gordon Creek #2 Mine.

#### Compliance

Based on the information supplied by the applicant and an on-site review by Division of Oil, Gas and Mining representatives, the regulatory authority has determined pursuant to UMC 785.19(c)(3)(ii), that the area identified as a potential Alluvial Valley Floor (AVF) would provide negligible support for farm production should the area ever be brought into production. The high

elevation (approximately 8,200 feet) and generally unsuitable terrain would impede greatly any efforts to economically farm the small area. Thus, pursuant to UMC 785.19(c)(3)(ii), the requirements of paragraph (d) and (3) of UMC 785.19 and Section 822 are waived.

Stipulations

None.

UMC 817.11 Signs and Markers

Existing Environment and Applicant's Proposal

The applicant has placed identification signs at the entrance to the mine area. Perimeter markers have been placed around the perimeter of the disturbed area and buffer zone signs have been placed along Bryner Creek to prevent disturbance of this ephemeral drainage (MRP, page 3-20 through 3-26). The one existing topsoil stockpile has been adequately marked. No explosives are present on the permit area. The applicant has committed to placing the appropriate signs if this condition changes.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.13-.15 Casing and Sealing of Underground Openings

Existing Environment and Applicant's Proposal

All exploration drill holes within the permit boundary have been identified as to location, elevation at the collar, extent of casing if any and type of plug. All holes have either been cemented entirely or cased with a cement plug at the surface. Table 6-2 (pages 6-12 and 6-13) is a listing of all surface drill holes that have been plugged and Plate 6-1 shows surface drilling locations.

Upon final abandonment of the mine entries, a permanent block seal will be placed 20 to 50 feet in by the portal. The area out by the seals will be backfilled, the portal structures will be removed and all the exposed coal, including the portal areas, will be covered during reclamation of the upper pad and highwall areas.

Figures 3-7 and 3-8, pages 3-56 and 3-57, show cross-sectional views of typical portal seals to be used at the time of final abandonment.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.22 Topsoil: Removal

Existing Environment and Applicant's Proposal

The Gordon Creek #2 Mine is located in the Wasatch Plateau at an elevation of 7,900 to 8,300 feet. The native vegetation consists of aspen, snowberry, gambel oak, bitterbrush and perennial grasses. The mean annual air temperature is 38° to 45° F, the frost-free days are between 60 and 120, with an annual precipitation of 16 to 20 inches.

Soils in the area are derived from weathered sandstone and shale on slopes ranging from 30 to 70 percent. Three soils series were found within the permit area: Benteen--a cryoboroll; Gappmeyer--an argiboroll; and Patmos--an Ustiorthent. A horizons range from as deep as 20 inches in the Gappmeyer to as shallow as 5 inches in parts of the Benteen series. All three soils are deep, well drained with permeability of moderate to moderately slow. The native soils have textures of loam, silt loam and sandy loam, a pH range from 6.8 to 7.8 and an electroconductivity ranging from 1.6 to 2.2.

Development of the Gordon Creek #2 Mine has taken place in two major steps. The first part was developed prior to the enactment of Public Law 95-87, and the second step developed after Public Law 95-87. During the construction of the initial portal and pad areas, approximately nine acres were disturbed and no topsoil salvaged and stockpiled for final reclamation. ?  
SMERA?

The applicant has proposed to use the soil material in the pad and road areas as an alternate soil material. Random samples of the proposed soil substitute material were taken for chemical and physical analyses. Results of these analyses, presented in Table 8-7 (page 8-28B), indicate favorable soil characteristics in all except for one sample location. Sample Number 3 indicates high levels of sodium.

Within 90 days of reclamation, additional soil samples will be taken in the area of high sodium. The applicant will start in the location of #3 Sample and proceed outward in four directions sampling every 10 feet until suitable SAR values are obtained. The high sodium soil material will then be disposed of in an approved landfill.

At the time of final reclamation, the substitute soil material will be redistributed back into the highwall cut areas. Coarse fragments greater than 18 inches will be removed from the fill-soil material. Areas of compaction will be deep-chiseled and cloddy surface areas will be pulverized with a disc, slope chain and/or harrow prior to seeding in accordance with the revegetation plan.

Reference

The newly developed Southwest Lease disturbed an additional 7.5 acres. Of this 7.5 acres, 4.4 acres were on slopes of between 50 and 70 percent. Because of these steep slopes, a variance from topsoil removal was requested and granted for the 4.4 acres. The remaining 3.1 acres generated approximately 5,000 cubic yards of topsoil (Table 8-2, page 8-11 of the MRP). To supplement the 6,000 yd<sup>3</sup> of topsoil, an additional 8,000 cubic yards of soil material generated during construction of the Pioneer Road have been stockpiled. Soil samples of the soil supplement were taken and the analytical results (Tables 8-3 and 8-4, pages 8-14 and 8-15 of the MRP) indicate that the soil material is suitable as a plant growth medium. All topsoil and supplemental material have been stockpiled and protected by construction of a three foot berm at the toe and planting with the approved interim seed mix. The stockpile storage area is depicted on Plate 3-1a.

During reclamation, backfilled and graded areas will be ripped to reduce compaction, then topsoil will be applied to a thickness of approximately 12 inches. The area will then be seeded in accordance with the revegetation plan.

#### Compliance

The applicant is in compliance with this section.

#### Stipulations

None.

#### UMC 817.41 Hydrologic Balance: General Requirements

##### Existing Environment and Applicant's Proposal

The Gordon Creek #2 Mine is located within the northern portion of the Wasatch Plateau. The Wasatch Plateau is the northwest outline of the eroded San Rafael Swell. The Plateau dips westward producing a great monoclinial fold that is interrupted by faults in the border lands of the Great Basin.

The coal producing formation found within the Gordon Creek #2 Mine permit area is the Blackhawk Formation. It measures 900 feet thick in the Gordon Creek area and consists of interbedded sandstone, siltstone, shale and coal. A total of eight coal seams can be identified in the Gordon Creek region. Five of the eight seams crop out along the North Fork of Gordon Creek, Coal Canyon and Bryner Canyon. Weathering, burning and vegetation cover obscures the majority of coal outcrops of the Hiawatha, Gordon, Castlegate "A", Haley and Bob Wright seams. The Hiawatha and Castlegate "A" seams have been or will be mined in the Gordon Creek #2 Mine area. The Hiawatha Seam marks the base of the Blackhawk Formation. Currently, Beaver Creek Coal Company is mining the Castlegate "A" Seam. Also within this vicinity, the seam was mined at the Blue Blaze, Gordon Creek #1 and #6 Mines. The area of the Gordon Creek #2 Mine is heavily faulted. The three major fault zones that affect the lease block are the North Gordon, Pleasant Valley and Fish Creek fault zones.

Displacements of the faults in the mine plan area are variable. Displacements as great as 200 feet have been encountered and have altered original mine plans several times. A 110 foot downdrop box fault was encountered during mining and has prevented Beaver Creek Coal from expanding in a westward direction. The zone which separated the coal seam was approximately 300-400 feet wide. Rock slopes to tie the two seams together is not possible and, therefore, an entry way will be required to expand mining within the Castlegate "A" Seam in a westerly direction.

Most of the regional area is drained by tributaries to the Green and Colorado rivers; principal tributaries are the Price and San Rafael rivers and Muddy Creek. The Price River drainage is approximately 1,900 square miles and flows in a southeasterly direction towards its junction with the Green River. Elevations within the basin vary from 10,440 feet in its headwaters to 4,200 feet at its mouth. Normal annual precipitation taken from records of 1931-1960 varies from 30 inches in headwater regions to 8 inches in downstream regions. Surface rocks in the basin range in age from Jurassic to Quaternary, but the rocks having predominant influence on water quality are the marine shales of Cretaceous age.

The Gordon Creek #2 Mine site lies near the headwaters of the North Fork of Gordon Creek. 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 Creek.

Beaver Creek is a perennial stream that flows through the permit area. Perennial flow is maintained by a series of beaver ponds and by Jewkes Spring and Gunnison Homestead Spring. The ground water source for these springs is discharged from a sandstone unit that probably has a fairly large aerial extent within the Blackhawk Formation (MRP, Section 7.1.2.2, page 7-8). Both springs have dried up during drought periods, but normally provide contributions during low flow periods.

The general flow direction of Beaver Creek is northeast toward the Price River. The Gordon Creek lease block is near the headwaters of Beaver Creek. The watershed areas of Beaver Creek or its tributaries above the base boundary are less than one square mile. The drainage pattern in the upper portions of the Beaver Creek basin near the lease block is dendritic. The valley profile is not as steep as Bryner Canyon or North Fork of Gordon Creek. Beaver ponds are common along the stream channel.

The North Fork of Gordon Creek is the other principal stream found on the lease block. The drainage area above the lease block, about four square miles, is considerably larger than Bryner Canyon. Stream flows in the North Fork are also larger than Bryner. Two water monitoring stations on the North Fork of Gordon Creek show that the stream is losing flow between the upper and lower stations.

Bryner Canyon is a small basin of about one square mile in an area that is located almost entirely with the lease block. Bryner Canyon contains an ephemeral stream which flows east into the North Fork of Gordon Creek just below the coal lease. The stream normally flows during the snowmelt period and is usually dry throughout the remainder of the year. The North and South Fork of Bryner Canyon meet at the mine yard. The South Fork is diverted around the site and the North Fork is culverted through the pad.

The North Fork of Bryner Canyon is an ephemeral stream that flows over some of the old Sweet's Mine workings (from the 1940's). A culvert is in place to divert this flow around the #2 Mine area; however, the water level has reached this culvert only once (1983) since its installation. It has been noted that water will dam up against the #2 Mine yard, and then disappear into the ground before reaching the culvert. Page 3-16 of the MRP notes that it is suspected that this water is infiltrating downward through cracks generated by the Sweet's Mine; however, there are no detectable subsidence cracks at this point, and there is no evidence to show this water actually reaches the Sweet's Mine. Since no springs or seeps are evident below the #2 Mine area, and since there is no water running from the Sweet's Mine portals, it is assumed this water is transmitted through underground fractures and finds its way to the Gordon Creek drainage at some point well below the minesite (possibly in the bottom of Sweet's Canyon). Since there is no apparent resurfacing of this water, and since the Sweet's Canyon Mine is inaccessible, the final disposition of this water is not known. However, the Beaver Creek workings have not included the Sweet's Mine and there are no plans for undermining this drainage, so no further impacts are expected. Impacts to the North Fork of Gordon occurred before Beaver Creek entered the area and was either a product of the Sweet's Mine or some natural geologic occurrence undetectable at the surface.

Some small springs and seeps are located on the property and are either dry or producing water dependent on the amount of precipitation in any given year. The applicant notes in Section 7.2.2.2 of the MRP that Jewkes Spring and Gunnison Homestead Spring, two larger springs identified on the property, have dried up during drought years, but normally provide contributions during low flow period. Several intermittent springs or seeps are found on the Bryner Canyon watershed. The primary spring in the South Fork of Bryner Canyon appears as seepage emanating from below the coal seam immediately south of west portal. Even when this spring is flowing, stream flow is not observed in the main channel unless there is snowmelt or an extreme rainfall event that produces flow. During wet years, like 1983, springs and seeps flow year round in response to ground water recharge.

Ground water recharge in the Gordon Creek #2 Mine permit area is complex and, due to the extensive faulting in the area, may be hard to identify. Due to the discontinuous and lenticular nature of the sandstone units and interbedded impervious shales in the area combined with extensive faulting, it is impossible to model the movement of ground water within the region. Most of the water encountered within the mine dries up within a short period after

it is encountered. Any mining under a perennial stream like Beaver Creek will be closely monitored and a protective barrier will be left for a distance of 250 feet on each side of the stream if any measurable subsidence effects are detected on the stations over the panel (panels beneath Beaver Creek will be mined first). The applicant notes the absence of past subsidence effects in previously mined areas under Beaver Creek, the similarity of overburden characteristics for future mining plans and intensive stream flow monitoring of Beaver Creek during mining as mitigation for mining under Beaver Creek (MRP, pages 3-47 and 3-48). The Blackhawk Formation is the principal surficial bedrock unit. The Blackhawk is disconformably overlain by the massive, coarse-grained fluvial Castlegate Sandstone. The typical dewatering of the fluvial sandstone channels occurs within the Gordon Creek #2 Mine. These channels produce small quantities of water that dewater within several weeks. This confirms the existence of perched water existing within these aquifers. The Starpoint Sandstone, approximately 200 feet below the Castlegate "A" Seam, is the principal ground water aquifer in the area.

#### Compliance

The applicant is in compliance with this section.

#### Stipulations

None.

#### UMC 817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations

#### Existing Environment and Applicant's Proposal

All drainage which affects the disturbed area at Gordon Creek #2 is routed via ditches, berms and culverts to one of two sediment ponds. The majority of natural drainage above the site is diverted around the site and the pond. The applicant has calculated design velocities for ditches and culvert outlets throughout the minesite. The applicant notes that riprap has been placed at the outlet of culvert U-1 and that erosion control is accomplished by the use of riprap at critical points (Plate 7-5 of the MRP).

The applicant has implemented a water monitoring program since 1980 (some pre-1980 data may exist) (MRP, page 7-80). The sampling program encompasses two springs, the North Fork of Gordon Creek (intermittent), the discharge point of the sediment pond, the upper and lower sites on Beaver Creek (perennial) and two upper sites and one lower site on Bryner Canyon (ephemeral).

The applicant has identified three storage areas at the original minesite for stockpiling snow from snow removal operations (see Plate 7-5). These areas are located on the disturbed area with all snowmelt being routed to the sediment pond. With the development of the Southwest Lease, one of the storage sites is now used for topsoil storage.

Do these areas contain salt from snow removal/road control?

### Compliance

Detailed calculations and a discussion of the technical aspects of sediment control can be found under UMC 817.46 and UMC 817.47. The applicant has presented acceptable plans of sediment control to meet water quality standards and effluent limitations. An overview of the applicant's ability to meet water quality standards and effluent limitations is presented in a technical review of the applicable regulations.

Adequate plans have been presented to show compliance with water quality standards and effluent limitations of this section for "water truck fill-up area at the confluence of the North Fork and Bryner Canyon" and the "old fan portal area east of the main minesite area" (MRP, page 3-10, Plate 3-1c, Plate 3-1b)

An area of <sup>prior to what?</sup> prior disturbance is located west of the main mine pad and does not drain to the sediment pond. This is the old fan portal area and consists of a small access road which is used less than once per day, and a small pad where three portals are located. The disturbed area has been graded to drain to a small catch basin to allow for sediment control. Undisturbed runoff is diverted away from the area by a previously cut highwall terrace.

An additional area of prior disturbance is located further southeast from the minesite. This is the Sweet's Canyon water system and consists of a small pad, a catchment basin and pump to allow filling of the water truck for road maintenance and an alluvial well and pump to supply water to the #2 Mine. The drainage in this area is controlled by culvert, the basin and berms located in a manner to control runoff from the area traveled by the water truck.

On November 3, 1983, the State regulatory authority met with Beaver Creek Coal at the Gordon Creek #2 main minesite. During this visit, two important issues were resolved in terms of commitment on the part of Beaver Creek Coal. These issues related to the main sediment pond inlet and outlet structures. Beaver Creek Coal committed to extending the culvert for the outlet culvert down to the Bryner Canyon drainage and to extend the outlet culvert out into the pond to get the necessary freeboard between sediment levels and the outlet culvert. The sediment pond improvements will be implemented by July 31, 1984.

The applicant designated an area at the Southwest Lease Mine site for snow storage to assure that all snowmelt from snow on the disturbed area is routed to the sediment pond.

### Stipulations

None.

UMC 817.43-.44 Hydrologic Balance: Diversions

Existing Environment and Applicant's Proposal

The Bryner Canyon drainage and its Right Fork Tributary (both ephemeral drainages) are the only diversions of natural stream channels at the Gordon Creek #2 original minesite. The main Bryner Canyon drainage is routed past the original minesite via a trapezoidal channel. The Right Fork of the Bryner Canyon drainage is routed under the disturbed area via a 24-inch, 340-foot long culvert.

The applicant has proposed disturbed area diversion ditches and culverts to route disturbed area drainage to the sediment pond. The three culverts and ditches for the original minesite are delineated on Plate 7-5.

The applicant has utilized the Soil Conservation Service (SCS) runoff curve number method along with the TR-20 computer model to predict peak flows and runoff volumes. Times of concentration were calculated using the SCS basin lag method outlined in TR No. 55. In lieu of the SCS type II storm, the rainfall distribution proposed by Farmer and Fletcher (1972) was utilized.

The applicant's Southwest Lease development ~~proposes~~ a 36 inch bypass culvert to route flows in the Bryner Canyon drainage down the highwall. A trapezoidal channel from the outlet of the 36 inch culvert routes undisturbed flows along the edge of the disturbed area and back into the stream channel.

Two disturbed area ditches route drainage from the Southwest Lease minesite into the sediment pond.

Compliance

Verification of the applicant's design calculations raises a few questions in regards to the peak flows predicted. The slope utilized in time of concentration calculations on the original minesite for undisturbed areas appears to be understated by a factor of 4. Apparently, the applicant mistook the contour interval of 80 feet as 20 feet on Plate 7-2.

The curve number of 54 utilized for undisturbed areas appears low. During this Technical Analysis, a curve number of 66 was used to verify design capacity of the undisturbed drainage through the culvert and ditch (see SCS TR55, Table 2-2 for curve number selection).

Plate 7-5 clearly delineates the culverts, both disturbed and undisturbed, which will be utilized. The ditches proposed to route disturbed drainage on the minesite are also delineated on Plate 7-5.

*we've been referred to a plate, but where's the discussion of all this info. in the application?*

*References (Bibliography) page 2*

*where? page? vol.?*

The sizing calculations for undisturbed flows given the revised times of concentration and a curve number of 66 produces significantly higher peak flows than calculated by the applicant. However, the applicant has oversized the Bryner Canyon diversions. The Division's calculations show these two undisturbed diversions as adequately sized even when using the revised assumptions.

The disturbed area culverts D-2, D-3 and D-4 appear to be adequately sized even when using outlet control assumptions.

In the proposal for the Southwest Lease, using the 10-year, 24-hour peak flows calculated by the regulatory authority (four cfs), undisturbed diversion DU-3 needs protection from erosive velocities. Additionally, a section of DU-2, just below the sediment pond discharge culvert, may require protection measures. The applicant must make observations along this section of DU-2 and if erosion is evident, provide protection measures.

*State if compliance is achieved or not!*

Stipulation 817.43-.44-(1)-JW

1. *Better!* The applicant shall, by April 30, 1984, provide acceptable measures (accompanied by supporting calculations) which will be used for erosion protection for undisturbed ditch DU-3. If the regulatory authority notifies the permittee that these measures are not acceptable, the permittee must submit revised plans within 30 days of notification, and adequate protection measures for DU-3 must be in place by July 31, 1984.

The applicant must commit to monthly observations of the section of DU-2 from the sediment pond outlet and 30 feet down the ditch. If any erosion is apparent, ~~protection measures will be submitted for approval to the regulatory authority within 30 calendar days and installed within 30 calendar days of approval.~~

*oops... relapse*

LMC 817.45 Hydrologic Balance: Sediment Control Measures

Existing Environment and Applicant's Proposal

All disturbed area drainage with the exception of the water truck fill-up area and the old fan portal area is routed via ditches, berms and culverts around the disturbed areas or through it to the sediment pond. The applicant maintains (MRP, page 3-10) that through this system, adequate sediment control is provided and, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area are prevented. By doing this, the applicable State and Federal effluent regulations are met and erosion is minimized to the extent possible.

*the applicant will submit notice of erosion control flows within 10 calendar days of detection. Within 30 days of such notice, the applicant will submit a plan for revised protection measures, and within 60 days of such notice shall achieve compliance with the applicable standards.*

Compliance

Contradictory

The applicant has supplied the required information to comply with this regulation. Any outstanding construction plans during the 1984 construction season will be dealt with in the following sections. For specific time frames, to implement the necessary construction plans, see the compliance sections of regulations UMC 817.42 and 817.47.

Contradictory

The applicant has still not adequately provided the necessary riprap design measures to adequately address the presence of erosional velocities in the lower section of ditch DU-3. See the compliance section and revised stipulation found under UMC 817.43-.44 for specific details.

Stipulations

None.

UMC 817.46 Hydrologic Balance: Sedimentation Pond

Existing Environment and Applicant's Proposal

The sedimentation pond for the original minesite was designed to store runoff from a 10-year, 24-hour precipitation event, from areas Sub-1, Sub-2 and Sub-3 (Section 7.2.3.2 of the MRP). Area Sub-3 includes all undisturbed runoff from upslope areas that is not diverted around the site and the sedimentation pond. Storm hydrographs from these subareas were generated using the TR-20 computer model.

Combined flows from Sub-1 and Sub-2 were determined by routing the hydrograph from area Sub-1 through culvert D-4 and through a diversion and combining with the hydrograph from area Sub-3.

Total combined flows to the pond were obtained by routing combined flow from Sub-1 and Sub-2 through culvert D-2 and combining with the hydrograph from area Sub-3. Discharge from the pond was obtained by routing the total combined flows through the pond.

The total runoff from the 10-year, 24-hour precipitation event for all areas draining to the sedimentation pond is 0.68 ac-ft.

Using the Universal Soil Loss Equation (USLE), the sediment yield was calculated for the disturbed areas. All erosion was assumed to be delivered to and deposited in the pond. Total sediment yield from Subarea 1 and 2 was figured to be 0.196 ac-ft for three years.

Total capacity below the invert of the spillway is 1.3 ac-ft. The potential for mine water discharge is handled by allowing for .42 ac-ft of mine water storage in the pond below the invert of the spillway.

The applicant notes on page 7-76 of the MRP that the spillway for the pond is designed to pass the runoff from a 25-year, 24-hour precipitation event.

On page 3-30 of the MRP (Southwest Lease Plan), it is indicated that the sedimentation pond proposed for the Southwest Lease area is designed to contain a three year sediment volume and contain the 10-year, 24-hour storm runoff. The Universal Soil Loss Equation (USLE) was used to calculate sediment volumes. The TR-20 computer model (SCS curve number approach) was used by the applicant to calculate runoff volumes for the 10-year, 24-hour storm. (See pages 3-28, 3-30 and Plate 7-8a for the design specifications.)

### Compliance

The applicant has specifically addressed sizing considerations regarding the Gordon Creek #2 Mine site sediment pond, offering comparative design discharge estimates of "state-of-the-art" runoff models. After a close inspection of the models used, the input parameters submitted by the applicant, and the outputs found in Section 7.2.3.2 of the MRP, the application is found to fully comply with this regulation regarding the main minesite pond.

*Good!*

The applicant has submitted updated information and drawings on the Southwest Lease sediment pond (pages 3-28, 3-30, Plate 7-8). Additionally revised runoff volumes have been calculated and used to size the pond. The pond sizing and discharge device meet the requirements of this section.

### Stipulations

None.

### UMC 817.47 Hydrologic Balance: Discharge Structures

#### Existing Environment and Applicant's Proposal

The applicant has calculated design velocities for ditches and culvert outlets throughout the minesite. The applicant notes that riprap has been placed at the outlet of culvert U-1 and that erosion control is accomplished by use of riprap at critical points. The critical points are specified on Plate 7-5. Additionally, pages 7-76d and e show riprap size calculations for the sediment pond outlet.

At the Southwest Lease site, the applicant has proposed (MRP, page 3-26 and 3-27) an energy dissipating apron at the outlet of the highwall culvert incorporating eight inch riprap to reduce erosive velocities exiting this culvert. Velocity calculations and riprap sizing for the outlet of the sediment pond at the Southwest Lease site have also been proposed (MRP, page 3-31).

The applicant has committed to undertaking, prior to June 30, 1984, a field investigation of bedrock levels in the Bryner Canyon disturbed and undisturbed diversions. Based on the results of the investigation, the applicant has committed to submitting erosion protection measures for approval by the regulatory authority.

Compliance

Using the larger peak flows predicted from regulatory authority calculations (see discussion under UMC 817.43-.44, Compliance of this TA document), velocity predictions were made for each culvert outflow and diversion ditch. Based on the velocities calculated, the culvert outlets and diversion ditches, except as specified in the following paragraphs, will experience no problem with regard to erosion from excessive flow velocities.

Poorly worded. Implies that protection measures beyond those discussed on Plate 7-5 will be needed.

The Bryner Canyon undisturbed bypass ditch at the main minesite and the disturbed area ditch which parallels it show peak velocities of 5.4 fps and 5.0 fps, respectively, which could prove to be an erosion problem. An on-site inspection of these two ditches indicated that there are points which will require protection measures. The point where the undisturbed ditch empties into the natural channel (near the septic tank area) is quite steep and will require protection measures. Additionally, a relatively steep drop off of both undisturbed and disturbed ditches occurs near the existing coal stockpile (not the new Southwest Lease stockpile area) and will require protection measures also. The remainder of the ditch appeared stable and at slopes which should not require protection measures. Page 7-63 and Plate 7-5 show the riprap measures proposed to address the above concerns.

The applicant's commitment to place riprap at the points specified on Plate 7-5 lacks specifics in terms of design and installation. In discussions with the applicant, a field determination of bedrock in the Bryner Canyon diversions must be made before final design measures for erosion protection can be completed.

The applicant's commitment to undertake a bedrock investigation will satisfy any concerns on the Bryner Canyon bypass ditch and disturbed area ditch which parallels the bypass ditch.

This will enable final design measures... doesn't necessarily mean compliance will be achieved.

Stipulations

~~None.~~

UMC 817.48 Hydrologic Balance: Acid-forming and Toxic-forming Materials

Existing Environment and Applicant's Proposal

The applicant has provided chemical analyses (page 6-22) of roof, floor and interburden between the two seams to be mined. Based on this analysis, the potential for acid or toxic drainage should any underground development waste be generated is minimal.

Conclusionary statement like this belongs in "Compliance"

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.49 Hydrologic Balance: Permanent and Temporary Impoundments

Existing Environment and Applicant's Proposal

Temporary impoundments on the Gordon Creek #2 Mine site include the two sediment ponds. The sedimentation ponds are discussed in UMC 817.46 of this document.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.50 Hydrologic Balance: Underground Mine Entry and Access Discharges

Existing Environment and Applicant's Proposal

The applicant notes (MRP, page 7-49) that the mine has not encountered underground water of sufficient quantity to necessitate pumping from the mine. Conversations with the applicant have indicated that water used in the mine exceeds water encountered in the workings thus requiring additional water from the surface to be pumped in. Further, the Hiawatha Seam (the second seam to be mined) lies approximately 100-200 feet below the elevation of portals thus making the potential for underground discharges minimal.

Compliance

The applicant's complies with this section.

Stipulations

None.

UMC 817.52 Hydrologic Balance: Surface and Ground-Water Monitoring

Existing Environment and Applicant's Proposal

Beaver Creek Coal Company has implemented a water monitoring program since 1980 (MRP, page 7-80) (some pre-1980 data may exist). The sampling program encompasses two springs, the North Fork of Gordon Creek (intermittent), the discharge points of the sediment ponds, upper and lower sites on Beaver Creek (perennial) and sites in Bryner Canyon (ephemeral).

The applicant has also committed to undertake a spring and seep survey over the Southwest Lease (page 7-13) to identify any additional monitoring points which will be added to the monitoring plans. Additionally, the applicant has committed to include in the spring survey springs with water right file numbers 1929, 1930, 1931, 1935, 1936, 1937, 1938, 1939, 3616, 3617, 3669, 3670 and 3671. Data from this survey will be submitted to the regulatory authority for determination if additional springs will be added to the monitoring program.

Sampling includes field measurement of pH, temperature, specific conductance and flow. A chemical analysis for constituents listed on Table 7-13 (page 7-83) of the MRP is performed on samples taken. The sampling frequency proposed for the Bryner Canyon sites is quarterly, and all other sites are monthly (except for the Beaver Creek sites which are shown as continuous).

The two springs noted previously are the only current representation of ground water available for the Gordon Creek #2 Mine. The plan commits to undertaking an underground monitoring program to identify significant inflows to the underground workings. The details of this plan are delineated on pages 7-49 and 7-50 of the MRP and in the applicant's letter of February 23, 1984.

The applicant's February 23, 1984 letter proposes where more than one - 1 gpm inflow occurs within 100 feet in any direction to sample one representative point for every five such points.

Compliance

The applicant's surface water monitoring proposal has been clarified with updated material (December 15, 1983). The frequency of chemical sampling for sites 2-3-W, 2-4-W, 2-5-W and 2-6-W has been proposed as biannual (page 7-81). This frequency is acceptable only in light of the fact that the drainages considered here are not impacted by surface disturbance and that good baseline water quality data are contained in the plan for the above noted sites.

The applicant has added two additional surface water monitoring points (2-10-W and 2-11-W) for the Southwest Lease area. However, the sampling frequency or chemical constituents to be sampled for are not specified. This could be easily accomplished by updating Table 7-12 on page 7-82 in the original Gordon Creek #2 MRP. This must be clarified.

*Make a statement if compliance is achieved or not.*

The applicant's ground water monitoring proposal with the inclusion of the in-mine monitoring program will meet the requirements of this section with one exception. The applicant's proposal (February 23, 1984 letter) to sample one point for every five which occur when points are closer than 100 feet apart must be modified. An inventory of in-mine inflow locations should be undertaken and if an excessive number of points occur in one area, the regulatory authority will make a determination as to how many and which points must be sampled to obtain a representative sample of ground water. The basis for this determination will be the source area of inflow (e.g., roof, floor, channel sands, etc.) and geologic strata in the immediate area.

The applicant's commitment to undertake a spring and seep survey on the Southwest Lease and survey additional springs with water right file numbers 1929, 1930, 1931, 1935, 1936, 1937, 1938, 1939, 3616, 3617, 3618, 3669, 3679 and 3671 will satisfy the need to assess additional springs for possible inclusion in the sampling program.

Stipulation 817.52-(1-2)-JW

1. The applicant shall commit in writing, by April 30, 1984, to monitor inflows of one gpm or greater in the "in-mine" water monitoring program. If more than one - 1 gpm or larger inflow occurs within 100 feet in any direction, the applicant will agree to forward to the Division information outlining the number, source area, flow rate and locations of such inflows. The number and location of sampling points at the multiple inflow areas will then be included in the "in-mine" sampling program as deemed appropriate by the regulatory authority.
2. The applicant shall commit in writing, by April 30, 1984, to quarterly monitoring of sampling sites 2-10-W and 2-11-W and to utilize the field measurements and chemical parameters on page 7-83 of the Gordon Creek MRP.

UMC 817.53 Hydrologic Balance: Transfer of Wells

Existing Environment and Applicant's Proposal

One drill hole, GCD-13, is currently open for hydrologic monitoring. It is not anticipated that this well will be transferred to another party for any use.

Compliance

The applicant does not address this section.

*The applicant is not in compliance.*

*How was this deficiency allowed to get this far! - 18 -*

*Baseline can get this now!*

Stipulation 817.53-(1)-JW

1. The applicant must submit, by March 30, 1984, a written commitment to sealing drill hole GCD-13 in accordance with UMC 817.15 or commit in writing to comply with all terms of transfer contained in UMC 817.53.

UMC 817.54 Water Rights and Replacement

Existing Environment and Applicant's Proposal

The applicant's MRP commits 377.1 shares (one share = one ac-ft) of Scofield Reservoir water rights to replace any water affected by mining activities of the Gordon Creek #2 Mine. The applicant includes water quality data for the replacement water on page 3-33 of the MRP.

Appendix 5 of the MRP delineates the water rights which are on and adjacent to the lease area. The water rights which could be impacted by mining activities are indicated along with the acre feet for each right.

Compliance

Existing water rights for the Gordon Creek #2 lease area and adjacent areas have been adequately identified. It appears that the applicant's proposal to replace existing water rights with Scofield Reservoir water is valid. The applicant complies with this section.

Stipulations

None.

UMC 817.55 Hydrologic Balance: Discharge of Water Into an Underground Mine

Existing Environment and Applicant's Proposal

The applicant does not propose to route drainage into any of the portal entries. The drainage control plan pictured on Plate 7-5 shows surface drainage conveyed away from portal entries.

Compliance

The applicant complies with this section.

Stipulations

None.

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

Existing Environment and Applicant's Proposal

No permanent sedimentation ponds, impoundments, diversions or treatment facilities are planned for the Gordon Creek #2 Mine.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.57 Hydrologic Balance: Stream Buffer Zones

Existing Environment and Applicant's Proposal

The applicant's mining activities at the truck water fill-up area in Sweet's Canyon (North Fork of Gordon Creek) fall within the 100 foot stream buffer zone. The applicant's proposal for the truck water fill-up area is contained on page 3-10 and Plate 3-1c (see discussion under UMC 817.42).

Compliance

The applicant's use of drainage control structures, which includes berms and a catch basin, to separate any disturbed drainage from the North Fork of Gordon Creek will protect the creek from mining related impacts. The applicant complies with this section.

Stipulations

None.

UMC 817.59 Coal Recovery

Existing Environment and Applicant's Proposal

The Gordon Creek #2 Mine is extracting coal from the Castlegate "A" and will begin extracting coal from the Hiawatha Seam in 1986. All mining is done with a continuous miner/shuttle car haulage. In second mining, a standard room-and-pillar method is used to maximize coal recovery. Recovery within the room-and-pillar panels is approximately 75 percent to 78 percent with an overall recovery factor (including barriers) estimated at 50 percent.

*BLM Concurrence!*

Compliance

The applicant complies with this section.

*No*

Stipulations

None.

UMC 817.61-.68 Use of Explosives

Existing Environment and Applicant's Proposal

No surface blasting is employed at the lower minesite. Surface blasting which takes place at the Southwest Lease site will be for the construction of the pad and portals. It will be done in accordance with State and Federal laws and by certified persons (MRP, page 3-27).

Compliance

The applicant is in compliance with UMC 817.61-.68.

Stipulations

None.

UMC 817.71-.74 Disposal of Underground Development Waste and Excess Spoil and Nonacid and Nontoxic-forming Coal Processing: General Requirements

Existing Environment and Applicant's Proposal

The operator states that all underground development waste is gobbed in cross cuts and no longer needed entries (MRP, page 3-12).

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.81-.88 Coal Processing Waste Banks: General Requirements

Existing Environment and Applicant's Proposal

There are no coal processing facilities planned for use at the Gordon Creek #2 Mine. All raw coal will be hauled from the site.

*Reference*

Compliance

Not applicable.

Stipulations

None.

UMC 817.89 Disposal of Noncoal Waste

Existing Environment and Applicant's Proposal

Noncoal waste is temporarily stored in a metal trash receptacle within a fenced area on-site. This dumpster is loaded out on an as needed basis by a local contractor and the trash is hauled to an approved Carbon County landfill northeast of Price (MRP, page 3-12a).

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.91-.93 Coal Processing Waste: Dams and Embankments: General Requirements

Existing Environment and Applicant's Proposal

There are no coal processing facilities planned for use at the Gordon Creek #2 Mine. All raw coal will be hauled from the site.

*Reference*

Compliance

Not applicable.

Stipulations

None.

UMC 817.95 Air Resources Protection

Existing Environment and Applicant's Proposal

Dust suppression sprays are used on the continuous miners at the face underground and as coal is loaded onto the underground mine conveyor. Limited drop distances from the conveyor and coal loading by front-end loaders to haul

trucks will further reduce fugitive dust emissions. During haulage, mitigation measures include non-overloading of haul trucks, abiding by speed limits, watering the road surface as needed and application of a chemical dust suppressant and roadbed stabilizer (MRP, page 3-44).

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.97 Protection of Fish, Wildlife and Related Environmental Values

Existing Environment and Applicant's Proposal

A wide variety of wildlife species utilize habitats present within and adjacent to the permit area. Economically important and high interest species include mule deer, elk, moose, black bear, mountain lion, bobcat, coyote, mountain cottontail, snowshoe hare, flying squirrel and beaver. Thirty species of birds including gamebirds and raptors are listed as being of high State interest. Seven species of raptors have been observed on the permit area and nesting areas for goshawks, great horned owls, long-eared owls, red-tailed hawks and golden eagles have been found on-site. Gamebirds include blue grouse and ruffed grouse, bandtailed pigeons and mourning doves.

Aquatic habitat is limited to two streams on the study area, North Fork Gordon Creek and Beaver Creek. North Fork Gordon Creek is limited as a fishery because it does not support game species. Beaver Creek, however, is ranked by the Utah Division of Wildlife Resources (DWR) as being substantial as a salmonid fishery with a self-sustaining population of introduced Yellowstone cutthroat trout. Disturbance has occurred primarily in Bryner Creek, a tributary of North Fork Gordon Creek. Habitat loss or deterioration of the North Fork Gordon Creek aquatic ecosystem has been limited by installation of sediment ponds and diversions and reseeded of disturbed areas adjacent to Bryner Creek. Buffer zone signs have also been placed along this drainage. In addition, Beaver Creek Coal Company has initiated monthly inspections of surface water to determine any changes in water quality which may be attributed to mining operations at the #2 Mine. Should change in quality occur, the applicant will identify the source of the problem and take measures to correct the deficiencies.

Beaver Creek has not been impacted by the mining operation. No future surface disturbance is planned in the area and subsidence under the stream is not expected.

Mitigation and management plans for terrestrial species focus on minimizing impacts related to continued mining activities and facilitating rapid return of the site to suitable habitat following mining.

Where's the references?!

The applicant has committed to avoiding important or sensitive habitats such as riparian zones, to not using persistent pesticides, to the use of powerpole and line configurations designed as raptor-protected, and to promptly reporting the presence of any threatened or endangered species observed on the permit area.

Other mitigation measures include conducting future surveys to evaluate raptor electrocution hazards during winter and early spring on selected powerlines and conducting "employee awareness" programs for mine personnel.

Roadkills of large animals, particularly mule deer, will be mitigated by an awareness program, speed limits and game crossing signs. In addition, routine reporting of roadkills along the access corridor by selected personnel will be conducted. If reports indicate that kills are increasing, the applicant will consult with UDWR for recommendations.

The overland conveyor associated with the Southwest Lease Area has been designed to provide passage for big game animals. Two designated elk crossings are provided. In addition, a conveyor monitoring program will be implemented. It will consist of placement and maintenance of day/night remote sensing cameras at each crossing to observe behavioral responses of animals attempting to cross the corridor. An initial study will be conducted for one year and will be implemented within sixty (60) days of initiation of operation at the Southwest Lease. The applicant has also committed to additional mitigation if the conveyor is shown to be a significant barrier to big game.

To partially mitigate the loss of wildlife habitat caused by construction of the Southwest Lease pad area, the applicant will establish approximately four acres of riparian area at the Gordon Creek #3 Mine site in the fall of 1984. Plans for establishment of this area are presented (MRP, Section 10-5, Appendix I, Plate 3-1A).

Following mining, the applicant will implement revegetation methods designed to restore and enhance wildlife habitat on disturbed areas. The revegetation plant mix includes herbaceous and woody species that are adapted to on-site conditions and are of known value to wildlife for cover, forage or both. A complete revegetation plan including species lists and site specific revegetation procedures is given in Section 3.5.5.

#### Compliance

The applicant has submitted mitigation and management techniques which adequately address the requirements of UMC 817.97 for the most part. However, the establishment of the riparian area at the Gordon Creek #3 Mine is proposed to be implemented under the Bureau of Land Management (BLM) exploration permit (3400, U-8319, U-066) and permits issued by the UDWR and U. S. Fish & Wildlife Service (USFWS) as mitigation for removal of two raptor nests in the area of exploration. This mitigation was not stipulated as part of the BLM approval

for exploration (letter from BLM to Beaver Creek dated October 5, 1983) or as a condition of the USFWS permit (letter from USFWS, Denver to USFWS, Salt Lake City dated October 12, 1983). Therefore, a commitment must be made to establish the riparian area as part of the wildlife mitigation plan for the Gordon Creek #2 Mine.

Stipulation 817.97-(1-2)-SC

*loosely worded! Approval of plan... when must compliance be achieved?*

1. The applicant shall, within 30 days of permit approval, commit to the establishment of riparian area at the Gordon Creek #3 Mine site as part of the wildlife mitigation plan for the Gordon Creek #2 Mine, and shall commit to abiding by the provisions of the October 13, 1983 Division of Wildlife Resources Certificate of Registration.

The applicant shall, within 30 days of permit approval, amend the statement on page 10-18 of the Southwest Lease MRP to show that Beaver Creek Coal Company had permits from U. S. Fish & Wildlife Service and Division of Wildlife Resources for removal of one nest in the area of exploration.

*Basis to this stip. is not clear relationship of one nest vs two has not been clearly established.*

UMC 817.99 Slides and Other Damage

Existing Environment and Applicant's Proposal

The applicant has committed to immediately notify the regulatory authority at any time a slide occurs which may have a potential adverse effect on public property, health, safety or the environment and comply with any remedial measures required (MRP, page 3-16a). There are no slides in the area.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.100 Contemporaneous Reclamation

Existing Environment and Applicant's Proposal

The applicant has <sup>where</sup> committed to contemporaneous reclamation of disturbed areas as they become available. Areas will be backfilled, graded, retopsoiled and revegetated to acceptable reclamation standards.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.101 Backfilling and Grading

Existing Environment and Applicant's Proposal

In Section 3.5.4, pages 3-58 to 3-63, of the MRP, Beaver Creek justifies leaving highwalls based on the fact that they have been stable for 14 years, that they blend in with the existing terrain, that greater instability would result from blasting and that no known seeps or springs exist on these highwalls. The highwalls on the Southwest Lease will be reduced along the pad and road areas where feasible. These areas are outlined on Plate 3-7a and 3-62.

The surface of this area was originally disturbed in late 1969. When this area was disturbed, no topsoil or other material was saved. It is the intent of the applicant to restore it to a topography acceptable to the landowner and compatible with the postmining land-use (MRP, page 3-58). The backfilling and grading will proceed as follows:

*Must have written permission of landowner special requests. UMC 817.133 (c)*

- 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 such 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 3-7a, Postmining Topography - Portal and Pad Areas.
- 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.
- 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 the ripper on the dozer and will be to a depth of two feet.

Compliance

The applicant complies with this section.

? Requirements of 817.133(c)

Stipulations

None.

UMC 817.103 Backfilling and Grading Covering Coal and Acid- and Toxic-forming Materials

Existing Environment and Applicant's Proposal

The applicant proposes to cover all exposed coal outcrops resulting from this operation with a minimum of three feet of incombustible material during the backfilling and grading operation. The incombustible material will consist of existing coal-free soil and rock from the minesite.

Reference

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.106 Regrading or Stabilizing Rills and Gullies

Existing Environment and Applicant's Proposal

The applicant states in Section 3.5.4.2, page 3-63a of the MRP, that if rills and gullies deeper than nine inches develop in regraded areas they "will be filled, graded or otherwise stabilized" and reseeded.

Good

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.111-.117 Revegetation

Existing Environment and Applicant's Proposal

The Gordon Creek #2 permit area contains 14 vegetation types. Two forest types (aspen woodlands and mixed coniferous forests), seven shrublands types (cherry thickets, willow thickets, oak shrublands, mixed mountain shrublands, manzanita shrublands, big sagebrush shrublands and bottomland sagebrush

shrublands), one shrub/forest type (riparian community) and two grassland types (mountain grassland and wet sedge meadow). Of these, two have been disturbed by existing mining operations, the oak shrubland type and the mountain grassland type. No further disturbance is planned for the area.

Since much of the disturbance occurred prior to 1977, the exact nature of the disturbed vegetation is unknown. However, reference areas were selected to best represent the species composition, topography, soils and aspect of affected communities within the permit area. The reference areas are located within the permit area on sites which will not be disturbed throughout the life of the mine.

Both reference communities were sampled for total vegetative cover, total ground cover, cover by species, productivity by life form and by species, shrub density and shrub height. Sample adequacy was achieved for all parameters with the exception of production on the oak shrubland type which met the State regulatory authority's maximum sample requirement of 40 samples.

The disturbance of areas associated with the Southwest Lease (approximately 7.5 acres) occurred subsequent to the Surface Mining Control and Reclamation Act of 1977. Therefore, baseline data were obtained for this area. Total vegetative cover, productivity by life-form and by species and woody plant density were adequately sampled.

No threatened or endangered plant species were encountered during floristic surveys of the permit area. According to the USFWS, only one species of concern (Hedysarum occidentale var. canone) may occur on the permit area. It is under review for possible listing in the future. Since no further disturbance is planned on the permit area, there should be no effects on this species.

letter attached?

The applicant has submitted a complete revegetation plan (Section 3.5.5, pages 3-66 to 3-77). The plan adequately addresses the schedule of revegetation, species and seeding or planting rates, planting methods and mulching techniques. All areas will be seeded with species native to the area, capable of stabilizing soil and of the same seasonal variety as the existing vegetation. Introduced species are used only to provide erosion control or to enhance species diversity.

Does this reference apply to preceding paragraphs?

The applicant has committed to seeding during the first normal period of favorable planting conditions except where temporary erosion control is required.

An adequate monitoring and management program for the revegetated areas has been given. Plans for erosion control, weed control, initiating of grazing on reclaimed areas and methods to determine the success of revegetation are acceptable.

References

Feasibility of Reclamation

The Gordon Creek #2 Mine site receives approximately 12-16 inches of precipitation annually. This amount is sufficient for the establishment of many of the species native to the area. Gordon Creek #2 Mine is also near Beaver Creek's Gordon Creek #3 and #6 Mines, which are scheduled for reclamation to begin in 1984. This will provide a prime area for testing the feasibility of reclamation and revegetation.

*Reference*

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.121-.126 Subsidence Control

Existing Environment and Applicant's Proposal

There are no man-made structures above the mine either currently in use or of historical significance and, therefore, in need of protection from subsidence. The only renewable resources are of a hydrologic or biologic nature. Portions of Beaver Creek and several surface springs were mined under several years ago and monitoring results have shown no affect on hydrologic resources due to subsidence. Maximum subsidence for an average panel is predicted at 6.18 feet which includes pillaring in both seams (MRP, pages 3-49 to 3-53a).

A subsidence monitoring plan will be implemented which includes monitoring stations located above active mine panels and surveyed twice yearly, weather permitting. Mitigation measures, should a substantial water inflow occur, will include: attempts to seal off the inflow; increase monitoring efforts; pumping and cleaning of inflow water; replacement of lost water if indicated by monitoring.

Compliance

Since past pillaring has shown no obvious surface expression, it is expected this figure will be substantially less than predicted, if even measurable.

The applicant complies with this section.

Stipulations

None.

UMC 817.131 Cessation of Operations: Temporary

Existing Environment and Applicant's Proposal

The applicant has committed to submit to the regulatory authority a notice of intention to cease or abandon the operations in accordance with UMC 817.131 and to MSHA standards. This notice will be submitted whenever it is known that operations are to be temporarily ceased for more than 30 days (MRP, page 3-29).

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.132 Cessation of Operations: Permanent

Existing Environment and Applicant's Proposal

Upon permanent cessation of operations, permanent reclamation will commence. Mine openings will be sealed, all surface equipment, structures and facilities associated with the operation will be removed, and all affected lands reclaimed. The schedule for permanent reclamation can be found in Section 3.5.7.1, page 3-78 of the MRP.

Compliance

Applicant complies with this section.

Stipulations

None.

UMC 817.133 Postmining Land-Use

Existing Environment and Applicant's Proposal

The land on which the #2 Mine is located has long been used for coal mining. Other than coal mining, this area has long been used for deer hunting, sightseeing, and hiking. There are no developed campgrounds or public roads within the area and none planned for the future (MRP, page 4-42).

Private landowners presently administer the lands in this area for limited livestock forage, wildlife habitat, watershed, dispersed recreation and coal mining. There are no range improvements on the area.

The postmining uses of the land will be the same as the pre-mining and present uses described above. In areas of surface disturbance, reclamation and revegetation will restore the area to a condition capable of supporting premining uses.

Compliance

Applicant complies with this section.

Stipulations

None.

UMC 817.150-.156 Roads: Class I

Existing Environment and Applicant's Proposal

The coal haul road is used for all access to and from the minesite. It is approximately 2,700 feet long. The road is bermed on the Bryner Canyon side until it enters the minesite 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 men 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 about eight percent.

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. This information is shown on Plate 3-2 and page 3-11 (Section 3.2.10) of the MRP.

Compliance

Applicant complies with this section.

Stipulations

None.

UMC 817.160-.166 Roads: Class II

Existing Environment and Applicant's Proposal

The mine access road is used for men and material access to the west portals and is approximately 530 feet long. This road is bermed for safety and runoff control. There is another access road that leads to the old east portals. The road is used less than once per day because the portals are still used for intake air. This road is 1,150 feet long. (This information is shown on Plates 3-1 and 3-2, page 3-11.) The Southwest Lease road (pages

*How does this relate to requirements of UMC 817.162(a)(2) and (1)?*

3-8 to 3-10, Southwest Lease MRP) is approximately 1,200 feet long and leads to the new upper portal area from the lower mine area. This road is designed with a 12 percent vertical grade, will be gravel surfaced, with a three foot high berm on the outside of the roadway. The mine access road and Southwest Lease road are, and will continue to be, maintained in such a manner that the approved design criteria are met throughout the life of the facility.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.170-.176 Roads: Class III

Not applicable.

UMC 817.180 Other Transportation Facilities

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. There are no railroads in the Gordon Creek #2 Mine area. The transportation facilities are shown on Plate 3-2, page 3-11 of the MRP.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.181 Support Facilities and Utility Installations

Existing Environment and Applicant's Proposal

The support facilities required to operate the underground mine are shown on Plate 3-1. The central facility includes an office, bathhouse, supply building and fan building. The project has a substation and receives its power from Utah Power & Light Company.

Compliance

The applicant complies with this section.

Stipulations

None.

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